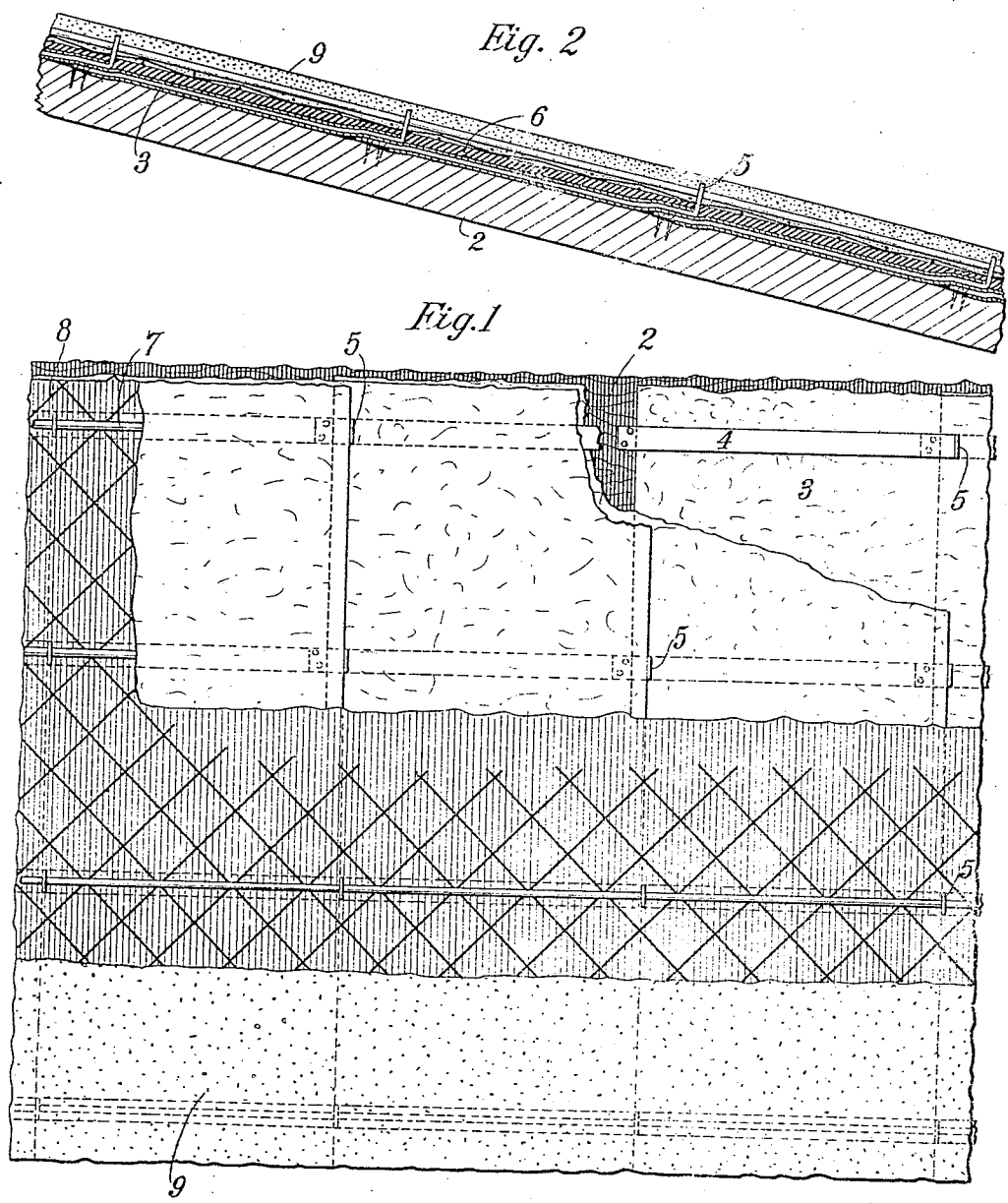


1,012,903.

Patented Dec. 26, 1911.



Witnesses:
Raphael Ketter
M. E. Eveland

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 By *his Attorney*
William H. Brown

UNITED STATES PATENT OFFICE.

HENRY OLMSTED, JR., OF BROOKLYN, NEW YORK, ASSIGNOR TO BARRETT MANUFACTURING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

ROOFING.

1,012,903.

Specification of Letters Patent.

Patented Dec. 26, 1911.

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To all whom it may concern:

Be it known that I, HENRY OLMSTED, JR., a citizen of the United States, residing in the borough of Brooklyn, county of Kings, and State of New York, have invented new and useful Improvements in Roofing, of which the following is a specification.

My invention relates to improvements in roofing, its object being to provide an improved construction of the same, whereby a surfacing of concrete can be applied to a waterproof covering of tarred felt paper or other fabric irrespective of the pitch or incline of the roof, and consists of the features of construction hereinafter shown, described and claimed.

In the accompanying drawings forming part of this specification, Figure 1 is a plan view of a section of my improved roofing, with certain parts broken away to show the interior construction. Fig. 2 is a partial cross section of the same, and Fig. 3 is a partial longitudinal section.

In the drawings 2 represents the roof-boards, and 3 the tarred felt which is secured upon the roof-boards in overlapping layers in the ordinary manner. Upon each layer of the felt 3 is arranged a series of metal strips 4, the inner or upper ends of which are secured to the roof-boards 2, preferably beyond the edge of the felt 3 so as to avoid puncturing the felt, the other being perforated and upturned to form the stud 5, which stands just below the exposed edge of the next layer of superposed felt.

6 is the coating of tar or asphalt which is applied to the complete felt covering.

Threaded through the openings of the studs 5, is a rod 7 which serves to secure in place just above the tar covered felt, a metal reinforcing element 8 of any suitable character. The roof is finished by applying a surfacing of concrete 9 embedding the underlying metal parts. The studs 5 serve to hold the reinforcing element from displacement laterally, while the rods 7 prevent it from buckling or rising too high above the felt or out of engagement with

the studs, whereby secure anchorage for the concrete is attained. By means of this construction the reinforcing layer of concrete can be applied to a roof of practically any pitch, and is held firmly in position by means of the bars 4 which are secured firmly to the roof, but without injury to the layers of felt which would make them less impervious to moisture. The surface of the concrete may be given any desired finish, either smooth or indented into any desired markings or configurations to imitate tiles or other roofing materials.

I claim,—

1. A composite roofing, comprising overlapping layers of water-proof fabric, sinuous anchoring devices projecting between said over-lapping layers without penetrating the same, a reinforcing element for concrete positioned above said over-lapping layers, retaining means for the unitary connection of distant portions of said reinforcing element, means for positively securing said retaining means to said anchoring means, and a cementitious layer embedding said reinforcing element and intimately contacting with the uppermost layers of fabric.

2. A composite roofing, comprising overlapping layers of waterproof fabric, sinuous anchoring devices projecting between said over-lapping layers without penetration thereof, a reinforcing element for concrete positioned above said over-lapping layers, retaining means for the unitary connection of distant portions of said reinforcing element, means for positively maintaining said retaining means out of contact with the uppermost layers of felt and for securing said retaining means to said anchoring devices, and a cementitious layer embedding said reinforcing element and intimately contacting with the uppermost layers of fabric.

3. A composite roofing, comprising overlapping layers of fabric, sinuous anchoring devices extending completely through said layers without the rectilineal penetration

thereof, and projecting upwardly to a point substantially distant from the uppermost layers of said fabric, and a cementitious layer of material completely enveloping the
5 uppermost ends of said anchoring devices, and intimately contacting with the uppermost layers of fabric.

In witness whereof I have hereunto set my hand at the city of New York this 29th day of January 1910.

HENRY OLMSTED, JR.

Witnesses:

D. W. KINCAID,
L. P. LEWIS.