UNITED STATES PATENT OFFICE.

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COMPOSITION ROOFING AND PROCESS FOR PRODUCING IT.

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To all whom it may concern:

Be it known that I, WILLIAM A. BILES, a citizen of the United States, residing at Birmingham, in the county of Jefferson and State of Alabama, have invented new and useful Improvements in Composition Roofing and Process for Producing It, of which the following is a specification.

My invention relates to the art of producing a waterproof composition material particularly adapted for roofing, and of such character that it can be spread or applied with a trowel, or molded into tiles or blocks in the improved manner hereinafter described.

My invention consists in the novel article produced by my process and in the process by which the article is produced.

My invention further consists in the novel process by which the composition is treated and subjected to hydraulic pressure in the formation of tiles, blocks, etc.

It is the purpose of my invention to utilize calcined magnesite in powdered form having not in excess of two percent. of carbonic acid with chlorid of magnesium as a binder of from 18° to 22° Baumé, and add to this as a base a powdered or finely crushed mass of inert matter, preferably slate or coal mine tailings, and a water proofing substance of vegetable extraction, preferably resin or vegetable tars or pitches.

In manufacturing my improved roofing I take calcined magnesite which has been treated to reduce the carbonic acid therein to a point not in excess of two percent. and which is preferably in as finely powdered condition as can be obtained and add to this the inert substance which is preferably pulverized slate, though where it is not desired that the roofing be essentially refractory, I may substitute for the slate, coal mine refuse or tailings, but if the roofing is to be essentially refractory, however, I use slate and, if desired, may combine with it crushed or macerated asbestos. To the calcined magnesite and the pulverized inert substance I add a quantity of powdered resin, or, what I consider an equivalent thereof, vegetable tar or pitch. After the magnesite, the inert substance and the resin have been thoroughly mixed dry, I then add a sufficient quantity of an aqueous solution of chlorid of magnesium of from 18° to 22° Baumé, to reduce the mixture to a mastic condition so that it may be spread by a trowel or placed in molds and there formed into tiles or blocks.

The percentage by weight of chlorid of magnesium will be from twenty to twenty-five percent. of the weight of the mass to which it is added as an aqueous solution. The variation in the degrees Baumé is largely dependent upon temperature conditions, the 18° solution being used when the temperature is highest and the 22° solution when the temperature is lowest.

The relative proportions in which the above component parts may be mixed is subject to some variation, but I find the following composition to give satisfactory results: To twenty parts of powdered calcined magnesite in which the carbonic acid does not exceed two per cent., add seventy-five parts of inert matter which may consist entirely of pulverized slate, or tailings (coal mine refuse), or I may use sixty-five parts of pulverized slate and ten parts of crushed or macerated asbestos, the asbestos, however, not being an essential element. To the above elements is added five parts of powdered resin or vegetable tar or pitch and after all have been thoroughly mixed, I add a sufficient quantity of an aqueous solution of chlorid of magnesium to bring the mass to the desired mastic condition, which quantity, as stated above, will vary from twenty to twenty-five per cent. in weight of the mass to which it is added.

In manufacturing the mastic composition as thus formed into tiles, I have found that if the mass be placed in the mold and allowed to remain from two to three hours to permit the chlorid of magnesium and the powdered calcined magnesite to combine and set, and the mass be then subjected to hydraulic pressure, that clear water only will be expressed, leaving the entire quantity of chlorid of magnesium in the block and thus producing a superior article over the process in which an immediate pressing would result in expressing a large percentage of the chlorid of magnesium from the mass.

In the claims appended to this specification, tailings are considered an equivalent of slate, except when the latter is used in combination with asbestos; and vegetable pitch or tar an equivalent of resin. The resultant article, while most adapted for roofing purposes, may be used otherwise.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A novel water-proof composition consisting of twenty parts of magnesite, seventy-five parts of crushed slate, five parts of resin, and chlorid of magnesium in quantity equal to from twenty to twenty-five percent. by weight of the other elements in the composition.

2. The process of manufacturing refractory composition roofing which consists in making a dry mixture of powdered calcined magnesite, pulverized slate, crushed asbestos and powdered resin, treating the said dry mixture with an aqueous solution of chlorid of magnesium of from 18° to 22° Baumé, allowing the mastic composition to remain in the molds until an initial set has taken effect and then subjecting the mass to a heavy pressure in the molds.

3. The herein described process of manufacturing artificial roofing which consists in mixing seventy-five parts of inert matter with five parts of powdered resin and twenty parts of finely powdered calcined magnesite in which the percentage of carbonic acid does not exceed two percent., reducing said dry mixture to a mastic condition by the addition of an aqueous solution of chlorid of magnesium, in a quantity equal to from twenty to twenty-five parts by weight of the other elements and permitting the same to set.

4. The herein described process for manufacturing a refractory composition roofing which consists in making a dry mixture of finely powdered calcined magnesite, pulverized slate, crushed asbestos and powdered resin, reducing the said dry mixture to a mastic condition by the addition of an aqueous solution of chlorid of magnesium, allowing the mastic composition to remain in the molds until an initial set has taken effect and then subjecting the mass to a heavy pressure in the molds.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM A. BILES.

Witnesses:
R. D. JOHNSTON, JR.,
ANNIE L. PEASE.