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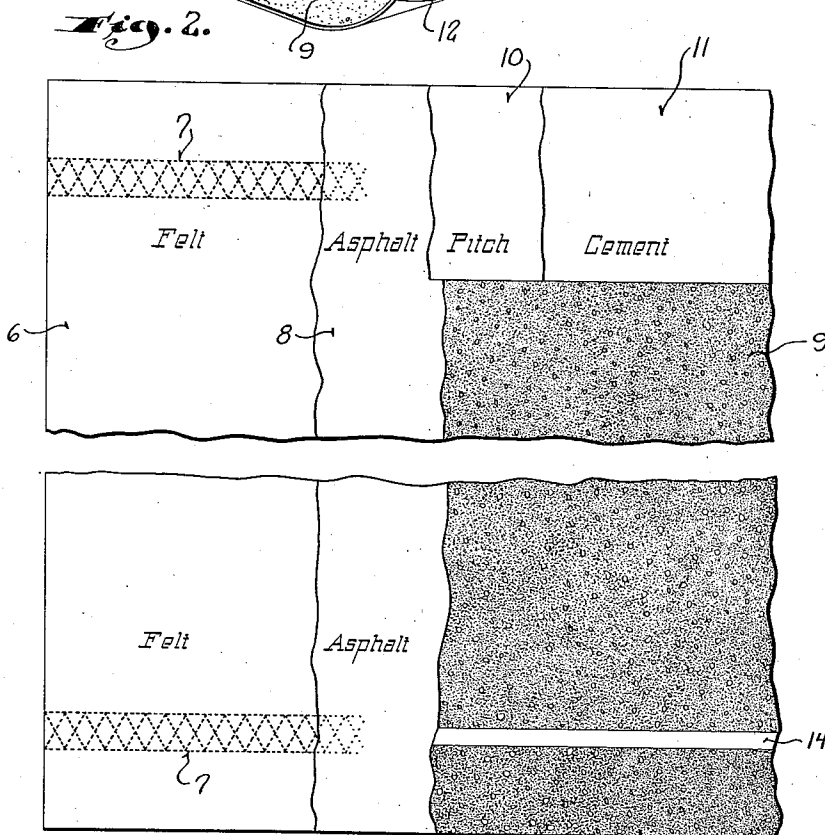
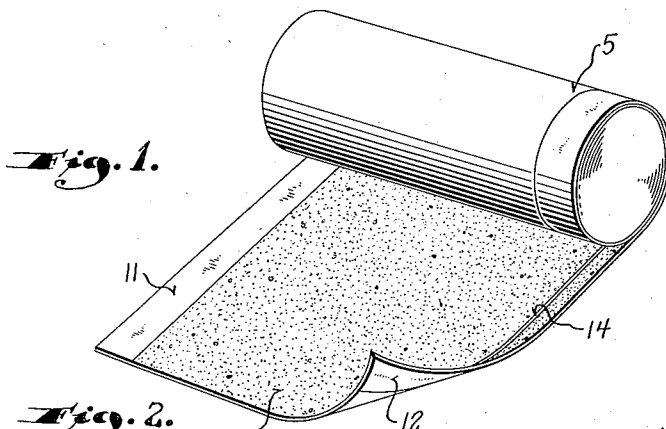
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2,222,868

ROOFING AND SIDING

Filed June 9, 1938

3 Sheets-Sheet 1



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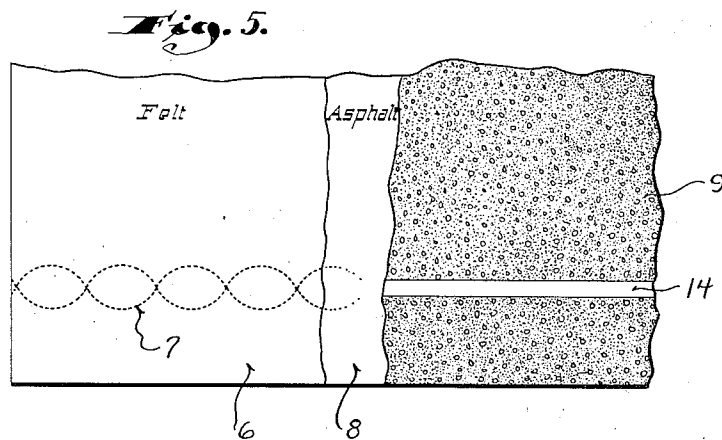
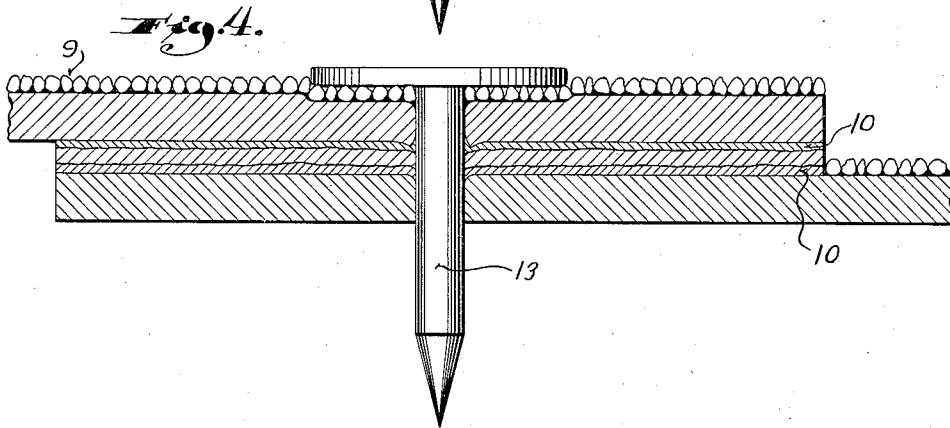
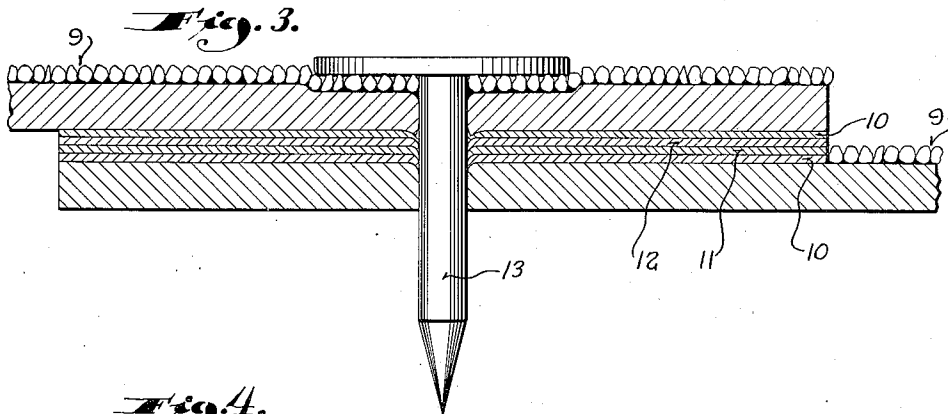
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3 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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ROOFING AND SIDING

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7 Claims. (Cl. 108—7)

This invention relates to surfacing materials and refers particularly to roofing and siding.

As is well known, there are many different types of prepared roofing and siding materials, some of which are put up in rolls, and others in individual pieces or sections. In most instances, these roofing and siding materials consist of a heavy paper, commercially referred to as felt, impregnated with a water-proofing compound, usually some form of asphalt, with the outer surface thereof either smooth or coated with a suitable mineral, generally granulated slate or the like.

In applying this material, it is secured to the subsurface by large headed tacks, and where the adjacent strips or sections of the material overlap, it is customary to cement them together with a suitable adhesive.

Heretofore, this was done on the job, which obviously has many objections. It requires skilled workmen and does not always result in uniformly good work. For instance, in applying roll roofing, the marginal edges of the strips were secured together by a heavy tar-like cement which was difficult to apply, and as a consequence, unless the work was being performed by highly skilled roofers, the seams were not always properly cemented.

This invention, therefore, contemplates as one of its objects to provide a roofing and siding material which is so made that overlapping joints and seams are cemented together without the necessity for applying cement on the job.

More specifically it is an object of this invention to provide a surface covering of the character described wherein those portions of the sheets or strips to be overlapped with adjacent sheets or strips are secured together by a self-sealing cement.

Another object of this invention is to provide roofing and siding material with lapped seams formed by a normally non-sticky cementitious material capable of being activated merely by the application of a proper solvent.

It is also an object of this invention to provide a roofing and siding material with a self-sealing cement at its joints or seams, which is capable of being activated by rain and natural moisture.

Another object of this invention is to provide means whereby nail holes in the roofing and siding material are automatically closed with a water-proof seal carried by the roofing or siding material.

In this respect, it is a further object of the invention to provide the seam areas of the material

with a heavy tacky pitch-like substance capable of flowing around the nail and into the nail hole formed by driving the attaching nail there-through, and which is covered by a normally non-sticky cement capable of being activated into adhesiveness.

Another object of this invention is to reinforce roofing and siding material of the character described at the places at which the nails are to be driven through.

A still further object of this invention resides in the provision of suitable indicia on the exterior of the roofing or siding to indicate the proper location of the attaching nails with respect to the reinforcing and the tacky nail seal.

With the above and other objects in view which will appear as the description proceeds, this invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described, and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the hereindisclosed invention may be made as come within the scope of the claims.

The accompanying drawings illustrate several complete examples of the physical embodiment of the invention constructed in accordance with the best modes so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a perspective view showing a roll of roofing embodying this invention;

Figure 2 is a plan view of a portion of the roofing with its medial portion cut away and with the various layers cut back to illustrate its composition;

Figure 3 is an enlarged cross sectional view through a seam between two strips of roofing, showing the same directly after application;

Figure 4 is a view similar to Figure 3, but illustrating the manner in which the normally non-sticky cement acts to secure the strips together;

Figure 5 is a view similar to the lower half of Figure 2, illustrating a slightly modified manner of providing the reinforcing;

Figure 6 is a plan view of a composition shingle or siding strip with its upper layers cut back to illustrate its composition;

Figure 7 is a cross sectional view through overlapping shingle sections of the type shown in Figure 6; and

Figure 8 is a back view of a shingle section of the type shown in Figure 6, to illustrate the application of the pitch and cement on the back surface thereof.

Referring now particularly to the accompanying drawings in which like numerals indicate like parts, the numeral 5 designates a roll of flat roofing material, which as best shown in Figure 2, is composed of a base sheet 6 of heavy paper, generally referred to in the trade as felt, along both marginal edges of which there are rows of stitching 7 to provide a reinforced area through which the attaching nails are driven.

The felt base sheet, as is customary, is impregnated with asphalt or some other suitable waterproofing substance, as shown at 8 in Figure 2, and the outer surface of the asphalt impregnated sheet has a granular coating 9 which may be granulated slate or any other suitable mineral.

In the case of roll roofing, one edge of the strip is a selvage edge along which there is no granular covering. At this area, one side of the impregnated base sheet has a coating of heavy viscous tacky material 10. This material may be pitch or any other similar non-aqueous substance, and as will be hereinafter more fully described, serves as a nail seal by forming a water-proof seal about each attaching nail or tack driven through the overlapped layers of roofing.

Covering this tacky material 10 is a normally non-sticky cementitious substance 11. If desired, the opposite face of the sheet along the other edge thereof may also be provided with a coating of tacky material covered by a band of normally non-sticky cementitious material, as at 12, so that when the strips of roofing are laid alongside each other with their adjacent edges overlapped, the normally non-sticky cementitious edge portions 11 and 12 are in contact, as shown in Figure 3.

Attaching nails or tacks 13 driven through these overlapped marginal edges secure the same to the subsurface (not shown), and as the tacks are driven into place, the viscous pitch-like material 10 flows or oozes down into the nail holes and around the nails so as to provide a water-proof seal at each nail.

To insure locating the nails or tacks 13 at the proper places to pass through the reinforced areas 7, and the nail seals 10, marker stripes 14 are formed on the outer granular surface, in any suitable manner.

The non-sticky cementitious substance employed for the overlapping edge portions 11 and 12 is preferably an aqueous composition capable of being activated by water to render the same adhesive. Hence, where the coating is being applied on a surface exposed to natural moisture, such as rain and snow, the normally non-sticky substance is automatically rendered adhesive after its application so that the seams can be said to be self-sealing. Obviously, in localities lacking in rainfall or natural moisture, or in installations where the covering material is not subjected to the elements, the normally non-sticky edge portions 11 and 12 may be activated by applying water thereto.

While different adhesive substances may be employed for these normally non-sticky seam portions, one suitable type of material adapted to be activated by rainfall or water comprises a mixture of clay and lignin with the addition of a small amount of a plasticizing agent. These ingredients, in the proportions of clay fifty-five per cent (55%), lignin forty-two per cent (42%), and glycerine three per cent (3%), form a very suitable adhesive. Lignin is an article of commerce obtained by an evaporation of waste sulphite liquors from the wood pulp industries.

A cement formed of these ingredients may be prepared for application to the roofing or siding by forming a paste comprising two to three parts of the clay-lignin-glycerine mixture, and one part of water. In this consistency, it is easily spread onto the surface to be coated, and upon evaporation of the water, a smooth layer of non-sticky cementitious material integral with the roofing or siding is obtained. To activate the same into adhesiveness, it is only necessary to apply a sufficient amount of water.

It is to be understood, however, that a non-aqueous solvent cement may be employed along the edge portions 11 and 12. One typical cementing material of this character comprises a mixture of a cellulose ester and a resin with sufficient plasticizer to render the mixture non-brittle. These ingredients in the following proportions have been found practical: nitro-cellulose twenty-five per cent (25%), rosin twenty-five per cent (25%), and dibutyl phthalate fifty per cent (50%).

The mixture is dissolved in a solvent comprising ethyl acetate three parts, toluol one part, and ethyl alcohol two parts. It may be applied in any suitable manner, and when the solvent evaporates, a non-sticky cementitious layer is left. To render the same adhesive, it is only necessary to apply alcohol or a similar water-miscible solvent.

Another form of cement that may be used for this purpose may have an asphalt base to be activated by gasoline, naphtha or similar solvents. Or, if desired, a suitable adhesive may be prepared from pitch as a base to be activated by tar solvents or similar solvents.

While the invention has been described as applied to roll roofing, it is readily apparent that it is also applicable to the so-called composition shingles, which in some instances are made in individual pieces or sections, and in some cases in long strips to be applied horizontally so that in its finished form, the roofing or siding forms a seriated outer surface.

The application of the invention to such composition shingles or siding is illustrated in Figures 6, 7 and 8. As in the embodiment of the invention hereinbefore described, the shingle is built up of a base sheet 16 of heavy felt paper cut to form a plurality of flap portions 17 joined by a solid connecting portion 17'. This latter portion has a reinforced area 18 extending therealong, formed as before by rows of stitches.

The base sheet 16 is impregnated with asphalt, as before, and at least that portion thereof through which the nails are driven, has a layer of pitch or similar substance 10' applied thereto to provide a nail seal, and over the outer face thereof, the normal non-sticky cementitious layer 11' is applied.

In this instance, the marking stripe 14' is carried directly by the normally non-sticky cementitious layer 11' so that the heads of the nails are covered by the flap portions 17.

The pitch acts in the same manner as hereinbefore described to provide a water-proof nail seal, and likewise, the normally non-sticky cement is activated to provide a firm bond between adjacent overlapping surfaces. As a consequence, the flap portions 17 which overlie the cement surfaces 11' are securely cemented to the underlying surfaces to preclude their being blown up and loosened.

In Figures 6 and 7, the normally non-sticky cementitious substance is applied to the top surface

of the shingle portion 17', but obviously, as shown in Figure 8, it may be applied to the back of the flap portions 17.

While this invention has been illustrated as applied to so-called roll roofing and composition shingles, it will be obvious that the inventive concept is equally applicable to other forms of surface coverings used in the building trades.

From the foregoing description taken in connection with the accompanying drawings, it will be readily apparent to those skilled in the art that this invention greatly improves roofing and siding materials for use in the building trades and materially simplifies the application thereof.

15 What I claim as my invention is:

1. A sheet-like building material suitable for roofing and siding comprising: a base sheet; a weather-proof covering for the base sheet; and a normally non-sticky aqueous cementitious substance covering a portion of the sheet adapted to be lapped with an adjacent sheet when in use, said aqueous cementitious substance being adapted to be rendered adhesive after application of the sheet by rain and natural moisture.

25 2. A sheet-like building material suitable for roofing and siding having: a surface thereof coated with a normally non-sticky aqueous cementitious substance adapted to be activated to render the same adhesive through the effects of natural moisture coming in contact therewith.

30 3. A serrated surface covering suitable for roofing and siding comprising: a plurality of overlapped sheets so disposed that the exposed surface constitutes a series of flap-like portions; a self-cementing normally non-sticky cementitious substance carried by the sheets for cementing said flap-like portions to their underlying surfaces, said cementitious substance being adapted to be activated to render the same adhesive, through the effects of natural moisture coming in contact therewith.

45 4. A surface covering suitable for roofing and siding comprising: a sheet of material adapted to be secured in place by nails driven therethrough; a coating of a viscous and tacky water-proof substance carried by that portion of the sheet

through which nails are to be driven and adapted to flow about the nail and into the nail hole to form a water-tight seal about the nail; and a normally non-sticky aqueous cementitious coating covering said substance and adapted to be rendered adhesive to secure the sheet to an adjacent sheet lapped therewith by rain and natural moisture.

5 5. A surface covering suitable for roofing and siding comprising: a sheet of material adapted to be secured in place by nails driven therethrough; a coating of pitch on that portion of the sheet through which the nails are to be driven adapted to flow about the nail and form a water-proof seal thereat; and an outer covering of an aqueous normally non-sticky cementitious substance over the pitch adapted to be activated by natural moisture to render the same adhesive without affecting the water-proof nail sealing characteristics of the pitch.

20 6. A composition shingle comprising: a base sheet impregnated with a suitable water-proofing material and having an outer weather-proof covering; said shingle being adapted to be applied by nails driven through a portion thereof; a coating of a non-aqueous tacky substance at that portion of the shingle through which the nail passes to form a water-proof seal by flowing about the nail and into the nail hole; and a normally non-sticky cementitious coating over the tacky substance adapted to be activated by natural moisture to render the same adhesive.

35 7. In a surface covering suitable for roofing and siding: a base sheet; means reinforcing a portion of the sheet to strengthen the same at its area through which attaching nails are to be driven; a coating of non-aqueous tacky material over the reinforced area of the sheet adapted to flow about a nail driven therethrough to form a water-proof seal; a normally non-sticky cementitious substance covering the tacky material; and an indicating marker on the outer surface of the covering over the reinforced area to indicate the proper location for the attaching nails.

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