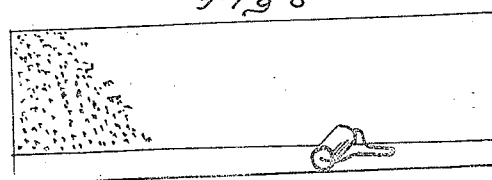
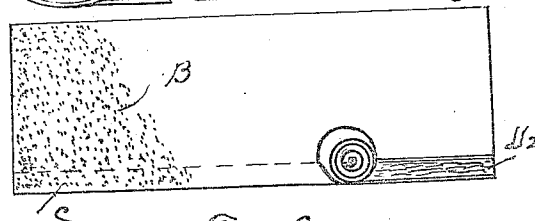
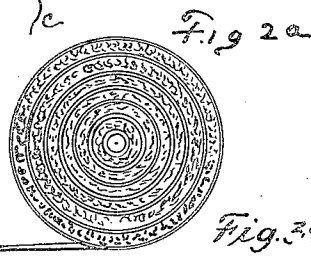
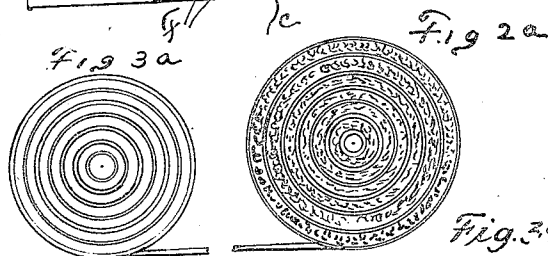
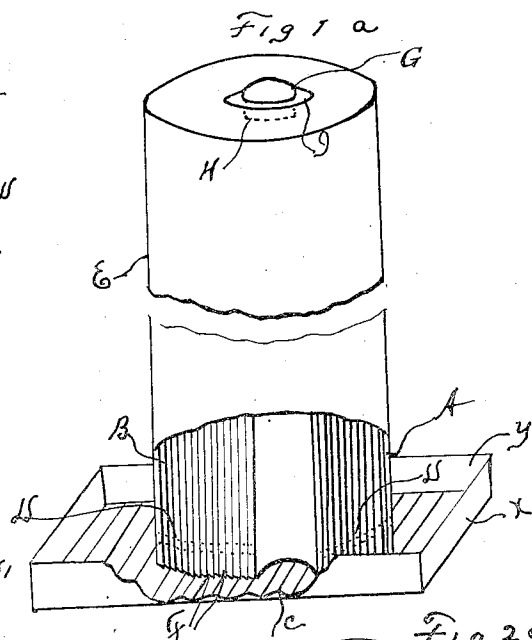
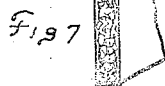
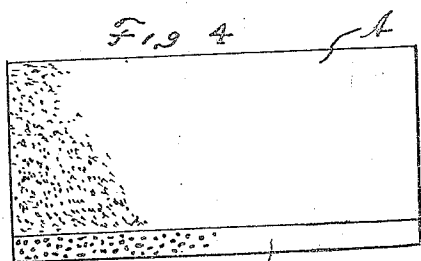
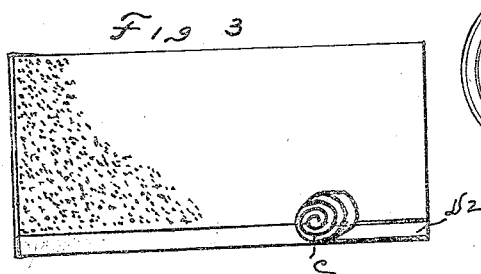
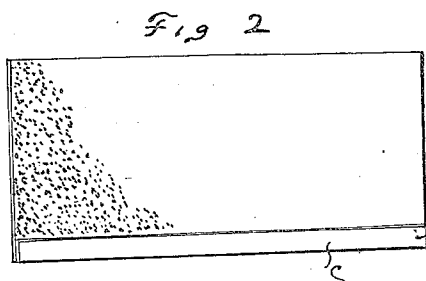
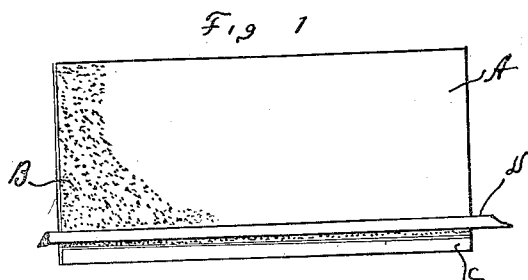


Aug. 10, 1926.

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A. C. FISCHER
PREPARED ROOFING
Filed Oct. 23, 1920



INVENTOR
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UNITED STATES PATENT OFFICE.

ALBERT C. FISCHER, OF CHICAGO, ILLINOIS.

PREPARED ROOFING.

Application filed October 23, 1920. Serial No. 419,004.

This invention relates to flexible sheet roofing of fibrous material, and has for its object to improve the preparation of the roofing sheets at their edges for joining by the overlapping and adhering edge of the marginal portions of the sheets.

In my application Serial No. 384,879, filed May 28, 1920, I have disclosed a method of and apparatus for excluding from the marginal portions of roofing sheets the mineral or weathering material that is applied to the main area of the sheet, so as to leave readily adhering surfaces of such marginal portions free and unobstructed for meeting corresponding surfaces and making the overlapped joint; such method of procedure involving the use of a strip or tape prepared to prevent its adhesion to the roofing material, and laid in position over the portion of the surface from which the weathering mineral is to be excluded during the time when the weathering material is being deposited upon the sheet and embedded by pressure thereinto. In my application Serial No. 411,629, filed September 20, 1920, I have shown and described a sander or apparatus for applying finishing material to the surface of roofing sheets, in which the seaming edge or overlapping portion of the area of the sheet is similarly protected from the application of the surfacing material. In carrying out the present invention one or both of these procedures and the machines disclosed for practicing the same may be used to advantage, and in addition thereto both sides of the sheet will be similarly treated; that is to say, the mineral or weathering material to be excluded from an overlapping marginal portion on one side of the sheet will be excluded from that portion of the area which is to constitute the upper underlying portion of the sheet when on the roof, and the talc, slate, or other surface finishing material which is applied to the underside to prevent the roofing from adhering when in roll will be excluded from the lower overlapping marginal portion or opposite edge and opposite side of the same sheet. Similarly, if mineral weathering material is not applied to the side which is to constitute the outer surface of the roofing when in use, the talc, slate, or anti-adhering material will be applied to both sides of the sheet but excluded from the respective

marginal portions lying near opposite edges and on opposite sides of the sheets.

In my application Serial No. 273,868, filed January 29, 1919, I have described and claimed a self-adhering flexible roofing material carrying upon its surface a slow-setting adhesive that adapts the material to adhere to a surface or to another piece of roofing material with which it is brought in contact when put into use; and as a modification thereof have described roofing material having cementing material applied thereto but set or hardened before leaving the factory, and thereafter rendered viscous or adhesive by means of a solvent applied thereto, as, for instance, after it arrives at the place of use, the solvent being applied either by means of a brush after the roof is laid out, or by dipping the portion of the roofing to be rendered adhesive into the solvent when loosely rolled or gathered in convenient form for the purpose. The present invention embodies the aforesaid modified method of treatment, and to that extent constitutes a continuation of my application Serial No. 273,868.

In my application Serial No. 393,016, filed June 30, 1920, I have described a roofing sheet having applied along its seaming margin a strip or vehicle which will impart adhesive properties to the overlapping portions of the sheet, a modification thereof consisting in having the applied strip serve as a vehicle for a solvent which attacks cementing substance on the sheets proper and renders such cementing material adhesive; and to the extent of embodiment of the vehicular method of rendering effective the dipping method of bringing adhesive or a solvent for adhesive upon the cementing areas of the roofing material, the present application is also a continuation of my aforesaid application Serial No. 393,016.

In my application Serial No. 365,901, filed March 15, 1920, I have described roofing material having applied along its seaming or adhering areas strips, or the like, a packing material having a sufficient body to insure the inherent qualities of pliability, ductility, or plasticity to the extent that will insure its conforming to unevenness in the surface of roofing material and fill all spaces in a manner to insure a weather-tight joint, such formable packing member further be-

ing adapted, if desired, for practicing the vehicular method of bringing an adhesive or solvent for adhesive on to the roofing sheet, as by making it wholly or largely of cementitious material with a non-flowing filler, or making it of fibrous material impregnated with a cementitious substance or appropriate solvent. Such characteristic features may be employed also in carrying out the provisions of the present invention.

In carrying out the present invention, roofing material suitably impregnated with bituminous or equivalent substance, has one or both of the marginal portions lying on its opposite sides and remote edges protected during the application of the weathering material or anti-adhering substance, so as to leave such marginal portion or portions free from grit, mineral, or other substance which will interfere with adhesion of overlapped portions. The roofing is then rolled, and, if desired, a tape or strip of cardboard or some other suitable material is located near the seaming edge and rolled with the roofing so that when the packaging is finished, grit will not slip down to the seaming area, and a spacer will be provided to keep apart the coils of the roll so that spaces will exist between the coils and extend in the axial direction at least as far as the width of the marginal seaming areas, and of sufficient dimension between coils to admit a solvent such as kerosene, gasoline, or other suitable solvent, and permit such solvent to act on the surfaces which are to constitute the seaming areas. Having been thus treated, the roll is ready to be taken upon the roof, unrolled and placed in position for nailing. When nailed, the seaming areas will be in an adhesive state and their impregnating cementitious substance will be drawn out and caused to flow together and effect a satisfactory weather-tight joint.

In order to insure access of the solvent to the surfaces and to increase the duration of its application, the spaces between coils into which the solvent enters may be occupied by an absorbent or wick-like substance, preferably applied in the form of a strip at the time of original preparation of the roofing, and the vehicle for solvent thus provided may also be impregnated with cementitious substance in quantity sufficient to render it more effective but not sufficient to prevent absorption of solvent; the vehicular application of cementing substance thus realized being either sufficient to render the seam waterproof or being merely sufficient to supplement cementitious substance drawn by the solvent out of the main body of the roofing material. Again, this vehicle thus applied may be either very thin so that it will merely serve as a means of bringing the solvent into position, or it may be of sufficient thickness to serve as a packing and take up unevenness in the space between the overlapping portions of the roof. If of sufficient thickness, and particularly if it carries soluble cementitious matter, for instance, powdered bituminous matter, the filling strip may be used upon roofing, from the marginal seaming portion of which the weathering mineral or anti-adhesion talc has not been omitted in the process of manufacture.

In order that the invention may be fully understood, several embodiments thereof have been shown in the accompanying drawings.

In said drawings—

Figures 1 and 1^a represent, respectively, an open sheet and a roll of roofing material embodying one form of the invention; Figure 1^a also suggesting the method of dipping the roll in the solvent.

Figure 2 is a view similar to Figure 1, and Figure 2^a an end view of a roll, showing another form of the invention.

Figure 3 is a view similar to Figures 1 and 2, and Figure 3^a an end view of a roll showing a third form of the invention.

Figure 3^b is a modification of the form shown in Figure 3.

Figure 4 is an embodiment showing a modified method of rendering adhesive the lap seaming area of the sheet.

Figures 5, 6, and 7 are a sectional view and two partial perspective views representing modified constructions of marginal tape vehicle for use in realizing the conditions of the present invention.

Figure 8 discloses a method of applying the solvent to the lap seaming area through means of a portable absorbent body in the form of a roller; and

Figure 9 is a detail view of an end cap adapted to be applied to a roll of roofing to insure standing the roll upon its proper end.

Referring to Figures 1 and 1^a, A represents a roofing sheet, B the weathering surface thereof, and C the lap seaming area along one margin of the sheet. For the purposes of the present invention, a strip or tape D is laid upon the sheet A and rolled up with it to produce the roll E shown in Figure 1^a, in which the strip or tape D develops spaces F between the coils of the roll so that when the roll is dipped in a receptacle X, containing a fluid solvent Y of proper depth, the solvent will enter the annular recesses between the rolls and attack the soluble adhesive with which the sheet is surfaced or impregnated, and thus adapt the sheet to be put in place upon the building structure. The spacing tape D in such a roll serves the further purpose of preventing the grit or mineral substance B from working down over the seaming area C while the roll is in shipment and when it is standing upon its end.

In order to insure the standing of the roll upon its proper end in shipping and storage, one end of the roll as shown in Figure 1^a, is preferably provided with a knob 5 G, as shown in detail in Figure 9, having a core H adapted to enter the bore of the roll, and with a flange I to limit its intrusion, so that the knob G will always develop a sufficient prominence to prevent the roll being 10 stood on that end. The knob G is of sufficiently small diameter to enter within the bore of another roll standing on the roll first named.

According to Figure 2, the tape D' is 15 placed in position upon the lap seaming area, and this tape is of porous material adapted to absorb the solvent and convey it to the soluble adhesive carried by an overlapping sheet, the tape being put in place 20 upon the seaming area when the impregnating or surfacing material is hot and before it is set, but preferably after the grit has been pressed upon the hot asphaltic surface of the sheet. Tape D', like the tape D, 25 serves the purpose of excluding the grit from the exposed asphalt margin or lap seaming area, and when rolled up with the roofing roll to which it is adhered, it fills the space between the coils which are left 30 free in Figure 1, and being porous will admit and in fact induce entry of the solvent between the coils of the roll when the roll is dipped into the solvent bath, as suggested in Figure 1^a. When the roll is unwound at 35 the place of use, the tape remains in position and delivers the solvent to the overlapped sheet, besides serving as a packing to effectually fill the space between the overlapped sheets and all inequalities thereof 40 and remaining to deliver the solvent to both sheets and draw out the cementitious substance which is to ultimately seal the joint.

According to Figures 3 and 3^a, the vehicular tape D² is kept separate from the 45 sheet and packaged with the roll so that it can be saturated and laid upon the roll or between the lap seaming areas of two sheets when placing the sheets in position upon a building, the packing thus provided being 50 in place between the overlapped edges as they are nailed and remaining with its contained solvent to attack the cementitious filling of the overlapped sheets and bring about adhesion.

As suggested in Figure 3^b, the gritty surface B is not excluded from the lap seaming area, but is permitted to cover the entire sheet in the manufacture of the latter, the vehicular packing strip D² having sufficient 60 body and compressibility to adapt it to effect a tight joint, notwithstanding the presence of the grit in the joint.

According to Figure 4, the lap seaming area C is rendered more effectively cementitious by embedding therein, either upon a 65 surface from which the grit has been excluded or upon a gritty surface, finely subdivided solid asphaltic or other cementitious substance, so that when encountered by the solvent there is a considerable effective body 70 of cement present to do the work.

The sheet shown in Figure 4 may have the strip D, as in Figure 1, or either of the strips D', D² of Figures 2 and 3, used in connection therewith, or it may be otherwise 75 manipulated to bring the solvent in contact with its lap seaming area.

As suggested in Figure 5, the porous tape may be saturated at one edge D³ to limit the 80 flow of the solvent through the tape to prevent it from passing beyond the area to be treated. Such a tape acts as a packing and may be furnished in rolls, or it may be dipped and laid between the joints, or it 85 may be fastened to the roofing sheet and rolled with the sheet and have the end dipped after unrolling on the job.

Figure 6 represents a porous tape constructed of material which acts as a spacing 90 means in roll roofing or mastic roofing which it is desirable to dip into a solvent for a considerable depth.

Figure 7 represents a porous tape prepared with a bituminous or adhesive dust or other cementitious substance permeating it 95 in a dry state, which tape can be coiled and embedded in the roll or cemented to the seaming area before shipping, and which, upon being immersed in the solvent or 100 otherwise having a solvent supplied thereto, will become adhesive and aid in uniting the two faces of overlapping sheets, besides serving as a packing for the joint. This tape may be used where the seaming area is 105 covered with grit or mineral, or where the lap seaming area has not received the special treatment herein described.

The tape of Figure 7 might also be saturated with a non-drying oil and placed in a roll of roofing, with the oil acting as a 110 partial solvent, so that upon unrolling the roll the tape can be removed and used to condition the seaming area for the reception of an overlapping sheet.

As suggested in Figure 8, a roller of felt 115 or other absorbent material can be used as a carrier and distributor of the solvent, and made to give up the solvent to the seaming area by passing the roller over such area until the desired amount of adhesive has 120 been given up to the lap seaming surface.

In cases where it may be found desirable, the roofing sheets for one or both of the overlapping members may have applied to the lap seaming areas a material which will 125 be especially effective in building up a substantial body of adhesive and which will be particularly amenable to some particular solvent used upon the interposed tape. This special body of adhesive may also be 130

selected with a view to avoiding discoloration of the exterior roofing surfaces which it may possibly reach in getting beyond the points of the lap seam. I have discovered
 5 by experiment that two substances which are particularly well adapted for building up the body of adhesive as above described and serving as a solvent therefor are, respectively, paraffin, for instance, the ordinary commercial article, and second, a substance known in the market as "minwax" or
 10 its equivalent, which readily attacks the paraffin and adapts it to spread and conform to the lap seaming areas as well as making it adhesive and water-proof, especially when the roofing sheets themselves
 15 give up some of their bituminous matter to unite with the paraffin and its solvent. The adhesive obtained by a mixture of paraffin and minwax or its equivalent is especially
 20 advantageous for use in seaming roofing and seaming flexible roofing sheets because it becomes quite viscous or fluid under the higher temperatures that will naturally develop upon a roof under the sun's rays at
 25 any season of the year, and thereby insures the curing and improvement of the same after it is formed.

Under some circumstances it will be desirable to mix the paraffin and minwax to a consistency which will adapt them to be saturated into a tape at the place of manufacture of the roofing, and at such consistency as will cause the mixture to act as a solvent
 30 of the bituminous matter with which the roofing sheets themselves are impregnated. Such a tape would be prepared and rolled separately and packaged with the roll of roofing so that the tape could be unrolled
 35 and laid upon the seaming area of the roofing after the material had arrived at the place of use. This method of furnishing prepared roofing may also be followed in supplying any other suitable solvent of combined solvent and cementitious matter for
 40 instance, bituminous matter in solid but subdivided form in a vehicular tape or strip to be interposed between the overlapping portions of the roofing sheets.

50 I claim:

1. The improvement in the art of joining roofing sheets, which consists in providing upon lap seaming areas of sheets, a soluble cementitious substance, and applying to said
 55 areas a solvent for such cementitious substance and completing the joint while such substance is in adhesive state.

2. The process of preparing roofing sheets composed of fibrous material carrying a mastic substance at the lapping area thereof,
 60 which consists in bathing the lapping area thereof before laying with a solvent which converts the mastic into adhesive or sticky condition.

65 3. A roll of sheet roofing material having

a lap seaming area developed along a margin of the material in position to lie at the end of a roll of such material when formed therefrom, and having the coils of such roll spaced to admit a solvent between the coils
 70 in the vicinity of such area.

4. The method of lap-seaming sheets of fibrous roofing material impregnated with bituminous substance, which consists in treating such bituminous substance before
 75 the sheet is laid with a solvent thereof at atmospheric temperatures, and thereby converting it into adhesive condition.

5. As a new article of manufacture, a roll of sheet roofing having mounted upon the
 80 lap seaming area thereof a strip of porous material which spaces apart and fills the spaces between those portions of the coils of said roll which correspond to the lap seaming areas.

6. Sheet roofing having a seaming area impregnated with bituminous matter, and having embedded therein particles of subdivided adhesive matter adapted to become
 90 sticky under the action of a solvent.

7. In combination with sheet roofing having a lap seaming area, a solvent vehicle associated with said area, said solvent vehicle having a portion thereof saturated with a
 95 filler which limits the flow of solvent.

8. In combination with sheet roofing, a porous tape adapted to serve as a vehicle for a solvent, and having one marginal portion thereof saturated with a barrier to the passage of the solvent, that is soluble in the
 100 solvent.

9. In roofing, a fibrous tape carrying bituminous substance in dust or powder form having inherent adhesiveness when brought in contact with a solvent absorbed by said
 105 tape.

10. Sheet roofing having porous tapes or strips spaced lengthwise thereof, rolled with the roofing, and spacing the coils thereof.

11. In roofing, a seaming joint comprising
 110 a roofing member and a member adapted to contact with the seaming area thereof; one of said members being provided upon its contact area with a body of paraffin and the other carrying a solvent of paraffin.

12. In roofing, a seaming joint comprising a roofing member saturated with bituminous matter and carrying upon the seaming area thereof a body of paraffin, and tape adapted to contact with said seaming area carrying a
 120 solvent of paraffin together with bituminous matter.

13. In roofing, a joint comprising overlapping roofing sheets containing bituminous matter, and an interposed vehicular body
 125 carrying a mixture of paraffin and a solvent at a consistency which adapts it to dissolve the bituminous matter contained in the roofing members.

14. As a new article of manufacture, a

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package of roofing containing sheet roofing material impregnated with a soluble cementitious matter and a vehicular seaming tape or strip impregnated with a solvent for said cementitious matter.

15. As a new article of manufacture, a package of roofing containing sheet roofing material impregnated with a soluble cementitious matter and a vehicular seaming tape or strip impregnated with a solvent for said cementitious matter, said solvent also including a thickening medium.

16. As a new article of manufacture, a package of roofing containing sheet roofing material impregnated with a soluble cementitious matter and a vehicular seaming tape or strip impregnated with a solvent for said cementitious matter, said solvent also including a thickening medium which is itself rendered cementitious by the action of the solvent.

Signed at Chicago, Illinois, this 19th day of October, 1920.

ALBERT C. FISCHER.