July 1, 1947. G. A. FASOLD ET AL 2,423,302

LAP JOINT PREPARED ROOFING

Filed Sept. 18, 1944 2 Sheets-Sheet 1

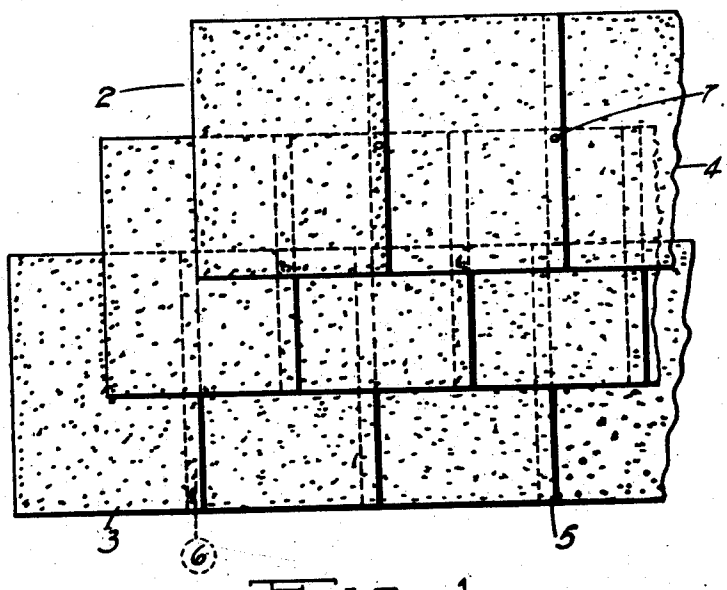


FIG. 1

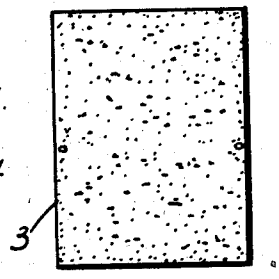


FIG. 2

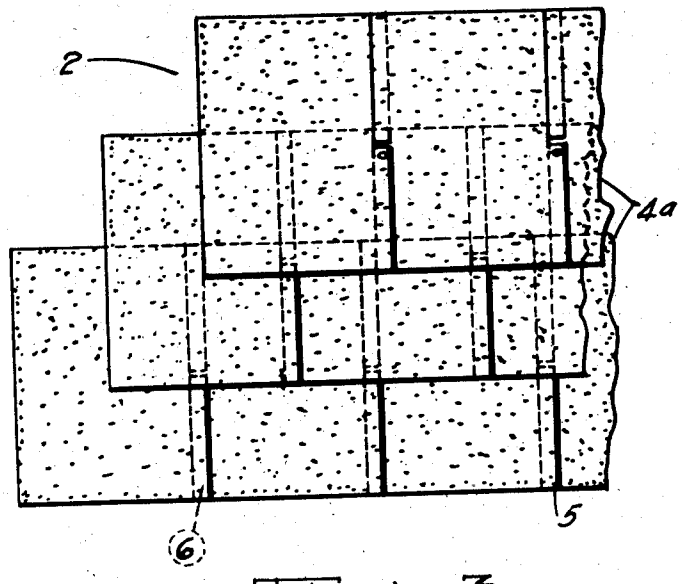


FIG. 3

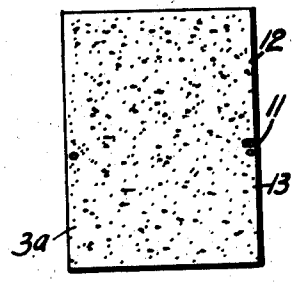


FIG. 4

INVENTORS.
George A. Fasold.
Walton V. Leibrook
BY
ATTORNEY.

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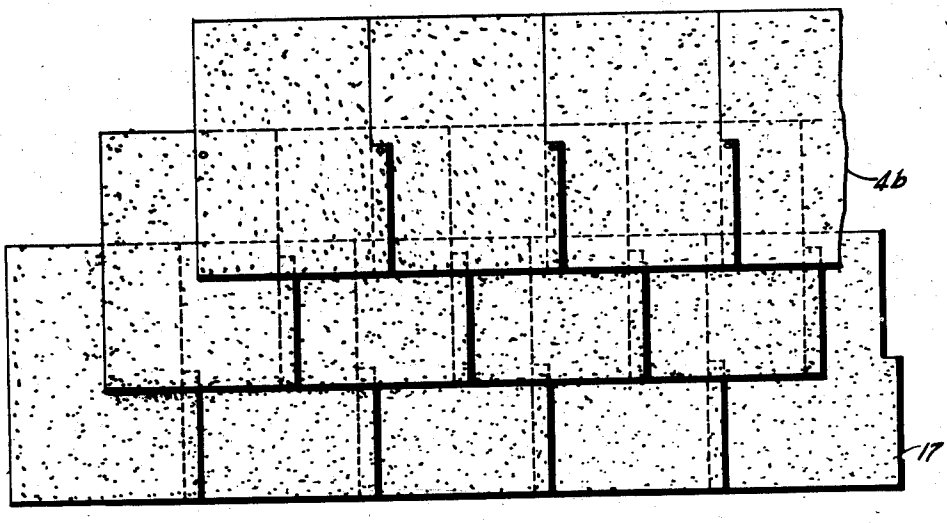


FIG. 5

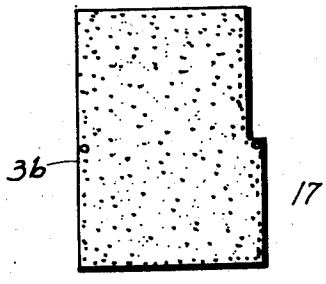


FIG. 6

INVENTORS.
George A. Fasold.
Walton V. Leibrook.
BY
ATTORNEY.

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UNITED STATES PATENT OFFICE

2,423,302

LAP JOINT PREPARED ROOFING

George A. Fasold, Mount Healthy, and Walton V. Leibrook, Hamilton, Ohio, assignors to The Philip Carey Manufacturing Company, a corporation of Ohio

Application September 18, 1944, Serial No. 556,100

1 Claim. (Cl. 108—7)

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This invention pertains to roofing comprising prepared asphalt shingles or units laid in overlying and underlying courses with the adjacent shingles or units in the courses overlapped at the side edges of the weather exposed tabs in order to provide maximum coverage for the roof deck by the roofing of the weather-exposed joints between adjacent shingles or units.

The invention, while adapted generally for prepared asphalt shingles or units of other asphalt compositions, is particularly useful for shingles or units made in accordance with U. S. Patents 2,326,723 and 2,326,724 which have high fire-resistant qualities and are constructed to withstand certain fire tests of the Underwriters' Laboratories, Inc.

Thus, in U. S. Patent 2,326,723 it is disclosed that shingles embodying the invention of that patent can be made such that when applied so as to provide two layers (double coverage of the roof deck) the roof covering will successfully pass the class B fire retardant tests prescribed by Underwriters' Laboratories, Inc. Furthermore, if the fire retardant shingles made in accordance with the above mentioned patent are applied so as to provide a three layer covering on the roof deck, the roof covering will successfully withstand the most severe fire retardant tests prescribed by Underwriters' Laboratories, Inc., namely, the class A fire retardant tests. The fire retardant shingles embodying the invention of the above mentioned patent are of about the same weight as ordinary asphalt shingles now on the market and can be made at no higher cost. The minimum weight of fire retardant bituminous coating material carried by fire-resistant roofing material made in accordance with the above mentioned patent is prescribed as 20 pounds per 100 square feet.

Tests made by Underwriters' Laboratories, Inc. have revealed that the most vulnerable area in any shingle type roof covering, in respect to failure in their fire retardant tests, is at the vertical side joints where the adjacent shingles in a course are adjacent. In a two layer covering, for example, there is in this joint area only a single layer of continuous covering, with a second layer that is discontinuous at the joint and which therefore does not provide coverage and protection so effectively. In a three layer covering there are only two complete layers and the third layer (the weather-exposed layer) contains the joints. The present invention is addressed to eliminating this weakness of shingle roof coverings and providing an extra layer of covering material in the joint area by lapping the side edges of the shingles in a course.

When the adjacent shingles or units of a course are laid in abutting or spaced-apart relation, there necessarily are joint spaces therebetween.

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The edges of adjacent shingles are seldom true and do not contact throughout the length of the joint even if they are laid in abutting relation. As a result, there are joint spaces of varying widths between adjacent shingles, depending upon how closely the shingles are laid edge to edge in the courses. Even where the adjacent shingles are closely laid in abutting relation, it has been the usual practice to cut away a side edge portion of the weather exposed tabs to simulate wider spacing of the shingles as in the laying of wood shingles. Such cutting away of the shingle removes material and increases the width of the spaces and weakens their fire resistance. The spaces also provide a flue or draft channel, and in addition to the fact that less coverage is obtained at the joints, the joints are the weakest and most vulnerable points both as to weather and fire protection.

It is, therefore, the aim of the present invention to provide a shingle which when laid adjacent in courses will give maximum rather than minimum coverage and protection at the joints. The side joints are arranged so as to be lapped, thereby providing when applied as a two layer covering, full double coverage at the joints as well as at least double coverage in the rest of the area resulting from the lapping of the courses. In this case, the joint has actually triple covering of roofing material. With the shingles laid in courses with sufficient weather exposure to provide a roofing of triple coverage, there will be four layers of roofing material at the joint except in the embodiment where the side edge of the shingle is provided with a notch, in which case there is triple coverage in the notch area. In other words, there will be one more layer of roofing material at the joints rather than one less layer as heretofore for a roofing having two or more layers resulting from application as overlying and underlying courses.

For a better understanding of the invention, reference may be made to the accompanying drawings in which:

Fig. 1 is a plan view of a section of roofing embodying the invention with the shingles applied to provide two layers of covering;

Fig. 2 is a plan view of one of the shingles comprising the roofing in Fig. 1;

Fig. 3 is a plan view of a section of a modified form of roofing with the shingles applied to provide two layers of covering;

Fig. 4 is a plan view of one of the shingles comprising the roofing in Fig. 3;

Fig. 5 is a plan view of a section of another modified form of roofing with the shingles applied to provide two layers of covering; and

Fig. 6 is a plan view of one of the shingles comprising the roofing in Fig. 5.

Referring to the drawings in which like nu-

merals are used to designate like parts, numeral 2 (Figs. 1 and 2) designates a section of roofing composed of asphalt shingles 3 laid in overlying and underlying courses 4 with one of the side margins 5 of the shingles lapped with the opposite side margins 6 of corresponding adjacent shingles. Preferably the right side marginal edge of one shingle is lapped over the left side marginal edge of an adjacent shingle, but it would, of course, be within the scope of the invention to overlap the left side marginal edge and underlap the right side marginal edge. A nail 7 is preferably driven through the lap in order that one nail may serve to secure opposite sides of the shingle to the roof deck. The nailing is placed in the area which is to be covered by the overlying course in order to protect and conceal the nailing.

A starting course (not shown) of the same type of shingles may be used for the first or eave course, and in the starting course the shingles may be abutted or lapped in the same manner as the other shingles, above shown. The shingle shown is what is known as a 12 inch individual shingle, and a starting course may be provided by double layers in the eave or bottom course or cutting the shingle into smaller units for a starting course beneath the bottom or eave course.

The shingles are laid in courses with a weather exposure of about four to six inches so that no less than double layer coverage is provided at all points and triple layer coverage at the lap joints. For maximum fire resistance and weather durability it is preferable that there be no less than triple coverage at all points of the roof covering and for three layer covering the starting or eave course should be applied so as to provide triple coverage in all layers down to the eave. With three layer application of the shingles there are four layers of roofing material in the lapped joint area.

Figs. 3 and 4 show overlying and underlying courses 4*a* composed of shingles 3*a*. The shingles are provided with a notch or cut-out 11 on one side, preferably the right side, to form upper extensions 12 and lower extensions 13. The non-notched side edge is inserted in the notch or cut-out 11 of an adjacent corresponding shingle with the upper extension 12 underlapped and the lower extension 13 overlapped. Except within the area of the notch or cut-out, the lap edges provide triple coverage. The notch or cut-out is formed above the weather-exposed portion of the shingle and thus is covered by the weather-exposed tab of an overlying course. Nailing means 7 is provided as in the embodiment of Figs. 1 and 2.

Figs. 5 and 6 show overlying and underlying courses 4*b* composed of shingles 3*b* having an extension 17 formed on one marginal side edge of the weather-exposed tab. The extension extends above the weather-exposed tab in order that a lap joint may be provided throughout between adjacent weather-exposed tabs and a slight distance thereabove to allow nailing in the lap joint above the weather-exposed portions.

The roofing, as above stated, is one comprising underlying and overlying courses of shingles or like units with weather exposure of the courses such that no less than double coverage throughout is obtained, and is not to be confused with a sheet roofing such as ordinary asphalt roll roofing which provides a roofing layer of single thickness except for double thickness at the lapped joints.

It will be seen that all of the above types of shingles are of a construction to provide lap joints throughout between the weather-exposed tabs of adjacent shingles. Lap joints may or may not be provided between adjacent shingles above the weather-exposed tabs. Some of the disclosed types of shingles provide for this if desired. It is important that lap joints be provided between the weather-exposed tabs of adjacent shingles to afford improved fire retardant properties and enhanced weather durability.

The 12 inch shingles usually are laid with a five inch tab exposure in order to obtain double coverage throughout and have triple coverage at the lapped portions. With a four inch or less tab exposure, triple coverage throughout can be obtained.

For triple coverage, however 16 inch long shingles are usually employed and laid with a five inch exposure. A starting course with six inch shingles is first laid. This is overlaid with another course of 11 inch shingles, and then a layer of 16 inch shingles is overlaid for the eave course, as shown in the drawings, and then the other course is laid with a five inch exposure.

We have found that shingles embodying the present invention are better able to withstand the fire retardant tests prescribed by Underwriters' Laboratories, Inc. by reason of the additional protection afforded to the vulnerable areas by the lapped joints of the side edges of the weather-exposed tabs of the shingles. Thus, shingles made in accordance with U. S. Patent 2,326,723, but which are too light in weight or which have too thin a coating of the fire-resistant coating composition to pass the class B test for a two layer covering or the class A test for a three layer covering when applied in the usual manner, are enabled to pass these tests successfully when the shingles are constructed and applied in the manner disclosed in this application.

We claim:

A prepared asphalt roofing comprising overlying and underlying courses of highly fire resistant flat shingles which have head lap portions laid with the side edges in abutting relation and have weather exposed portions wider than the head lap portions to provide side lap joints between adjacent shingles and extending into the head lap portions, and nailing means applied to the side lap joints in the portions which extend into the head lap.

GEORGE A. FASOLD.
WALTON V. LEIBROOK.

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