Sept. 17, 1940. S. L. EASON 2,215,349

ROOFING OR SURFACING MATERIAL

Original Filed June 1, 1935

Fig. 1

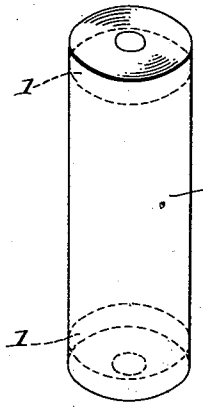


Fig. 2

Fig. 3

Fig. 4

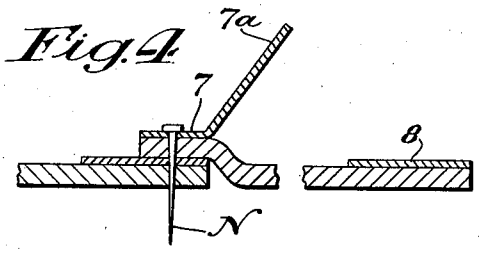


Fig. 5

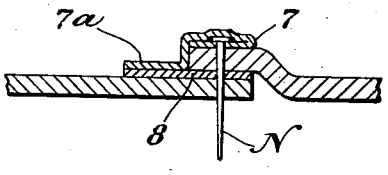
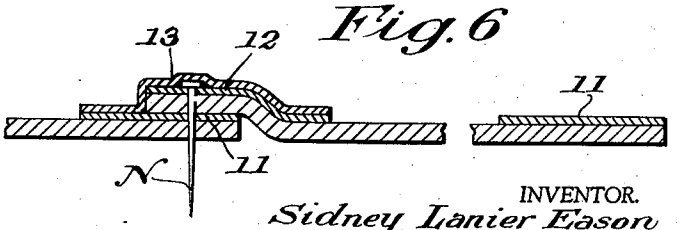


Fig. 6



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ROOFING OR SURFACING MATERIAL

Sidney Lanier Eason, Charleston, S. C.

Original application June 1, 1935, Serial No. 24,533. Divided and this application June 1, 1939, Serial No. 276,789

12 Claims. (Cl. 108—7)

This invention relates to roofing or surfacing material and is a division of my prior application Serial No. 24,533, filed June 1, 1935, now Patent No. 2,160,845, dated June 6, 1939.

In the accompany drawing:

Fig. 1 is a perspective view of a roll of roofing equipped with seam reinforcing and/or flap strips on both longitudinal edges thereof so that when the roofing is rolled into roll form for shipment and storage, I obtain a compact, balanced, cylindrical and symmetrical package which may be stood upright equally well on either end, or compactly piled in rolls horizontally regardless of either end.

Fig. 2 is a perspective view of the roll of roofing partly unrolled to expose the reinforcing and/or flap strips which extend along both longitudinal edges from end to end thereof. In this figure, the length of roofing material is further optionally provided with reinforcing and/or flap strips at each end thereof and at convenient intervals intermediate of its ends.

Fig. 3 is a characteristic cross-section which may be assumed to have been taken on any of the indicated section lines designated at 3—3, in Fig. 2. This figure is also characteristic of the section which results when the length of roofing material is cut transversely along the indicated line of cut A—A in Fig. 2 at one of the intermediate reinforcing and/or flap strips with which the length of roofing material is optionally provided.

Fig. 4 shows a variant joint resulting from utilizing a single flap strip at one longitudinal edge and an unfoldable selvage edge strip at the opposite longitudinal edge of the course of roofing material.

Fig. 5 is a cross section through the joint produced by the structure of Fig. 4 when the flap is folded into final position, and

Fig. 6 is an exaggerated cross-section showing a still further variant in which both longitudinal edges of the roofing sheet are provided with sheet reinforcing and sealing strips, forming selvage edges, of any suitable material, preferably fabric, and the joint which results when such roofing sheet is overlapped and fastened upon another similar sheet, resulting in both the under and upper sheets being doubly reinforced in way of lap area. In this figure, the seam is covered and protected by a separate seam covering tape which is furnished independently of the roofing material itself and which covers at the nail heads and open edge of the seam.

The standard roll of mastic-saturated roofing material is usually thirty-six feet long and thirty-six inches wide. When courses of roofing are lapped and nailed the line of nails becomes the weakest point. In order to have adequate strength in the lapped areas, the roofing material has always been made of excessive strength or thickness outside of the lapped areas, because the strength at lap, weakened by nail holes, is thus less than the unpunctured outside of lap area constituting about 90% of the sheet.

As disclosed in my aforesaid patent application, however, I reinforce the seam by means of reinforcing and/or flap strips I at both longitudinal edges of the length of roll roofing, thus confining excessive thickness to the area of the sheet where strength is essentially desired rather than over the entire area. These strips extend from end to end of the roll. They lie within the margins of the packaged roofing material in all cases and do not protrude thereb-yond so that in shipping and storing the roofing material the roll and its attached reinforcing and/or flap are wrapped in a neat compact roll and handled with the strips enclosed and protected.

By thus providing reinforcing and/or flap strips at both longitudinal edges I obtain a balanced, cylindrical or symmetrical package which is capable of being stood upright equally as well as on either end, or compactly piled in rolls horizontally regardless of either end.

Should a reinforcing and/or flap strip be superimposed on one longitudinal edge only of the roofing course, the resulting roll would take the form of a frustrum of a cone which would have a small diameter end and a large diameter end and would be unbalanced as to storage or rolling when handling.

The balanced roll is a feature of real advantage in the manufacture, shipping, storage and handling of the rolls. Such a balanced, symmetrical roll R is shown in Fig. 1. The enclosed and protected longitudinal reinforcing end or flap strips I balance the roll, enabling it to be stood upright equally as well as providing continuous edge-stiffening elements throughout the length of the rolled sheet and equally at both ends of the roll. The balanced roll may, of course, be wrapped in any suitable protective cover or wrapper (not shown).

The reinforcing and/or flap strips are preferably an asphalt saturated cotton fabric, although other materials such as treated paper, composition materials, etc., may be used and generally similar thicknesses are preferred along one or more edges and/or ends for uniform packaging.

These strips are permanently attached to the longitudinal edges of the roll roofing material at the factory. This may be done in any convenient manner as by gluing, stapling, stitching or otherwise.

Optionally reinforcing and/or flap strips may also be factory-attached as at **2** to one or both ends of the roll of roofing material and at conveniently spaced intervals intermediate of the ends as at **3** (see Fig. 2).

Where provided with the intermediate strips, the roofing material when cut along the indicated lines of cut A—A (Fig. 2) are duplicates of the edge and end strips (see Fig. 3).

Thus, when the course of roofing material is cut into sheets of convenient size along these intermediate strips, I obtain a roofing sheet, all edges of which have the characteristic section of Fig. 3.

Such a sheet is the ideal sheet in that any edge thereof may be the lapping or joint-forming edge, thus making the sheet universally usable on any type of roof.

The end strips, or the intermediate strips, or both, may however be omitted where considered unnecessary or undesirable on account of the extra cost involved, or otherwise.

Referring to Figs. 2 and 3 the flap strips are applied to both longitudinal edges of the roofing material, the area **4** being the attaching area of the strip and being glued or otherwise permanently affixed preferably upon the upper face of the material adjacent each longitudinal edge thereof, and the area **5** being a free or flap area.

When used with overlapped sheets, the attaching area **4** and the flap area **5** are substantially of equal width, the flap area folding outwardly along the indicated line of fold **6**.

When used with abutting sheets, the attaching area **4** is approximately one-half the width of the flap area **5**.

Regardless of whether the roofing sheets are overlapped or abutted when laid, there is a fabric-to-fabric seal, the fabric of the flap acting as an in-between packing substance and also affording an excellent retainer which seals in the adhesive material or holding cement (if such be used) so that it will not leak out of the built-up seam which thus results. Further, the fabric-to-fabric seal always advantageously provides similar material contact and binding surfaces towards insuring the desired positive bond. Fabric-to-fabric seal also may be thermo-responsive as well as responsive to pressure towards obtaining bond and seal desired whereas materials of different nature or composition might act the opposite.

In producing such fabric-to-fabric seal, adjacent sheets are overlapped and/or abutted and nailed. Where overlapped, the flap of the under sheet is folded upwardly and outwardly over the attaching area of the flap strip of the upper sheet. The flap of the upper sheet is then folded over said first named flap, after which the flaps are then sealed together in this relation in any suitable manner, as by means of a hot iron or its equivalent, or alternatively by first coating the entire flap strip of the upper roofing sheet with holding cement before folding and after folding and sealing the flaps down upon one another, then top coating the seam with cement or its equivalent.

Where a hot iron or equivalent is used, the simple act of passing the hot iron over the folded flap seals them fast and securely together, if the flap material contains asphalt or other thermo-responsive sealing substance. In this action, the attaching area **4** of the flap strip of the lowermost sheet becomes an in-between packing medium which responds to the hot iron, or to the in-between sheet lap cement if such is used, and a part of the free portion of the flap **5** of the lower sheet conforms to and seals over the outer longitudinal edge of the upper sheet. The balance of the free portion **5** of the flap strip of the lower sheet conforms to and seals over the outer longitudinal edge of the upper sheet. The balance of the free portion **5** of the flap strip of the lower sheet is bent over upon the attaching area **4** of the cooperating flap strip of the upper sheet to cover the nail heads, and the free portion **5** of said cooperating flap strip is bent over upon said free portion **5** of the flap strip of the lower sheet and sealed thereto to give double protection.

Where the roofing sheets are abutted, rather than overlapped, the flap area is approximately double the width of the attaching area in each flap strip so as completely to cover the rows of nails as well as to afford fabric-to-fabric seal throughout which seal as before stated is peculiarly responsive to hot iron treatment or cement top coating or both, and lends itself towards flat or flush-like seam covering.

In the variant shown in Figs. 4 and 5 I also obtain a fabric-to-fabric seal by applying a foldable fabric flap strip **7** to one longitudinal edge of the roofing sheet and a flat unfoldable fabric or selvage strip **8** to the opposite margin of the roofing sheet and preferably of the same material as the flap strip.

When assembled and nailed as at N in Fig. 5 the unfoldable selvage strip **8** of the lower sheet extends beyond the area lapped by the overlying roofing sheet a sufficient distance to afford a fabric-to-fabric seal with the overfolded nail-covering flap area **7***a* of the flap strip **7**.

This obviates the disadvantage of attempting to seal the flap area **7***a* down onto the mica, talc or other non-adhesive surface of the underlying sheet. The lapped part of the selvage strip **8** also affords an in-between packing medium or substance as well as reinforcing the bottom sheet, so that both upper and under sheets are reinforced.

The flap area **7***a* is made approximately twice as wide as the attaching area of the flap strip **7** in order to provide a flap of sufficient length to seal down upon the exposed portion of the selvage strip **8**.

The flap strip **7** and the selvage strip **8** are preferably impregnated with a thermo-adhesive which is responsive to the heat of a hot iron or its equivalent to cause the contacting areas of said strips to adhere to each other as a fabric-to-fabric seal.

In the variant shown in Fig. 6 each course of roofing material is provided at each longitudinal edge with a fabric reinforcing or selvage strip **11** and **12** corresponding generally to that shown at **8** in Figs. 4 and 5. When the roofing sheets are overlapped and nailed as at N to form the joint shown in Fig. 6, it results that there is sheet reinforcement for both sheets in the way of the nails. In order, however, to cover the nails I apply thereover a fabric seam tape **13**. This tape may be of waterproof material or may be waterproofed at the job by coating with suitable cement and sealing the same down with cement or hot iron over the seam as illustrated.

The seam tape **13** is furnished as an adjunct to the roofing material, being separate and in-

dependent of the roll roofing itself, which is an extensively used method, sometimes called "after-stripping," to repair leaky and faulty seams, but it is however unique when used in combination with selvage reinforcing strips 11 and 12 which provide reinforcement for both roofing sheets in the way of the nail lines and at the same time a fabric-to-fabric seal. In addition such selvage or reinforcing edges, as shown in Fig. 6 may be of greater width than the actual lap area of lap so as to provide extra strength beyond the actual area of lap to offset the strain imposed on the roofing by the working of the sheets up and down due to the elements, and to distribute the strain over a wider area than the lap as an additional guard against parting of the material.

Preferably the selvage strips 11 and 12 and the seam tape 13 are impregnated with a thermo-adhesive which is responsive to the heat of a hot iron or its equivalent to cause the contacting surfaces thereof to adhere to each other as a fabric-to-fabric seal.

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

1. A balanced, cylindrical and symmetrical package of roll roofing capable of being stood upright equally as well on either end, consisting of a sheet of mastic-saturated roofing material having flexible flap-forming strips along both longitudinal edges thereof, a marginal portion of each flap-strip being adhesively attached to the upper face of the sheet of roofing material along a marginal edge thereof and the other marginal portion of each flap strip being free and constituting a flap extending inwardly over the upper face of said sheet in prolongation of said marginal attaching portion, said strips being of different composition from the roofing material, being physically disconnected from the roofing material except for the adhesive, and being confined within the roll so as to be protected thereby and forming continuous edge-stiffening elements throughout the length of the rolled sheet equally at both ends of the roll.

2. A balanced, cylindrical and symmetrical package of roll roofing capable of being stood upright equally as well on either end, consisting of a sheet of mastic saturated roofing material having selvage edge reinforcing strips adhesively united to the roofing material along both longitudinal edges thereof, said strips being of different composition from the roofing material, being physically disconnected from the roofing material except for the adhesive, and forming continuous edge-stiffening elements throughout the length of the rolled sheet equally at both ends of the roll.

3. A balanced, cylindrical and symmetrical package of roll roofing capable of being stood upright equally as well on either end, consisting of a sheet of mastic-saturated roofing material having a flexible flap-forming strip along one longitudinal edge thereof and having a selvage edge reinforcing strip being adhesively united to the roofing material, and of different composition from the roofing material, being physically disconnected from the roofing material, except from the adhesive, and along the other longitudinal edge thereof, said strips forming continuous edge-stiffening elements throughout the length of the rolled sheet equally at both ends of the roll.

4. Roofing as claimed in claim 1, wherein the flap strips are of equal thickness so that the resulting roll will be of uniform dimensions at both ends.

5. In the method of preparing mastic-saturated roll roofing, the steps which comprise positioning along both marginal edges thereof a foldable flap-forming strip of material different from the material of the roofing sheet which provides reinforcement in all lapping, seaming and joining areas when the roofing sheet is cut into lengths and applied to the roof, attaching one area only of each flap strip along such marginal edge of the roofing sheet with an adjacent area of the flap strip left free and extending in prolongation of the attaching area of the strip and overlying the roofing sheet inwardly of the marginal edge thereof along which said flap strip is attached, and in finally rolling the roofing sheet and attached flap-strips into a symmetrical balanced cylindrical and compact roll for storage and with the flap strips positioned internally of the roll so as to be protected and concealed thereby and forming continuous edge-stiffening elements throughout the length of the rolled sheet equally at both ends of the roll.

6. In the method of preparing mastic-saturated roll roofing, the steps which comprise positioning along one marginal edge thereof a foldable flap-forming strip of material different from the material of the roofing sheet which provides reinforcement in all lapping, seaming and joining areas when the roofing sheet is cut into lengths and applied to the roof, attaching one area only of said flap strip along such marginal edge of the roofing sheet with an adjacent area of the flap strip left free and extending in prolongation of the attaching area of the strip and overlying the roofing sheet inwardly of the marginal edge thereof along which said flap strip is attached, attaching to the opposite marginal edge of the roofing sheet an unfoldable reinforcing or selvage strip of material different from the material of the roofing sheet, and finally rolling the roofing sheet and attached flap and selvage strips into a symmetrical balanced cylindrical compact roll for storage and shipment with the strips positioned internally of the roll so as to be protected and concealed thereby and forming continuous edge-stiffening elements throughout the length of the rolled sheet equally at both ends of the roll.

7. A course of mastic-saturated roofing material having a fabric flap strip extending along one longitudinal edge thereof, the outer marginal portion of said strip being attached to said course and the inner marginal portion of said strip being free and constituting a foldable flap, and having an unfoldable fabric reinforcing or selvage strip attached to its opposite longitudinal edge so that when said course is brought into joint-forming relationship with another course having similarly proportioned edge strips the flap of the upper course is adapted to be turned outwardly into overlying relationship to the uncovered portion of the selvage strip on the under sheet in fabric-to-fabric sealing relationship.

8. Roofing as claimed in claim 7 wherein the flaps and selvage strips are impregnated with a thermo-adhesive which is responsive to the heat of a hot iron or its equivalent to cause the contacting fabric-to-fabric areas of the flaps and selvage strips tightly to adhere to each other.

9. A course of mastic-saturated roofing material having an unfoldable reinforcing strip or selvage edge at each longitudinal edge thereof, the strip at one longitudinal edge being partly lapped

over the similarly located strip of an adjacent course to provide reinforcement of both under and upper sheets at the joint, and a separate seam tape applied over the upper exposed surfaces of both selvage strips in fabric-to-fabric joint forming relationship.

10. Material as claimed in claim 9 wherein the selvage edge strips and the seam tape are impregnated with a thermo-adhesive which is responsive to the heat of a hot iron or its equivalent to cause the contacting fabric-to-fabric areas tightly to adhere to each other.

11. A course of mastic-saturated roofing material having an unfoldable fabric reinforcing strip at one longitudinal margin and a foldable fabric flap strip at its opposite longitudinal margin, the outer marginal portion of said flap strip being attached to said course and the inner marginal portion of said flap strip being free and constituting a foldable flap of substantially twice the width of said attached portion of the flap strip so that when said course is brought into joint-forming relationship with another course having an unfoldable reinforcing strip on its adjacent longitudinal edge the flap may be turned outwardly into overlying relationship to such unfoldable reinforcing strip and sealed down thereover.

12. Material as claimed in claim 11 wherein the unfoldable reinforcing strip is of a length sufficient to project beyond the lap edge of the overlapped courses and afford a fabric-to-fabric seal with the flap portion of the flap strip.

SIDNEY L. EASON.

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SIDNEY LANIER EASON

The above entitled patent was extended February 26, 1952, under the provisions of the act of June 30, 1950, for 6 years and 57 days from the expiration of the original term thereof.

Commissioner of Patents.