March 27, 1934. N. P. HARSHBERGER 1,952,754

ROOFING MATERIAL AND PROCESS FOR MAKING SAME

Filed May 14, 1931

Fig. 1.

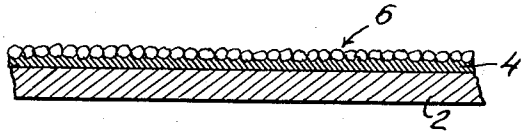


Fig. 2.

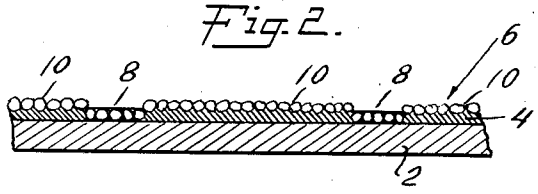
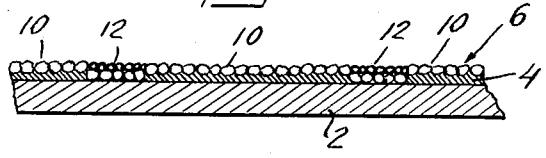


Fig. 3.



INVENTOR
Norman P. Harshberger
BY Fales Sibley
ATTORNEY

Patented Mar. 27, 1934 1,952,754

UNITED STATES PATENT OFFICE

1,952,754

ROOFING MATERIAL AND PROCESS FOR MAKING SAME

Norman P. Harshberger, Scarsdale, N. Y., assignor to The Barrett Company, New York, N. Y., a corporation of New Jersey

Application May 14, 1931, Serial No. 537,325

5 Claims. (Cl. 91—68)

This invention relates to materials such as roofing and siding that are surfaced with granular material and to methods of producing such materials.

Granular surfaced roofing is ordinarily produced by applying a coating of bituminous material such as asphalt or pitch to fabric such as bituminous saturated felt and thereafter applying a surface layer of granular material such as gravel or crushed slag or slate to the bituminous coating and partially embedding the granular material therein. In order to form designs, stripes and shadow effects simulating individual shingles on the surface of the material, methods have been proposed in which the granular surface of the material is subjected to further operations sometimes known as "branding" in which a portion of the granular material is substantially completely embedded in the bituminous coating by heating and softening the coating and pressing the granular material into the same. The bituminous material is thus brought to the surface and exposed to form the desired designs or outlines.

In producing branded roofing, the bituminous material which has thus been exposed and softened tends to stick to the rolls and festooning racks over which the material is passed during its manufacture. The finished material when packed or rolled for storage and shipment also tends to stick to adjacent layers of material. Furthermore, exposing the bituminous material by branding the roofing leaves glossy black lines or areas which reflect light, and hence, distort the pattern or design produced by the branding operation. Consequently, branded roofing does not present the pleasing and attractive appearance presented by roofing material in which adjacent areas are surfaced with contrasting colors or shades of granular material.

I have discovered that these difficulties and objections to the branded type of roofing can be overcome and a product produced, that presents more pleasing and ornamental appearance, by applying to the branded areas wherein the bituminous material is exposed by the branding operations, an additional layer of granular material that differs in color or appearance from the adjacent granular surfaced areas.

Among the objects of my invention are to provide an improved method of making roofing and siding material which overcomes the tendency of material to stick to the rolls and racks over which it is passed during manufacture, to apply granular material to roofing in the form of designs, stripes or areas simulating the spacing or outlines of individual shingles and to produce a new product wherein adjacent areas of the material are of contrasting color or appearance and a product which does not tend to stick to adjacent layers of material when packed in bundles or in rolls. These and other objects and features of my invention will appear from the following description thereof in which reference is made to the accompanying figures of the drawing which illustrate sectional views representing successive stages in the manufacture of one type of material embodying my invention.

The product of my invention may be formed of any suitable material having a surface that is plastic or may be softened by the application of heat or otherwise during the manufacture of the product. I prefer, however, to provide the product with a backing of fabric material such as asphalt saturated felt and the invention as illustrated in the drawing is of this preferred type.

Fig. 1 is a section of the roofing material used in practicing the invention.

Fig. 2 shows the roofing after depressing the grit to form a pattern.

Fig. 3 represents the finished article after applying grit to the pattern.

In Fig. 1 of the drawing, I have shown a section of roofing material provided with a base 2 of fabric such as asphalt saturated felt having a coating 4 of bituminous material applied to the surface of the fabric and a surfacing 6 of granular material such as gravel or crushed slag partially embedded in the layer 4 of bituminous material throughout the surface thereof. This material may be produced by any of the well known processes of manufacture of coated and surfaced roofing products.

The product so produced is then subjected to treatment to soften portions of the bituminous coating and press the granular surfacing material on the softened areas of the bituminous coating into the bituminous layer so as to embed the granular material substantially completely therein throughout such areas. This step of the process may be carried out in any suitable manner, for instance, by the use of heated rolls having raised portions on the surface thereof for engaging the granular surfacing material to heat the underlying bituminous coating and press the particles of gravel or slag into the softened bituminous material. The resulting product then has a cross section such as that indicated in Fig. 2 in which the granular material 6 is embedded in the bituminous coating throughout the areas

8. The granular material in the adjacent areas 10 that has not been pressed further into the bituminous coating remains as in Fig. 1 only partially embedded therein. This step of the process is substantially the same as that employed in the ordinary method of producing branded roofing materials.

I then pass the material shown in Fig. 2, preferably while the bituminous coating material in the areas 8 is still soft, through suitable mechanism for applying additional granular material 12 to the areas 8. The granular material thus applied is partially embedded in the plastic coating that has been exposed by the branding operation, thus forming a surface of granular material over the exposed bituminous material. The granular material 12 may differ in color or appearance from that of the granular material 6 first applied to the bituminous layer so as to present a contrasting color appearance between adjacent areas of the finished product. The finished product has an appearance in cross section as shown in Fig. 3 in which the granular material 12 is shown as being finer than the granular material 6 first applied to the bituminous coating and still exposed in the areas 10 between the branded portions of the material. The granular material 12 may be of the same mesh characteristics and appearance as granules 6 but preferably colored sand or other relatively fine granular material is utilized. The granular surfacing 12 adheres to the bituminous material brought to the surface by the branding operation and thus presents a surface that will not stick to the rolls and racks over which it is passed during manufacture and will not tend to stick to adjacent layers of material during storage or shipment of the same. By using fine material in the last operation for coating the bituminous material exposed by the branding operation, I may produce a product that is of substantially uniform thickness throughout so that the material can be packed in roll form or laid flat without presenting raised or depressed areas. In a typical example the granular material 6 first applied to the coating of bituminous material may be of such size that from 90% to 95% will pass through a 10 mesh screen, and preferably, not over 60% will pass a 20 mesh screen, whereas the granular material 12 may be sufficiently fine to allow from 95% to 100% to pass through a 20 mesh screen, and from 20% to 30% to pass a 35 mesh screen.

The use of relatively fine granular material for the second surfacing, as compared with that used for the initial surfacing, is an important feature of my invention. The fine material, I have found, due to its finely divided character, adheres to the bituminous material which is brought to the surface by pressing the granular material initially applied into the bituminous coating.

The particular design or color and size of the surfacing material applied to the bituminous coating is, of course, subject to wide variation. If desired, the branded areas to which the additional granular material is applied, may represent the spacing of individual shingles or they may be more extended so as to represent individual shingles themselves.

It will be noted that in accordance with this invention, the asphalt coating is brought up about the granular particles first applied, and forced thereinto by the branding operation. The granular material applied after the branding operation is partially embedded in the cementitious asphalt thus brought up. Hence, the coating of asphalt or other bituminous material is utilized to bond the relatively coarse and fine granules to the felt base and a saving of asphalt is effected as compared with prior processes involving the application of a second coating of asphalt to surfaced roofing and then the surfacing of the second coating with granular material. Furthermore, the application of non-reflecting granular material to the branded portions dulls the surface thereof and sharply defines contrasting portions of the design or pattern, thus imparting a pleasing and artistic appearance to the roofing.

While I have described the invention as employed in the manufacture of roofing having a fabric backing, the invention is also applicable to roofing made of mastic compositions the surface of which can be softened or rendered sticky so as to cause the additional granular surfacing material applied thereto to adhere in the form of designs of the desired configuration.

I claim:

1. The method of manufacturing roofing material which comprises applying granular material to the surface of a base of plastic material, embedding the granular material on the surface of the plastic material substantially completely therein throughout selected areas thereof by applying heat and pressure to such selected areas and applying and partially embedding additional granular material on said areas of the plastic material wherein the granular material first applied has been substantially completely embedded, the additional granular material so applied being of such fineness as compared with the fineness of the first-mentioned granular material that the surface of the roofing lies in a substantially horizontal plane.

2. The method of manufacturing roofing material which comprises applying a coating of bituminous material to a sheet of bitumen saturated felt, applying a substantially uniform layer of granular material to the surface of the bituminous coating, heating and softening areas of the bituminous material, embedding said granular material substantially completely in the bituminous coating throughout the heated and softened areas thereof to expose the bituminous coating in the form of a design and to move the granular material in the heated areas into the underlying coating beneath the lower plane surface of said layer of granular material, and applying additional granular material differing in appearance from the granular material first applied to said bituminous coating throughout the areas wherein the granular material first applied has been substantially completely embedded, said additional granular material so applied being of such fineness as compared with the fineness of the first-mentioned granular material that the surface of the roofing lies in a substantially horizontal plane.

3. Roofing material comprising a layer of bituminous material surfaced with granular material, said granular material being partially embedded in the bituminous material throughout areas thereof and depressed so as to be substantially completely embedded in the bituminous material throughout other areas thereof said embedded granular material lying in a substantially different horizontal plane within the roofing from the plane in which the partially embedded granular material lies, those areas of the roofing material wherein the granular material is substantially completely embedded having additional granular surfacing material of contrasting appearance par-

tially embedded therein, the additional granular material being of such fineness as compared with the first-mentioned granular material that the exposed face of the roofing lies in a single plane.

4. Roofing material having a coating of bituminous material applied to a base of bituminous saturated felt, areas of said bituminous coating being provided with a plurality of superimposed layers of granular material of contrasting color, the lower one of said layers being forced into the bituminous layer a sufficient distance to be substantially completely embedded therein and the upper layer being partially embedded in the bituminous material, the upper layer completely covering the roofing and imparting a substantially plane surface thereto.

5. Roofing material comprising a layer of bituminous material surfaced with granular material, said granular material being of such size that not over 60% passes through a 20 mesh screen and being partially embedded in the bituminous material throughout areas thereof and depressed so as to be substantially completely embedded in the bituminous material throughout other areas thereof, those areas of the roofing material wherein the granular material is substantially completely embedded in the bituminous material having additional granular surfacing material of contrasting appearance and of such size as to allow from 95% to 100% to pass through a 20 mesh screen and from 20% to 30% to pass through a 35 mesh screen, partially embedded in the bituminous material, said additional granular surfacing lying in substantially the same horizontal plane as the first-mentioned granular material which is partially embedded in the bituminous material throughout areas thereof.

NORMAN P. HARSHBERGER.