

S. C. IRVING.
WATERPROOF ROOFING SHEET.
APPLICATION FILED MAY 18, 1910.

1,062,400.

Patented May 20, 1913.

Fig. 1,

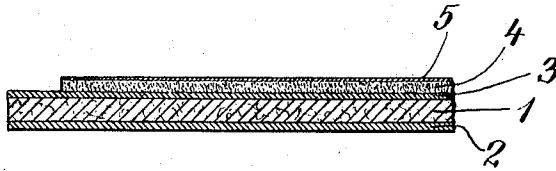


Fig. 2,

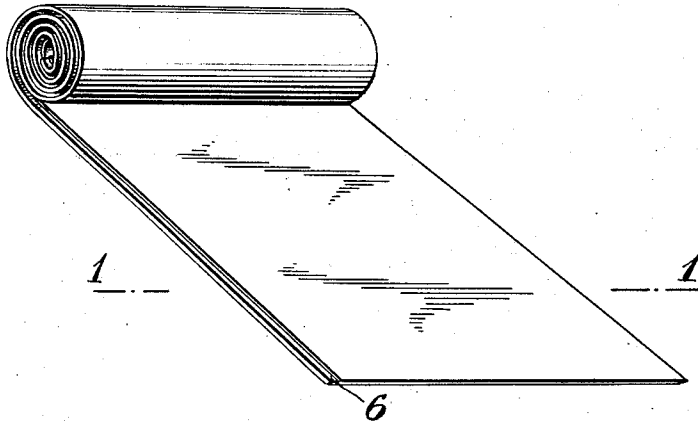
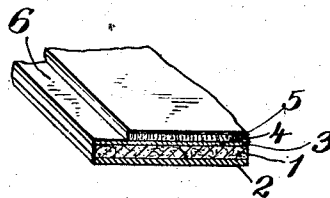


Fig. 3,



WITNESSES:

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UNITED STATES PATENT OFFICE.

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WATERPROOF ROOFING-SHEET.

1,062,400.

Specification of Letters Patent.

Patented May 20, 1913.

Application filed May 18, 1910. Serial No. 561,944.

To all whom it may concern:

Be it known that I, SAMUEL C. IRVING, a citizen of the United States, residing at Berkeley, county of Alameda, State of California, have invented certain new and useful Improvements in Waterproof Roofing-Sheets, of which the following is a specification.

My improvement relates to waterproof and fireproof roofing sheets and more particularly to what are known as compound roofing sheets. Its object is to provide a new and improved compound roofing sheet that will be waterproof and fireproof, durable, easy of manufacture and cheap, capable of taking color, and not sticky or tacky.

Heretofore it has been customary in making compound waterproof and fireproof roofing sheets to cement together the layers composing the compound roofing sheets and this is usually done by employing some bituminous or pitch-like cement of a composition which remains adhesive under ordinary conditions of temperature. My improved compound roofing sheet is made in a different way and so that the resulting product does not contain any adhesive layer in its finished condition. In my improved roofing sheet, instead of cementing a layer of fibrous mineral material to the foundation of the roofing, I embed fibrous mineral material in a coating applied to the foundation and it is preferably further bound in by means of the application of a cementing wash or plaster.

In the accompanying drawing forming part of this specification, I have shown my invention in its preferred form and I will now proceed to describe such form and the preferred constituents and method employed by me.

Referring to such preferred embodiment, Figure 1 represents a cross section of a part of a compound roofing sheet taken on the line 1—1 of Fig. 2. Fig. 2 represents a roll of my improved compound roofing partly unrolled. Fig. 3 is a detail on an enlarged scale of a part of the edge of the roofing sheet. Fig. 1 is also drawn on an enlarged scale for purposes of clearness, and it will be understood that accordingly the section runs only part way across the width of the compound roofing sheet on the lines 1—1 of Fig. 2.

Referring now to the roofing sheet of the drawing and to my preferred method of manufacturing the same, and to the preferred constituents thereof, (1) represents the foundation of my improved roofing sheet. It may be composed of any suitable material saturated with any suitable waterproofing composition as well understood in the art. I prefer, however, to use a heavy sheet of felt for this purpose, and particularly one containing a large amount of fibrous mineral matter, such for example as asbestos fiber, and composed partly of vegetable or animal fibers. The manufacture of such a sheet of felt containing mineral matter and asbestos fiber is well known in the art and will, therefore, not be further described. Any suitable waterproofing composition may be employed as saturating material for the foundation such, for example, as a soft non-hardening compound containing resins, oils, fats, waxes, bitumens, tars, pitches, or their equivalents, either singly or in combination. It is to be understood, however, that this is not the only form of saturation that may be employed, for any compound which will render the fabric waterproof and pliable, may likewise be used to advantage. In practice, I find that good results are obtained with the use of commercial asphalt of a semi-liquid consistency at room temperature, known to the trade as "G" grade.

(2) is a coating applied to the underside of foundation (1). This coating compound is preferably of a harder consistency than the impregnating material. It should be of a non-adhesive nature and may consist of one or more of the ingredients referred to in connection with the above mentioned impregnating compound; viz. materials of a resinous, fatty, waxy, bituminous, tarry, or pitchy nature. In practice, I have successfully used a medium hard asphalt, designated commercially as "C" grade. This is applied to the underside of the foundation (1) while the foundation is in a heated condition, when the coating (2) in a molten condition is spread evenly over the foundation (1) by means of a steam heated roller, or a series of such rollers. The substance of which this coating is made is of such a nature that it will not show any adhesive qualities under the ordinary conditions of use. Accordingly there will be no tendency

of the roofing to adhere unduly to the sheathing boards on which the roofing may be laid.

(3) is a coating applied to the upper surface of the foundation (1). This coating is made of a substance which is non-adhesive at ordinary temperatures, but which is adapted to become soft or tacky or adhesive at the temperatures ordinarily employed in the manufacture of my improved roofing sheet. In practice, I prefer to use a material harder than that used for the impregnating composition, and slightly softer than that used for the coating (2), although it may be composed of substantially the same ingredients. I have found that an asphalt of a consistency approaching that known commercially as "D" grade, may be used to advantage. Coating (3) thus made is hard, almost brittle at ordinary temperatures and will not exhibit any tackiness or adhesiveness under those conditions, but in the process of manufacture it is soft or adhesive so that it can be spread on the surface of the felt and will permanently adhere to the felt and it is then sufficiently soft so that fibrous or foliated mineral matter may be embedded in the coating and be permanently secured thereby when the coating cools. (4) represents a layer of such fibrous or foliated mineral matter embedded in the coating (3). Any suitable mineral matter may be used, but I prefer to use foliated muscovite, or amphibole, or chrysotile or mountain leather. This mineral matter, or preferably the lower portion of the layer, is embedded in coating (3) while the latter is still soft. When this coating cools and takes its permanent set, it firmly grips the layer of mineral material so that the latter is now irremovable. Preferably a large part or proportion of the foliated or fibrous material (4) is above the upper surface of coating (3) and has not come into contact with the substance of that coating. As this projecting portion of the foliated or fibrous material is liable to become worn away in use, I prefer in practice to bind it still further to my improved roofing by means of a cementing wash or plaster (5), preferably having a mineral base and mixed with suitable binding agents and thinners. Any suitable cementing wash or plaster may be employed for the purpose. The one I prefer to use consists of 325 parts by weight of lime, 20 parts by weight of tal- low, and 20 parts by weight of copper sul- fate slaked with sufficient water to make a plaster which may be applied with a trowel, or thinned still further so that it may be applied as a wash with an ordinary painter's brush. This cementing wash or plaster (5) after being applied is thoroughly flushed into all the interspaces existing in the layer of fibrous material and smooths it down to an even surface and prevents the

fibrous material from being rubbed or worn off in use. I prefer to apply this cementing wash or plaster during the process of manu- facture of my improved roofing sheet, al- though, if desired, the wash may be applied to the roofing sheet at a later period, as for example, when the sheet is nailed in place upon the roof. Before applying the wash or plaster an excess of fibrous or foliated mineral matter may be added to that of layer (4) and the cementing wash or plaster be then applied.

In practice it has been found best to limit the application of the foliated or fibrous material to those portions of the sheet which ultimately will be exposed to the weather and accordingly, those portions of the sheet which, when laid, will underlie the superimposed edge of the adjoining sheet of roofing are left free of the fibrous mineral material (4) and the overlying ce- menting layer (5), as shown at (6) in Figs. 2 and 3. At (6) the upper exposed surface of the sheet is formed by the layer (3). This bare portion of the sheet is cemented to the underside of the edge of the adjoining superimposed sheet by means of any suitable cementing material, such as any of the bituminous or asphaltic cement paints usually employed for such a purpose. The roofing sheets are secured to the roofing boarding by nailing or in any other ap- proved manner.

Color effects may be introduced in my improved product if desired. To accom- plish such a result any suitable pigment may be mixed with the cementing wash or plaster. Of course, due regard should be paid to the permanency of the pigment employed under the influence of the weather and to its liability to undergo undesirable chemical reaction when mixed with the wash or plaster. In practice, I have found that certain ferric oxides, such as Venetian red, natural Indian red, yellow ochre or umber, and chromic oxides and graphites and pigments of a similar nature have proven desirable and suitable for producing color effects. If desired the foliated or fibrous mineral matter may be colored by artificial means.

What I claim as new and desire to secure by Letters Patent is:

1. A compound roofing sheet having a foundation saturated with a waterproof composition provided with a weatherproof coating, fibrous or foliated mineral matter partially embedded in said coating, and a cementing wash or plaster applied to the protruding portion of mineral matter.

2. A compound roofing sheet having a foundation saturated with a waterproof composition, one side coated with a non- adhesive material, and the other side pro- vided with a weatherproof coating, fibrous

or foliated mineral matter partially embedded in said latter coating, and a cementing wash or plaster applied to the protruding portion of mineral matter.

- 5 3. A compound roofing sheet containing a foundation saturated with a waterproofing composition, a waterproof coating on both the lower and upper sides of the roofing sheet of a harder material than said
10 waterproof composition for the foundation, fibrous or foliated mineral matter partially embedded throughout all of the upper coat-

ing except along one edge thereof, and a cementing wash or plaster applied to the protruding fibrous or foliated mineral 15 matter.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

SAMUEL C. IRVING.

Witnesses:

JAMES MASON,
C. L. BLACK.