Oct. 12, 1937. N. P. HARSHBERGER 2,095,249

ROOFING AND SIDING ELEMENT

Filed June 12, 1933

Fig. 1.

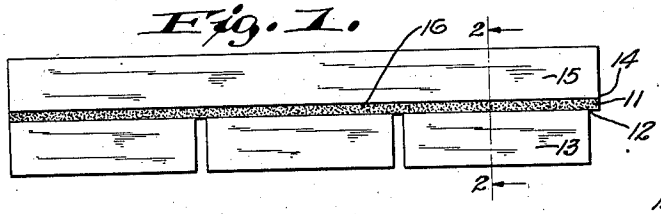


Fig. 2.

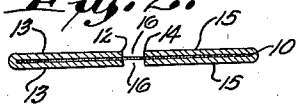


Fig. 3.



Fig. 4.

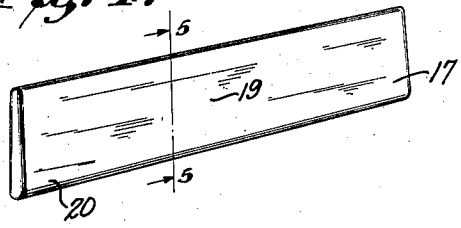


Fig. 5.

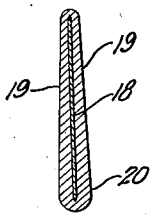


Fig. 6.

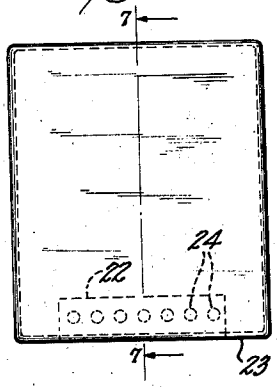


Fig. 7.

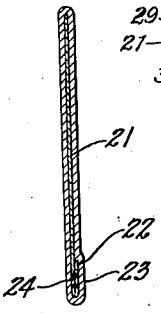


Fig. 10.



Fig. 11

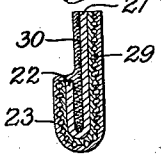


Fig. 8.

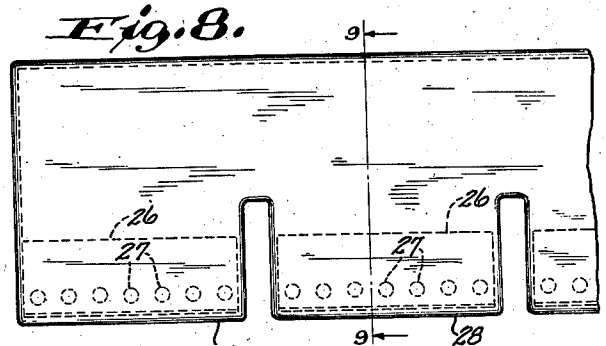
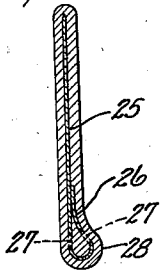


Fig. 9.



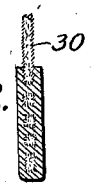


Fig. 12.

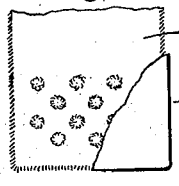


Fig. 13.

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ROOFING AND SIDING ELEMENT

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Application June 12, 1933, Serial No. 675,453

5 Claims. (Cl. 91—68)

This invention relates to improvements in roofing and siding and method of producing the same.

The ordinary type of flexible, composition roofing has been manufactured in various ways to produce figure effects on the surface thereof for the purpose of simulating bricks or the like. In a rigid element the formation of the necessary lines of demarcation between individual figures presents a different problem from that in a flexible element, and the present invention, therefore, has for one of its objects the provision of a simple method for producing on rigid elements this type of surface effect.

Ordinary wooden shingles are usually tapering in cross section with a thickened butt edge, and in order to simulate the ordinary wooden shingle it is therefore desirable to provide an article presenting this same tapered appearance. Furthermore, the thickened butt edge creates a distinctive shadow effect which adds to the attractiveness of the roof. It is, therefore, another object of this invention to provide a simple method of applying a coating such as hydraulic cement during the manufacture of rigid elements so as to form elements with a thickened lower edge portion.

A further object of the invention is to provide as new articles of manufacture, rigid roofing and siding elements having a surplusage of coating material at the butt edge thereof.

With the above and other objects in view, the invention consists of the improved roofing and siding and method of producing the same, and all the parts and combinations thereof as set forth in the claims and all equivalents thereof.

In the accompanying drawing, in which the same reference numerals designate the same parts in all of the views:

Fig. 1 is a plan view of one type of element produced by the improved method;

Fig. 2 is an enlarged sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a sectional view similar to Fig. 2 showing a modified form of the invention;

Fig. 4 is a perspective view showing a building element of tapering cross section;

Fig. 5 is an enlarged sectional view taken on line 5—5 of Fig. 4;

Fig. 6 is a plan view showing another form of building element;

Fig. 7 is a sectional view taken on line 7—7 of Fig. 6;

Fig. 8 is a fragmentary plan view of still another modification;

Fig. 9 is a sectional view taken on line 9—9 of Fig. 8;

Fig. 10 is a broken section of a strip of flexible material having a mineral coating on both sides;

Fig. 11 is a fragmentary portion of an element folded similar to that of Fig. 7 but utilizing the strip of Fig. 10;

Fig. 12 is a fragmentary cross section of another element; and

Fig. 13 is a face view of the element of Fig. 12 with its coating broken away to show its under structure.

Referring more particularly to the drawing, Figs. 1 and 2 illustrate a form of roofing or siding element designed to simulate bricks, and which may comprise a structure having a plurality of tab projections at a lower edge spaced by transverse slots which extend, for instance, to a line of demarcation 12, and create upon the element the effect of a plurality of brick-like figures. This element comprises a core 10 cut from a moving web of paper, felt or the like made from vegetable fibres, wool, asbestos, or hair, alone, in combination, or with other materials which have preferably been saturated with a waterproofing material, for instance, a low melting point asphalt and coated on one or both faces with a bituminous material, for instance, a high melting point asphalt. To the bituminous coating has been applied and partially embedded crushed mineral 11, which may be, for instance, crushed brick, gravel, crushed slag, pebbles, crushed slate, coke, crushed glass or granulated petrified materials.

The mineral particles I have found preferable for use in this invention in order to present a surface structurally adapted for the application of my cement coating, have been those of a high porosity, possessive of considerable inherent physical strength, and particularly those of a type whose chemical composition makes them capable of combining with the cementitious substance to form a unified mass, as for instance, slags. The slags which I use have a composition similar to cement and react with water in a similar manner to cement, that is, the alumina and silica minerals of the slag react with water to form hydrated aluminates and silicates. Further, when the cement coating is applied, this type of slag reacts more vigorously with water in the presence of the free lime which may be liberated from the cement than it will with other materials. I prefer to use slags having ingredients, aluminum oxide, silicon oxide, and iron oxide of less than sixty per cent (better less

than fifty per cent) by weight of their composition and preferably not less than twenty per cent; and/or slags preferably having between thirty and seventy per cent of their weight as calcium oxide and magnesium oxide content and/or slags having an aluminum oxide to silicon oxide ratio of no less than one third by weight.

According to the improved method, the treated core, by hand or automatically by suitable holding fingers which may also be part of a moving system, is lowered in a suitable receptacle containing a suitable coating material. In general I principally use for my coating a hydraulic cement. Those I have found most suitable for my purpose are such distinct types as, for instance, high alumina cements (Ciments Fondu) such as Lumnite, ordinary Portland cement, such as Lehigh, Medusa, high early strength Portland cement, as Incor, white cements, such as Ferrocrete, Medusa and White Portland, magnesium cements, such as magnesium oxychloride and special cements, for instance, ore cements, (Erz Zement).

The coating may be a natural colored cement, a colored cement, a cement mixed with coloring pigments or it may be any of these in combination, or any mixed with an aggregate of other materials, for instance, clay, diatomaceous earth, marble dust, hair or asbestos fibres.

The core is immersed into the binder with one longitudinal edge entering the material first and to a depth slightly less than half of its width, or, on the form shown in Fig. 1 up to the line **12**. It is then removed from the coating material, and the latter will be deposited thereon as at **13** to form a relatively heavy surface layer. As soon as the coating material has set sufficiently so that it will not run, the other longitudinal edge of the element may be immersed in the coating material up to the line **14** to apply a relatively heavy coating as indicated by the numeral **15**. When the element is again withdrawn from the coating material, there will be a space between the coatings formed by the two coating operations, which will expose the mineral surfacing of the core, as at **16**. Thus a very definite line of demarcation may be formed in a very simple manner. By utilizing crushed mineral **11** of one color, for instance of mortar, and hydraulic cement of a contrasting color, for instance of burnt brick, a very effective appearance can be produced. A number of these would produce the effect of a brick wall. In this case the coating **15** is preferably omitted.

The element shown in Fig. 3 differs from that of Fig. 2 in that the core **10** is first completely immersed in the hydraulic cement to form the original coating **10'**. The coatings **13** and **15** are then applied in identical manner to that just described in connection with Figs. 1 and 2, so that the depressed lines **16** are formed to expose the first coating **10'**. By utilizing cement of one color in the original coating **10'** and cement of another color in the coatings **13** and **15**, a distinctive effect can be produced.

To produce the tapered element illustrated in Fig. 4 and designated generally by the numeral **17**, the dipping process is also utilized. In this instance, a suitable core **18** of any of the materials heretofore mentioned, preferably saturated and coated with a bituminous substance such as asphalt and also preferably having a mineral surfacing embedded therein, is completely immersed in a receptacle containing the hydraulic cement or other coating material. The element is then withdrawn and the coating **19** of hydraulic cement or the like will completely cover both sides and all of the edges of the core. The element is then hung in a position as indicated in Fig. 4 so that the hydraulic cement, before it has set, will tend to flow by gravity in a downward direction and accumulate in relatively larger quantities along the lower longitudinal edge of the element. When the cement has completely set, the element will therefore have a relatively heavy lower longitudinal edge **20**, as indicated in Figs. 4 and 5. This heavy edge will create a very distinctive shadow effect in assembly.

Another method of producing a heavy edge portion is illustrated in Figs. 6 and 7. In this form of the invention, the suitably treated fibrous core **21** has a desired edge portion turned under as at **22**. The core is then dipped in a coating material such as hydraulic cement, and due to the enlargement of one edge caused by the turned under portion **22**, the coating will naturally have a more massive appearance along said edge, as at **23**. It is preferred to form the turned under flap and the material thereadjacent with apertures **24**. The cement coating, before it has set, will naturally flow into these apertures, and thus more firmly anchor itself in place.

As illustrated in Fig. 6, the turned under flap **22** need not extend the full width of the element but may end a distance back from each side edge. When the coating has been applied there will be side edge portions extending the full length of the element of equal thickness but of less thickness than where the flap exists. This is useful in assembly as it assists in the proper registration and positioning of the elements.

A distinct advantage is obtained in making the folded forms of Fig. 7 if a mineral coated sheet is used. Fig. 10 shows such a strip before it is folded in which there is a heavy mineral surfacing **29** on one side and a fine mineral surfacing **30** on the other. When the strip is folded as in Fig. 11 with the mineral surfacing **29** on the outside it will be noted that the particles are spread open by the folding operation and form larger cavities for the coating material. When the coating is applied, the mineral particles will form an excellent anchorage for the coating and with the coating material between the particles at the fold a rigid bend will be obtained when the coating has hardened.

Still another method of producing a heavy edge portion is disclosed in Figs. 8 and 9. A suitably treated fibrous base **25** has its lower edge turned under in the form of a loop, as at **26**, and this looped lower edge portion is preferably provided with spaced apart perforations **27**. Next, the core thus formed is dipped in coating material such as hydraulic cement, and due to the looped formation of the core, the lower edge when coated will have a heavy and massive appearance, as at **28**. During the dipping operation, the cement will flow through the perforations **27** within the loop to fill up the space therein, and thus a solid lower edge will be provided. The structure may as illustrated include a tab-like edge formation formed by suitable transverse slots in the lower edge of the base **25**. As shown in Fig. 8, each tab of the base may have a fold, for instance, in the form of a loop.

In Figs. 12 and 13 are shown another means of anchoring the coating. In this instance the core **30** has a series of perforations or formed openings arranged over its face. It is preferred that the

web be of a material containing long fibres so that the fibres may protect from all faces and in and around the apertures. Thus when the cement coating is applied there will not only be penetration through the holes to serve as an anchorage but also the fibrous edges and individual fibres will grip the coating.

From the above, it may be seen that a very simple method has been provided for use in the manufacture of rigid roofing and siding elements to produce effects thereon which render the roofing or siding more attractive when assembled. Also a great number of advantageous anchoring means are provided for the coating material. These may be used singly or in combination and it is evident that many changes may be made in the details of the invention without departing from the spirit thereof. It is desired that the invention be construed as broadly as the following claims taken in conjunction with the prior art, may allow.

I claim:

1. A roofing and siding element comprising a base of pliable material, said base having a portion forming a fold, granular material secured to the outer side of said fold around the bend thereof, and a hardened and rigidifying coating comprising hydraulic cement over said granular material around said bend, whereby to create a rigid bend resisting opening of the fold.

2. A roofing and siding element comprising a base of pliable material, an edge portion of said base forming a loop, granular particles secured to and extending around said loop, and a hardened and rigidifying coating comprising hydraulic cement over said granular particles and extending around the bend of said loop whereby to create a rigid bend resisting opening of the loop.

3. A roofing and siding element comprising a base of pliable material, said base surfaced upon its opposite sides with granular particles adapted to anchor a hydraulic cement, a portion of said base folded to form a thickened butt portion, and a hardened and rigidifying coating comprising hydraulic cement extending around the fold and anchored to the granular material on the opposite sides of the base to create a rigid bend and retain the folded portion in the formed position.

4. A roofing and siding element comprising a base of pliable material, said base surfaced upon its weather side with coarse mineral material and upon its opposite side with fine mineral material, a portion of said base folded to form a thickened butt, and a hardened and rigidifying coating comprising hydraulic cement on the weather side extending around the bend of the fold and over the fine mineral material upon the opposite side of the base, whereby to create a rigid bend and to join the coarse and fine mineral material with the cementitious coating.

5. A roofing and siding element comprising a base of pliable material, said base having a plurality of tabs along its lower edge separated by intervening cut-outs, said tabs having a folded marginal butt portion, and granular material secured to the weather side thereof and extending around the bend of the fold, and a hardened and rigidifying coating comprising hydraulic cement over said granular material whereby to create rigid tabs and bends to resist opening of the folded portions.

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