Jan. 8, 1929. 1,698,267

L. KIRSCHBRAUN

METALLIC SURFACED ROOFING AND PROCESS OF MAKING SAME

Filed Dec. 26, 1922

Fig. 2.

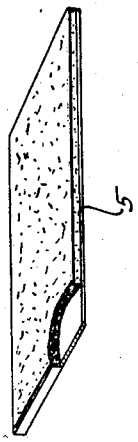


Fig. 1.

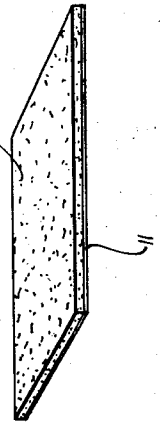
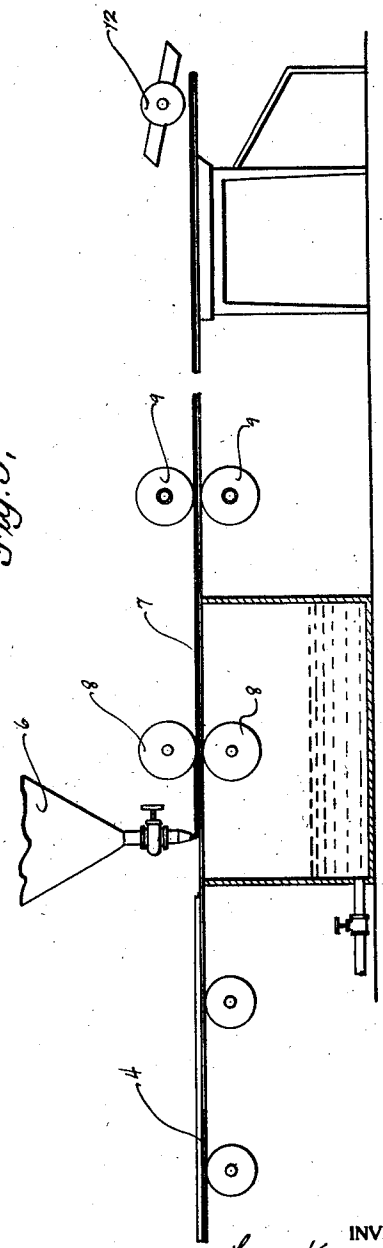


Fig. 3.



INVENTOR
Lester Kirschbraun
BY
Pennie, Davis, Marvin & Edmonds
HIS ATTORNEYS

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UNITED STATES PATENT OFFICE.

LESTER KIRSCHBRAUN, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO ANACONDA SALES COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

METALLIC-SURFACED ROOFING AND PROCESS OF MAKING SAME.

Application filed December 26, 1922. Serial No. 608,885.

This invention relates to a metallic surfaced roofing and refers more particularly to a prepared roofing having a metallic surfacing and backed with a bituminous composition having waterproofing characteristics.

Among the salient objects of the invention are to provide a roofing which is more weather resistant than the plain felted material coated with bituminous or asphaltic substance, roofing which is more rigid in character and will not curl or warp due to varying weather conditions, and in general to provide a product of the character referred to.

In the accompanying drawings I have illustrated my improved roofing material, together with the apparatus by which it may be produced, and in these drawings,

Fig. 1 is a view in perspective of one form of the roofing,

Fig. 2 is a view in perspective of another type, parts being broken away to show the construction more clearly, and

Fig. 3 is a diagrammatic view of apparatus for carrying out the process of making these roofing elements.

Disclosing now the process for making a roofing of this character, an emulsion is first mixed consisting of a bituminous or asphaltic substance which is heated to liquid condition and combined with clay and water to form a bituminous emulsion having the adhesive bituminous particles in the internal phase surrounded by films of non-adhesive emulsifying agent in an aqueous vehicle such as that described in detail in my Patent No. 1,302,810 issued May 6th, 1919.

This emulsion is mixed with a fibrous material such as asbestos or waste paper stock in such proportions as to produce a plastic and easy spreading composition. The mastic substance on a dry basis comprises approximately 70 parts of asphalt, 20 parts of clay and 10 parts by weight of fibre. These components may of course, be varied according to the character of the sheet it is desired to produce and variations may also arise due to the character of the bitumen employed.

Referring now to these drawings, a weather resistant metal sheet 4 having upturned lateral edges 5, shown more clearly in Fig. 2, is fed beneath the reservoir 6 containing the emulsion composition and the composition spread in a uniform layer 7 on the space between the upturned edges of the metal sheet. In order to show more clearly the action of the rolls, the upturned edge on the sheet 4 has been broken away in Fig. 3.

The combination is then passed between pressure rolls 8, 8 in order to compact the composition to a uniform density. The sheet is passed thence to hot board rolls 9, 9 where the heat serves to dry out the moisture and cause the composition to assume an adhesive condition and fixedly adhere to the metal.

The final products, as shown in Fig. 1, consists of an asphaltic base 10 containing a fibrous substance intimately incorporated therein, and the surface of the sheet being covered or having fixedly adhering thereto, a sheet 11 of weather resisting metal. In Fig. 1 the element is illustrated with the asphaltic base material uppermost for the sake of clearness, but it is to be understood that when the element is laid in place on the roof the asphaltic material lies underneath and the metallic layer is exposed to the weather. In Fig. 2 there is shown an element in which the edge 5 of the metal is turned at an angle to the metal sheet so as to cover the end of the asphaltic layer. This element is one formed by cutting the main sheet lengthwise and crosswise, and it is to be laid in place on the roof with the metallic edge 5 at the exposed end of the element. In this way the metal covers the exposed face of the element and the exposed end.

Any weather resisting metal, such as copper, zinc, aluminum or lead may be employed.

The sheet after running over board rolls may be cut by cutting devices such as are diagrammatically indicated at 12 in Fig. 3 into any desired configuration to form single shingle units, as shown in Figs. 1 and 2, or strip shingles of any desired character as, for example, those having the shape and size of the three or four unit shingles. The thickness of the metallic surfacing may vary according to the requirements of the roofing desired, but sheets ranging from .003 to .005 inches are sufficient to endure for a considerable period of years. Roofing of this character has not only the advantage of a bituminous prepared roofing, but also the weather resisting qualities of the metal. The metal

also gives it rigidity that is not present in the prepared bituminous shingle made with felt or fibrous base.

I claim as my invention:

1. A method of making roofing elements which comprises forming up-turned lateral flanges along opposite edges of a weather-resistant metallic sheet, moving the sheet lengthwise in a direction parallel to the flanges and, while it is in motion, continuously distributing a waterproof bituminous mastic in a plastic condition over the face of the sheet between the flanges, subjecting the sheet and mastic to pressure to compact the mastic to form a layer of uniform density, and subjecting the sheet and layer to heat to cause the layer to adhere to the metal.

2. A roofing unit comprising a weather-resistant, metallic sheet having a flange extending substantially at right angles to the face of the sheet along one edge thereof, and a body of dried and hardened bituminous mastic including an emulsifying agent and a fibrous material affixed to the face of the sheet from which the flange extends, the width of the flange being sufficient to afford substantial protection to the edge of the body with which the flange is in contact.

3. A method of making roofing material which comprises placing a weather-resistant metallic sheet in motion endwise and, while the sheet is moving, distributing over one surface thereof a waterproof mastic including a bituminous emulsion in intimate mixture with a fibrous material, subjecting the moving sheet with the mastic thereon to pressure to distribute the mastic material evenly and to compact it to form a layer of uniform density, and thereafter subjecting the sheet with the mastic thereon to heat and pressure to expel the moisture from the mastic and cause the latter to fixedly adhere to the mastic sheet.

LESTER KIRSCHBRAUN.