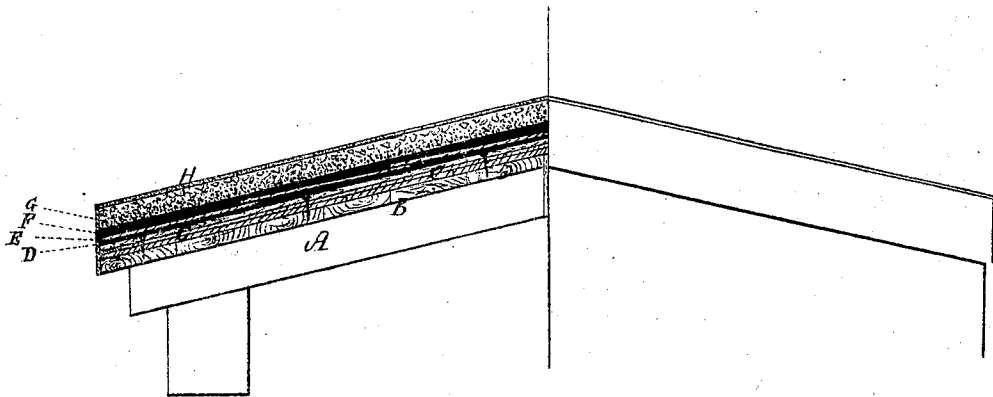


D. W. BAILEY.

Improvement in Composition Roofing.

No. 124,192.

Patented March 5, 1872.



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UNITED STATES PATENT OFFICE.

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IMPROVEMENTS IN COMPOSITION-ROOFING.

Specification forming part of Letters Patent No. 124,192, dated March 5, 1872.

To all to whom these presents shall come:

Be it known that I, DAVIS W. BAILEY, of Hingham, in the county of Plymouth and State of Massachusetts, have made an invention of a new and useful Concrete or Composite Roofing Material and mode of applying the same; and do hereby declare the nature of the same to be described in the following specification and shown in the accompanying drawing, which is a vertical section of a roof embodying my invention.

Heretofore, in the application of concrete or composition roofs, the materials, if sufficiently hard to resist the wearing effects of storms and the action of fire, have been very liable to crack, and thus lose the principal virtue claimed for them—that of being perfectly water-proof. The purpose of this invention is to produce a composite roof composed of an inner and elastic and comparatively soft material, and an outlying covering of such hardness as to resist wear from any cause and being fire-proof, the inner material being at all times in a semi-plastic or flexible condition, which can, under no circumstances, become cracked, and so that water which might find its way through the outer coating, in the event of the latter becoming cracked, will be effectually shed by the said inner coat.

In carrying my invention into practice I proceed as follows: First, I deposit upon the roof two layers of paper or felt, after the ordinary manner of laying water-proof roofs, the material being secured by means of thin cleats of wood or tin buttons. Next, I take a quantity of asphalt and incorporate with it a sufficient quantity of dead-oil to make the mass elastic or semi-elastic at a low temperature, adding to it while quite hot an equal amount in bulk of ground stone, fine dry clay, or other fine mineral substance, and about five one-hundredth parts each of asbestos or comminuted or ground mica, thoroughly mixing the whole. I next, with a mop or small ladle, cover the surface of the paper and cleats with a thin coat of the above composition, and after reducing it to a level surface I cover the same with another layer of tarred paper or felt, lapping the edges of the sheets one and one-half inches, this latter layer of paper or felt adhering tenaciously to the composition below it. I next,

as at first, besmear this latter layer of felt with a thick coating of the same composition, and while it is in a hot state spread upon it dry gravel in sufficient quantity to produce a slightly-roughened surface, and then allow it to become cold or set, after which I apply to the surface a composition compounded of the following-named ingredients, viz.: Coarse sand, two parts; fine gravel, one part; screened coal-ashes, one part; ground stone, one part; or, omitting the ashes, add double the quantity of the ground stone. I now proceed by moistening the above compound and mix it to a proper consistency with a composition obtained as follows, viz.: Asphalt, one-fourth barrel; coal tar, three-fourths barrel; fine tar, three-eighths barrel; naphtha, from two to five gallons. After thoroughly mixing the whole, it is spread over the surface last obtained in a uniformly-even mass, and upon it is deposited granulated marble or other stone, according to the color desired, which is rolled into it with an iron roller weighing, preferably, about one hundred and fifty pounds, which completes the main body of the roofing. In order to obtain a smooth and finished surface, as well as to prevent the roller from sticking and permit walking over it immediately, I deposit upon the last-named surface a mixture composed of air-slaked lime, one part; ground marble, one part; ground slate, or a suitable cement, one part.

By the employment of the successive layers of felt and composition I obtain a uniformly-tenacious, elastic, and perfectly water-proof surface, which permits without injury to it the expansion and contraction of the boards below it, while, as before stated, the outer coating is fire-proof, and is sufficiently hard to resist for a great length of time the effects of the elements. The addition of the marble, or its equivalent, imparts a light-colored and pleasing appearance, and does not attract the rays of the sun.

By the use of my roof I avoid the annoyance of the washing off of pebbles, as is common with the ordinary composition-roof.

I do not in any sense confine myself strictly to the proportions of the different compounds herein given, as these may be varied to a considerable extent without departing from what I believe to be the essential features of my invention—which consists, first, of the repeated

layers of paper or felt and composition, followed up by an outer coating of a different compound; secondly, in a composite roof composed of an inner and elastic or semi-elastic medium, which is, under all circumstances, perfectly water-proof, and an outer exposed surface of a sufficiently hard nature to resist wear from any cause; and thirdly and incidentally, in the several formulas herein given of compounding and incorporating ingredients.

The accompanying drawing represents at A the rafters, and at B the boarding of a roof. C represents the first layer of paper or felt; D, the preliminary coating of the elastic water-

proof material; E, the second layer of paper or felt; F, the second elastic coating; G, the outer hard mass; and H, the external finish.

Claim.

I claim—

The herein-described mode, process, and compounds, in the production of composite or concrete roofs.

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