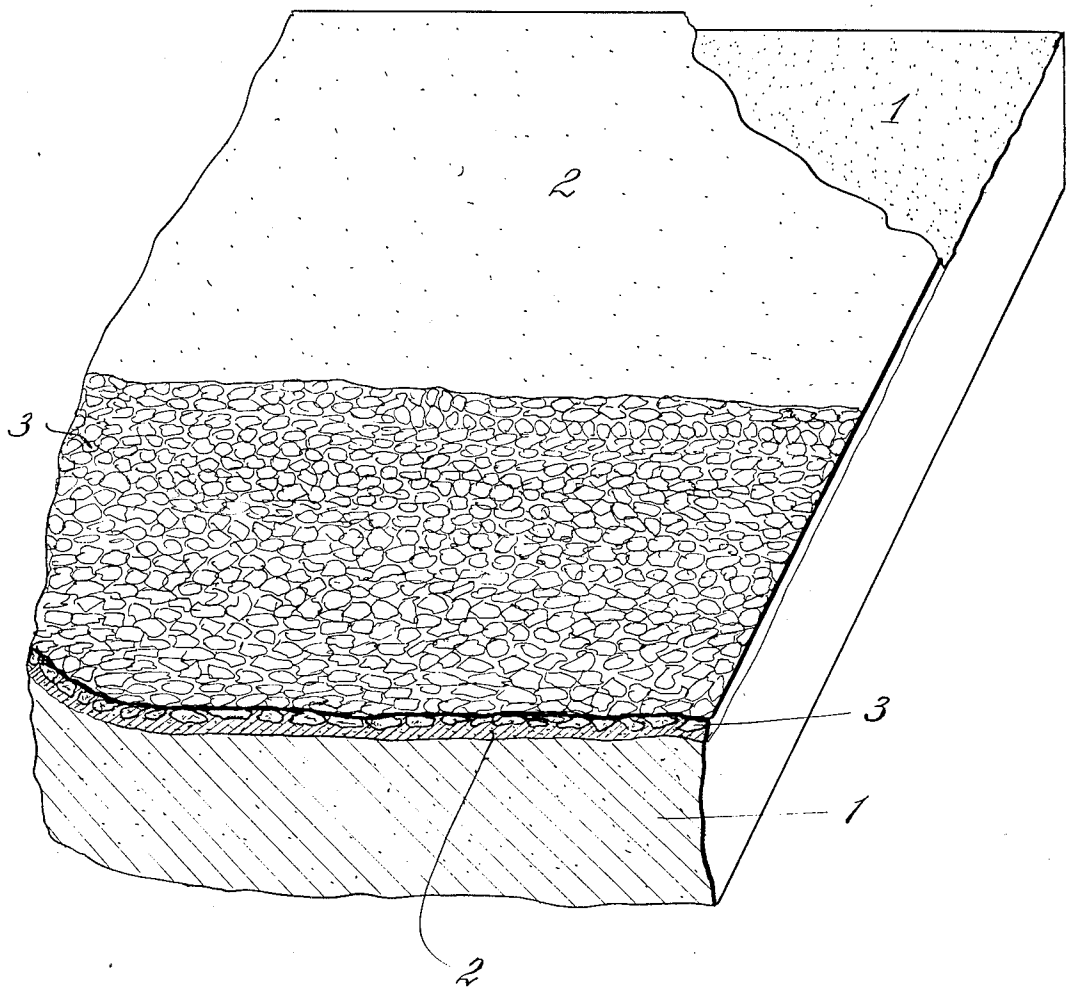
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ASBESTOS CEMENT SHINGLE

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INVENTOR
HERBERT ABRAHAM,

BY

ATTORNEY

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HERBERT ABRAHAM, OF NEW YORK, N. Y., ASSIGNOR TO THE RUBEROID CO., OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY

ASBESTOS-CEMENT SHINGLE

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This invention relates to improvements in the manufacture of asbestos-cement shingles and the like.

Asbestos-cement shingles are composed principally of hydraulic or Portland cement, together with asbestos fibres. The material is formed into sheets or slabs of the required thickness and cut into pieces of the form and size desired for the completed shingle.

Roofs made of ordinary asbestos-cement shingles have a drab appearance due to the characteristic dull gray color of the natural cement. Because of this, some builders and architects object to their use.

Various attempts have been made to improve the appearance by treating the shingles with coloring substances. These efforts have been unsatisfactory because not only does the applied color give the shingles a flat appearance, but also the substances usually employed do not produce fast colors, that is colors which will withstand the action of weather, sunlight, and rain to which they are exposed in use.

In order to overcome these difficulties, it has been proposed to color asbestos-cement shingles with granular particles of naturally colored slate. According to that proposal, the colored slate particles are embedded under pressure in the surface of the shingle while the cement is in a plastic or softened condition.

It is, however, extremely difficult to completely surface the shingle with mineral particles. No matter how large a quantity is used, a part of the cement is always squeezed up around each particle, thus forming unsightly specks or blotches on the surface, giving the shingle a decidedly "mangey" appearance. If an insufficient amount is applied, then the mangey appearance is exaggerated. On the other hand, if a slight excess be applied, the particles are apt to be crushed to powder when the shingles are subjected to hydraulic pressure. It is most difficult to obtain an exact balance.

The principal objects of the improvements are to overcome the objectionable effect resulting from the obtrusion of the displaced cement around the particles, and to provide a cement shingle of improved character and enhanced ornamental appearance which shall have a permanently and uniformly colored weather surface composed of colored grout and mineral particles.

The improvements furthermore effect an economy in cost by minimizing the amount of colored mineral particles that must be used. Since the particles add to the weight of the product, it follows that the smaller the amount that can be used, the lower will be the weight, and hence, the lower the cost. This will become apparent when it is borne in mind that the shingles must be made of a predetermined thickness and weight, regardless of the facing particles, in order to obtain the required strength. The mineral particles merely add to the weight, without increasing the strength.

In the manufacture of the shingles, the surface is generally colored with mineral particles of some pronounced color such, for example, as red or green. At times the particles are mixed with others of a different color, but in such case the mixture itself usually has a predominant color. In carrying out my improvements, I apply to the surface of the shingle, before the mineral particles are embedded therein, a grouting preferably of the same color as that of the mineral particles.

It has been found that unless the mineral particles are applied before the cement has hardened materially they will not adhere, and therefore at times it becomes necessary to soften the surface before applying the mineral facing. According to my improvements, the application of the grout in itself softens the face of the shingle and puts it in suitable plastic condition to receive the mineral particles.

The accompanying drawing, illustrating the invention, is a conventionalized perspective view, on an enlarged scale, of a fragment of a cement shingle with the grouting and the mineral facing partly broken away.

The body 1 of the shingle is formed of a composition consisting principally of hydraulic or Portland cement, together with a proportion of asbestos fibres. In the usual process of manufacture the composition is mixed

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with water in a beater, and the liquid suspension is run onto a rotary mold where it is formed into a hollow cylinder of desired thickness. The cylinder is then split open, removed from the mold, and formed into a flat sheet.

A coating of colored grout 2 is applied to the weather surface of the sheet. The coating is preferably applied immediately after the sheet has been formed, and not only uniformly colors the surface, but also softens and puts it in suitable plastic condition to receive the mineral facing particles 3. After the particles have been sprinkled on the freshly grouted surface, the sheet is cut into pieces substantially of the size and shape desired for the completed shingles, and then subjected to pressure between metal plates in a hydraulic or other suitable press.

The grout consists of hydraulic cement, asbestos fibres, and water in substantially the same general proportions as the composition of which the body of the shingle is made. A small amount of pigment, preferably a mineral pigment, is incorporated in the grout to color the same. The pigment color is selected to harmonize with that of the mineral particles, or with the dominant color of the mixture in the case where the mineral facing is composed of particles of different colors.

The grouting 2 amalgamates with the body 1 to form a homogeneous structure having a uniformly colored plastic surface. The mineral particles 3, consisting of granules of slate or other mineral matter, are embedded in said surface under pressure. This forms a substantially level, uniformly colored facing on the weather surface of the shingle, which facing consists of colored mineral particles with colored grout in the spaces or interstices between the particles.

What I claim is:—

An asbestos-cement slab comprising a body portion composed of hydraulic cement admixed with asbestos fibers, a homogeneous surface grouting composed of hydraulic cement admixed with asbestos fibers and containing coloring matter, and colored mineral particles embedded in said surface in scattered order, said grouting and mineral particles together forming a harmoniously colored facing consisting of colored mineral particles interspersed in a groundwork of colored grouting.

HERBERT ABRAHAM.