March 8, 1932. T. D. MILLER 1,848,965

ROOF COVERING

Filed Nov. 19, 1929

FIG. 1.

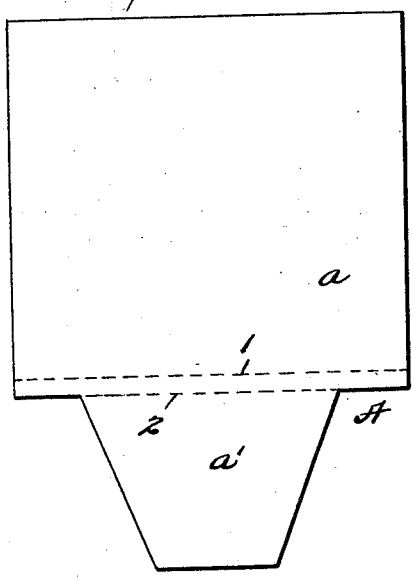


FIG. 2.

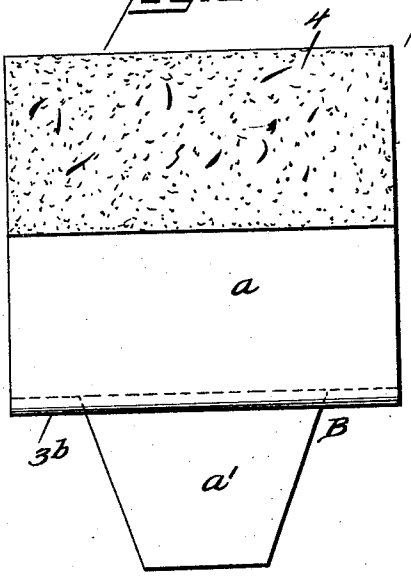


FIG. 3.

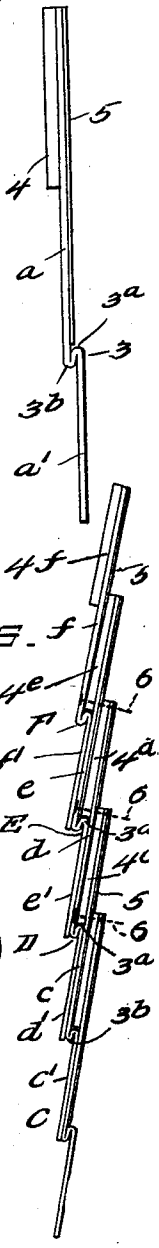
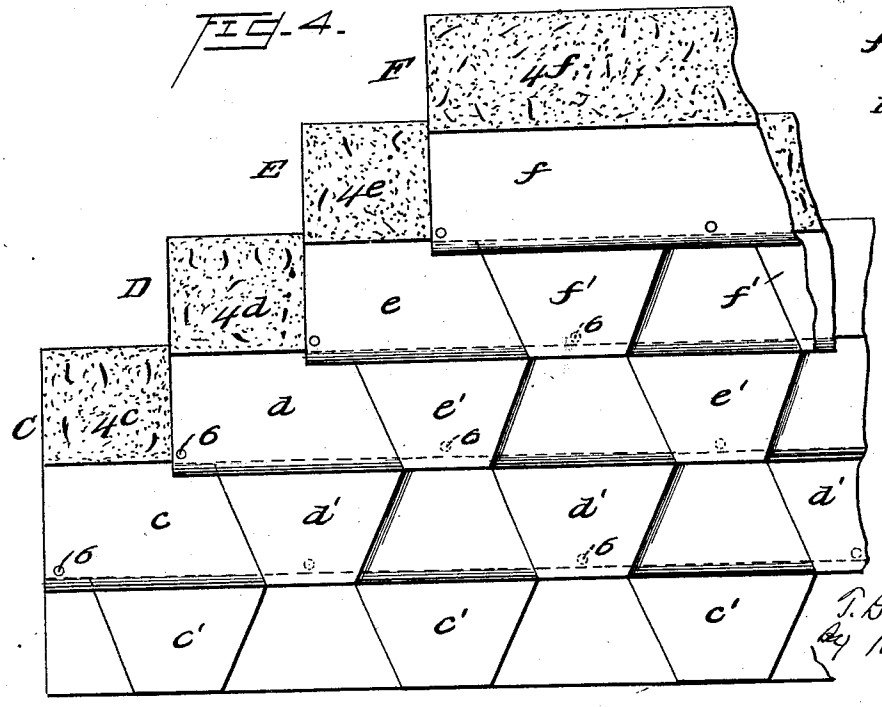


FIG. 4.



Inventor
T. D. Miller
by Robert Worthington
Attorney

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UNITED STATES PATENT OFFICE

THOMAS DENTON MILLER, OF CLARKSVILLE, MARYLAND

ROOF COVERING

Application filed November 19, 1929. Serial No. 408,291.

This invention relates to shingles designed to provide heat insulation when assembled in a roof covering, and also to give desired architectural effects. The body of the shingle is preferably made from composition material in sheet form, and this is cut to form shingles of single width or strip shingles, as desired.

The lower part of each shingle, which is the part exposed to the weather, is offset downwardly from the body portion, preferably by forming a reverse bend in the blank extending transversely of the shingle. Upon the upper half of the body of the shingle is adhesively secured a layer of heat insulating material of substantial thickness, and this layer is preferably equal in thickness to approximately the depth of the offset in the shingle. These layers of heat insulating material on the shingles of one row in a roof covering overlap the corresponding layers in the shingles of an adjacent row, so that the insulation extends over the entire roof. The lower edges of the heat insulating layers form shoulders on the upper sides of the shingles and the reverse bends form shoulders on the undersides of the shingles, and in laying the shingles on a roof structure the successive rows are correctly positioned by abutting the reverse bends of the shingles in an upper row against the lower edges of the insulating layers on the shingles of a lower row and nailing through the overlapped layers of insulating material above the reverse bends.

If desired, the underside of the body of the shingle, above the offset, may be covered with a layer of insulating material. This is preferably a thin layer, but it may be of substantial thickness, in which case, the thickness of the insulating material on the upper half of the top side of the shingle will be correspondingly reduced, so that the total thickness of the heat insulating material on the body of the shingle will be aproximately the same as the depth of the offset between the body portion and the underside of the tab or exposed portion of the shingle.

In the accompanying drawings,

Fig. 1 is a plan view of a blank for making a shingle of single width;

Fig. 2 is a top plan view of a complete shingle of single width;

Fig. 3 is an edge view of the same, looking from right to left in Fig. 2;

Fig. 4 is a top plan view of an assemblage of strip shingles made in accordance with my invention; and,

Fig. 5 is an edge view of the same.

Referring to Fig. 1, A indicates a blank comprising a relatively thin sheet of composition roofing material consisting of a rectangular body portion a and a tab portion a'. In forming the shingle, the lower end of the body portion is folded under the body portion along a line 1 and the tab portion is then bent in the reverse direction along a line 2 at its juncture with the body portion. Thus, as shown in Fig. 3, a reverse bend 3 is formed in the blank and this offsets the tab portion a' downwardly from the body portion a so that these portions lie in different parallel planes. A strip of insulating material 4 is adhesively secured to the body portion and covers the upper half of said portion. This insulating material is preferably cork and is of substantial thickness. A thin layer 5 of heat insulating material may also be applied to the entire undersurface of the body portion or panel a. The bend along the line 1 of the blank forms a shoulder 3^a, as shown in Fig. 3, and the distance from this shoulder to the upper edge of the shingle is approximately twice the width of the insulating strip 4. The heat insulating material on the shingle is equal in thickness to approximately twice the thickness of the sheet material from which the shingle is formed.

In Figs. 4 and 5, I have shown an assemblage of strip shingles C, D, E and F, each shingle having tabs equally spaced apart and offset downwardly from the body portion of the shingle by a reverse bend and each having a heat insulating strip extending along and covering the upper half of the body portion. The body portion of each of these shingles may also have a thin sheet of heat insulating material covering its underside. In Fig. 4, the tabs of the shingles are equally

spaced apart. The body portion of the shingle C is indicated at c, the tabs are indicated at c', and the heat insulating strip is indicated at 4^c. Similarly, the body portion of the shingle D is indicated by the reference character d, the tabs are indicated by the refenence character d', and the heat insulating strip of this shingle is indicated at 4^d. The body portion, tabs and heat insulating strip on the shingle E are indicated at e, e', and 4^e, respectively, and the body portion, tabs and strip of heat insulating material on the shingle F are indicated at f, f', and 4^f, respectively.

In laying the shingles, the shingle D will be placed upon the shingle C with the shoulder 3^a of the shingle D abutting against the lower edge of the insulating strip 4^c on the shingle C. The next shingle E will be laid upon the shingle D with the shoulder 3^a of the shingle E abutting against the lower edge of the insulating strip 4^d on the shingle D, and the successive layers will be applied in the same manner, the shoulder 3^a on an upper shingle abutting against the lower edge of the insulating strip on the next lower shingle. When so laid, it will be apparent from an inspection of Figs. 4 and 5 that the insulating strips on the upper halves of successive shingles will overlap one another and in nailing the shingles to the roof timbers, the nails 6 will be driven through these overlapping portions, as shown in Fig. 5. Thus, when a shingle, as E, has been properly positioned over another shingle, as D, a nail will be driven through the body portion of the shingle E immediately above the reverse bend 3^a and this nail will pass through the lower part of the insulating strip 4^d on the shingle D and through the upper part of the strip 4^c on the shingle C. In applying strip shingles, these nails will be located so that the tabs on the shingles will cover and protect the nails, as shown in Fig. 4.

It will be seen that when a roof covering is laid either with the shingles of a single width or with strip shingles, three layers of heat insulating material will cover the entire roof. It is possible to apply a substantial thickness of heat insulating material to the upper surfaces of the shingles because of the downward offsetting of the tabs or exposed portions of the shingles. The layer of heat insulating material on the underside of the body portion may be omitted, or it may be very thin or of substantial thickness. If made thick, the layer on the front side will be made correspondingly thinner, so that the total thickness of this material will be approximately equal to the two layers of sheet material forming the reverse fold. Preferably, the layer of heat insulating material on the upper side of the shingle is substantially as thick as the layers of sheet material forming the reverse bend, to form a shoulder against which the reverse bend on a superposed shingle may be placed in laying the shingles on a roof.

The forms of the tab portions of the shingles may be varied to suit the architectural design desired. Thus, they may have converging side edges, as shown in the drawings, or they may have parallel sides as shown in the drawings of my co-pending application Serial Number 278,021; filed May 15, 1928. In all cases, however, the nails will be located so that the tabs cover the heads of the nails to hide them from view and protect them from the weather. The reverse bends in the shingles give a desired architectural effect, in that the assembled shingles have the appearance of substanttial thickness along the lines of these bends, and these bends, together with the lower edges of the insulating strips, prevent water from being driven up under the shingles.

The heat insulating material on the undersides of the shingles is preferably of asbestos felt, making the roof covering fire-resistant from the underside, and the exposed parts of the upper surfaces may be metallized, as by coating with a thin layer of copper, making the covering fire-resistant from its outer side. With these improvements, a roof covering can be made which will be fire-resistant, flexible, double-thick and heat insulated at little advance over the cost of making a covering with strip shingles of single thickness.

What I claim is:

1. A shingle composed of sheet material having a tab portion offset downwardly from the body portion and having a layer of material of substantial thickness covering the top surface of the upper half of the body portion, the lower edge of said layer terminating aproximately midway between the upper and lower ends of said portion.

2. A shingle composed of sheet material having a tab portion offset downwardly from the body portion and having a layer of material substantially equal in thickness to the depth of the offset covering the top surface of the upper half of the body portion, the lower edge of said layer terminating approximately midway between the upper and lower ends of said portion.

3. A shingle composed of sheet material having a tab portion offset downwardly from the body portion and having a layer of heat insulating material of substantial thickness covering the top surface of the upper half of the body portion, the lower edge of said layer terminating approximately midway between the upper and lower ends of said portion.

4. A shingle composed of sheet material having a tab portion offset downwardly from the body portion and having a layer of heat insulating material substantially equal in thickness to the depth of the offset covering

the top surface of the upper half of the body portion, the lower edge of said layer terminating approximately midway between the upper and lower ends of said portion.

5. A shingle composed of sheet material having a tab portion offset downwardly from the body portion and having a thin layer of heat insulating material covering the underside of the body portion, only, and a layer of heat insulating material of substantial thickness covering the top surface of the upper half of the body portion, the lower edge of said latter layer terminating approximately midway between the upper and lower ends of said portion.

6. A shingle composed of sheet material having a tab portion offset downwardly from the body portion by a reverse bend, and having a layer of material of substantial thickness covering the top surface of the upper half of the body portion, the lower edge of said layer terminating approximately midway between the upper and lower ends of said portion.

7. A shingle composed of sheet material having a tab portion offset downwardly from the body portion by a reverse bend, and heat insulating material covering the top surface of the upper half of the body portion and its lower edge terminating approximately midway between the upper and lower ends of said portion, the thickness of the insulating material being approximately equal to twice the thickness of said sheet material.

In testimony whereof I affix my signature.

THOMAS DENTON MILLER.