Dec. 25, 1945. G. SMOLAK 2,391,805

METHOD OF MAKING A COVERING ELEMENT

Filed May 19, 1944

Fig. 1.

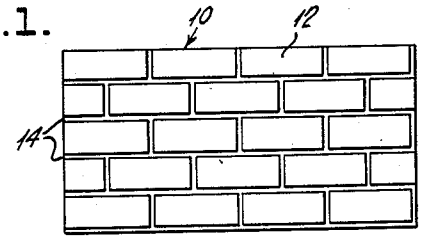


Fig. 2.

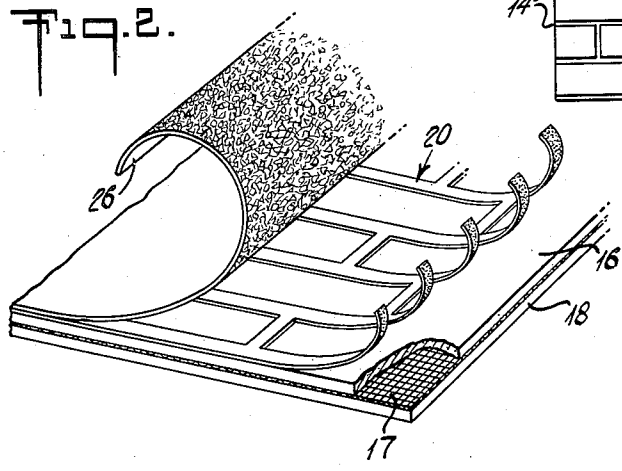


Fig. 4.

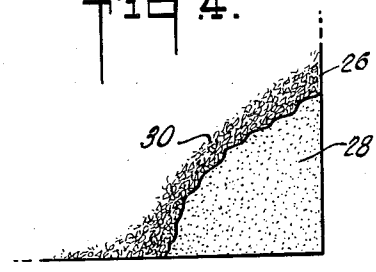


Fig. 3.

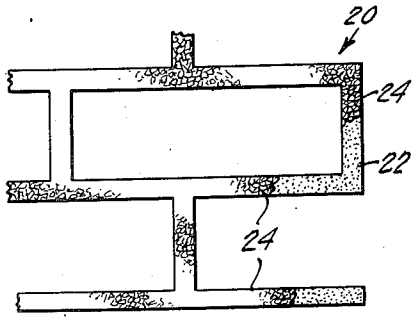


Fig. 5.

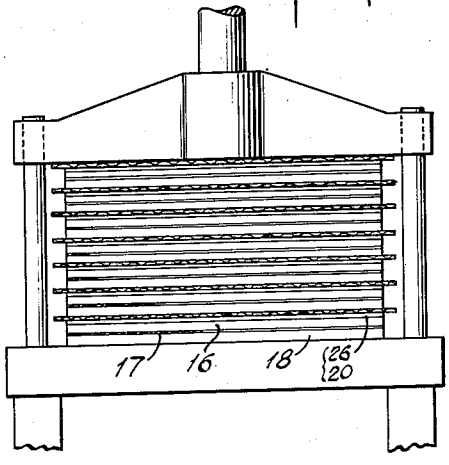
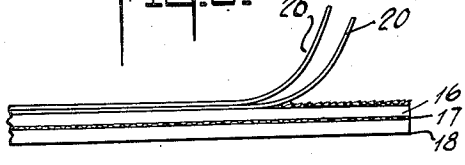


Fig. 6.



INVENTOR
GEORGE SMOLAK.
BY Virgil C. Kline
ATTORNEY

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METHOD OF MAKING COVERING ELEMENTS

George Smolak, Somerville, N. J., assignor to Johns-Manville Corporation, New York, N. Y., a corporation of New York

Application May 19, 1944, Serial No. 536,276

9 Claims. (Cl. 18—61)

The instant invention relates to an improved method of manufacturing panels for siding and similar purposes and, more particularly, to the manufacture of panels composed of a hardened, compressed asbestos-cement or similar material having a surface simulating a multiplicity of courses of building units, such as bricks, stones or the like.

A principal object of the invention is the provision of an improved method of making relatively large panels of the type referred to from asbestos-cement material, the bricks or other units being delineated by depressed joint simulations of contrasting color and/or character.

Another object of the invention is to provide a method for the manufacture of such panels of relatively large size, the method involving the conjoint use of stencil and transfer sheets to provide an intaglio design of bricks or like units separated by mortar joints, the brick simulating areas carrying a surfacing material contrasting in appearance to the joint simulations.

A further object of the invention is the provision of a method of producing asbestos-cement panels which accurately portray the appearance of a plurality of courses of building units.

A still further object of the invention is the provision of a method for the purposes defined above which is susceptible to rapid commercial operation.

My invention will be more fully understood and further objects and advantages thereof will become apparent when reference is made to the more detailed description of a preferred embodiment thereof which is to follow and to the accompanying drawing, in which:

Fig. 1 is a plan view of a siding or similar unit made in accordance with the instant invention;

Fig. 2 is a diagrammatic, perspective view illustrating the method of the instant invention;

Fig. 3 is a fragmentary, plan view of a stencil employed in the method;

Fig. 4 is a fragmentary, plan view of a transfer sheet employed in the method;

Fig. 5 is an elevational view illustrating a pressing step of the method; and

Fig. 6 is a diagrammatic, elevational view illustrating a further step in the method.

A siding unit or the like, simulating the appearance of a plurality of courses of building units such as bricks, made by the method of the instant invention, is illustrated at 10 in Fig. 1. As shown, the panel may comprise a plurality of brick simulating areas 12, delineated by depressed mortar joint simulations 14. Areas 12 are suitably of brick texture and color, this effect being obtained by a coating or surfacing of a relatively fine, granular material, partially embedded in the asbestos-cement or other fibre-cement material, of which the base of the panel is composed. The mortar joint simulations are similarly preferably surfaced with fine granules or the like of a mortar color, partially embedded in the base slab. The units may be made of any desired thickness to have any necessary strength and stability. Also, if desired, they may be made relatively thin and be laminated to a supporting or insulating backing sheet such as a sheet of fiberboard or the like.

In accordance with the method of the invention, a base sheet 16 of asbestos-cement in a wet, unset state is laid on a supporting surface such as a steel plate 18 or the like. The sheet may be prepared in a conventional manner by a wet machine operation in which the sheet is built up on an accumulator drum from a multiplicity of thin laps of an asbestos-cement slurry or by a filter press operation or the like, but should contain a substantial amount of water at this stage. It has been found that a sheet using conventional stock, that is, approximately equal parts of asbestos fiber and Portland cement formed in a filter press under a pressure of only about 150 lbs. per sq. in. is particularly suitable. The wet sheet is preferably laid on a screen 17 which is supported by steel plate 18 with either the roughened screen face, that is the face which was against the screen of the press, or the smooth die face turned upwardly. The base sheet may contain any suitable pigmenting medium to impart a desired color thereto and may contain other ingredients conventionally employed in the manufacture of asbestos-cement products.

A stencil 20, formed of a flexible material, is placed to overlie the base sheet as indicated in Fig. 2. A material found suitable for this purpose is rag felt such as employed in the manufacture of flexible roofing and the like. The stencil, cut in the desired design with the cut-out spaces defining the building unit areas, is first sized on one face with vinsol resin, a lacquer or other conventional water-insoluble sizing to prevent such rapid absorption of water as to decrease its strength and is then coated on the sized face, by a spray, transfer roll or other means, with a water-soluble adhesive 22 (see Fig. 3). The ideal adhesive is one which is strong when dry, but which rapidly softens or dissolves in the presence of moisture. For example, adhesives such as sodium silicate, dextrin, glue or

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the like, or mixtures thereof may be employed, dextrin being preferred. While this material is in the adhesive state a coating **24** is applied thereto. The coating comprises sand or similar granular material, intermixed with Portland cement or the like, the two being present in suitable proportions, say 60% sand and 40% cement. Other fine granular materials which will simulate mortar or other joint fillers may be employed. The granular material is lightly pressed into the adhesive and the excess removed. The stencil is applied, after the adhesive has hardened, with its coated face against the base sheet.

A transfer sheet **26** (see Fig. 4) is prepared to temporarily support a granular material to constitute the facing for the brick simulating areas. Sheet **26** may also be formed of any suitable absorbent, flexible material which can be quickly wet by water. As a specific example, a 15 mil kraft paper has been found to be particularly suitable for this purpose. The sheet is provided with a coating **28** of a water-soluble adhesive, such as any of those referred to above for use on the stencil. A mixture of a relatively fine, granular material **30** of the character of the granules employed on asphalt roofing or the like, and of a color to simulate the selected building unit together with a cement, and preferably a pigment, is distributed over the coated area and lightly pressed therein to become adhered thereto, any excess being shaken off. The materials are employed in suitable proportions, say 70% granules, 27% cement and 3% pigment. If desired, different portions of the sheet may be coated with granules of different colors to provide the appearance in the completed unit of individual bricks or groups of bricks of different color or character. After the adhesive is hardened to insure retention of the granular material, the transfer sheet is applied over the stencil with the coated surface adjacent the stencil, as illustrated in Fig. 2.

A plurality of assemblies made as described above, are piled up with a filter screen interposed between adjacent assemblies, and the piles inserted in a press, as illustrated in Fig. 5, and subjected to high pressure therein, say to a pressure of 2,000 lbs. or more per sq. in. During the pressing operation the stencil is impressed into, and its granular material is firmly embedded in, the plastic material of the base sheet. At the same time, the adhesive securing the granular material to the stencil is softened or dissolved, and the cementitious content of the coating is hydrated. Similarly, the coating carried by the transfer sheet in those areas exposed to the base sheet through the cut-outs is embedded in the base sheet, the adhesive binding the granular material to the transfer sheet is softened or dissolved and the cementitious content of the coating is hydrated.

After completion of the compressing action, the assemblies are immediately removed from the press and the transfer sheets and stencils stripped therefrom as illustrated in Fig. 6, leaving raised brick simulating areas surfaced with an embedded layer of granules supplied by the transfer sheet and depressed mortar joint simulations surfaced with granules supplied by the stencil. The asbestos-cement sheets are then cured. The sheets may be trimmed to size either before or after curing.

As previously pointed out, slabs constructed in accordance with the method may be employed directly as covering elements, or may be laminated to other materials such as fiberboard backing sheets or the like. Relatively large panels, say 4' x 8' can be expeditiously prepared by the instant method. Panels of such large size promote rapid erection on the job and also reduce the number of joints required between panels. Inasmuch as the shape of the brick simulating areas and the mortar joint lines is controlled by the stencil, the design of a brick or stone construction can be accurately portrayed. Also, color variations in different brick simulating areas may be readily employed to provide a variegated appearance.

A further advantage of the construction resides in the fact that a substantially unitary construction is obtained, the surfacing materials being integrally bound to the base slab.

Having thus described my invention in rather full detail it will be understood that these details need not be adhered to but that various changes and modifications may suggest themselves to one skilled in the art, all falling within the scope of the invention as defined by the subjoined claims.

What I claim is:

1. In the method of making a covering unit having a design of building elements delineated by joint simulations, the steps comprising laying a cut-out stencil of the design of the joint lines to overlie a wet sheet of fibre-cement material, laying a sheet carrying a coating of surfacing material to overlie said stencil with said coating adjacent said stencil and sheet, heavily pressing the assembly thus formed to impress the stencil into the fibrous, cementitious sheet and to join the surfacing material to the fibrous, cementitious sheet through the openings of said stencil, and stripping off the sheet and stencil.

2. In the method of making a covering unit having a design of building elements delineated by depressed joint simulating lines, the steps comprising laying a coated cut-out stencil of the design of the joint simulating lines on a wet sheet of fibrous, cementitious material with the coating adjacent the sheet, laying a transfer sheet carrying a coating of surfacing material to overlie said stencil, with the coating thereon adjacent the stencil, pressing the assembly thus formed to join said coatings to the fibrous, cementitious sheet and stripping off the transfer sheet and stencil.

3. In the method of making an asbestos-cement covering unit carrying a design of building elements delineated by depressed joint simulating lines, the steps comprising laying a cut-out stencil of the design of the joint simulating lines and carrying a granular coating secured thereto by a water-soluble adhesive to overlie a wet sheet of asbestos-cement material, with the coating adjacent the sheet, laying a transfer sheet carrying a coating of surfacing material secured thereto by a water-soluble adhesive to overlie said stencil, with the coating adjacent the stencil and the asbestos-cement sheet, pressing the assembly thus formed to join said coatings to said asbestos-cement sheet, stripping off the sheet and stencil and curing the asbestos-cement sheet.

4. In the method of making an asbestos-cement brick simulating siding panel, the steps comprising preparing a base sheet of wet asbestos-cement composition, preparing a stencil of the design of the joint lines of a plurality of partial courses of brick by coating a surface of the stencil with a layer of joint simulating material secured thereto by a walter-soluble adhesive, preparing a transfer sheet by coating a face thereof with a layer of surfacing material secured thereto by a water-soluble adhesive, laying said stencil

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with said coated surface against the asbestos-cement sheet, laying the transfer sheet with the coated surface thereof to overlie said stencil, pressing the assembly thus formed to join said coatings to said asbestos-cement sheet, stripping the transfer sheet and stencil from the assembly and curing the asbestos-cement sheet.

5. In the method of making an asbestos-cement brick simulating siding panel, the steps comprising preparing a base sheet of wet asbestos-cement composition, preparing a stencil from a flexible material in the design of the mortar joints of a plurality of brick courses and coating a face of said stencil with a mixture of granular surfacing material and cement, said mixture being secured to said stencil by a water-soluble adhesive, preparing a flexible transfer sheet by coating the sheet with a layer comprising a mixture of brick-colored, granular surfacing material and cement, said mixture being secured to the transfer sheet by a water-soluble adhesive, laying said stencil with said coated surface against the base sheet, laying the transfer sheet with the coated face overlying said stencil, pressing the assembly thus formed to partially embed said granular coatings in said asbestos-cement sheet, stripping the transfer sheet and stencil from the assembly and curing the asbestos-cement sheet.

6. The method comprising forming a multiple unit simulating siding from an asbestos-cement material, the steps comprising preparing a stencil in the design of the joints of a plurality of courses of building units from a water absorbent, flexible material by applying a water-soluble adhesive to a face of the stencil and adhering a coating comprising a mixture of granular material and cement to said adhesive, preparing a transfer sheet from a water absorbent, flexible material by applying a water-soluble adhesive to a face of said sheet and adhering a coating comprising a mixture of a granular material and cement to said face by said adhesive, laying said stencil to overlie a wet sheet of asbestos-cement material with said granule coated face against said asbestos-cement sheet, laying said transfer sheet to overlie said stencil with the coated face of the transfer sheet against said stencil and asbestos-cement sheet, pressing the assembly thus formed to partially embed said granular coatings in said asbestos-cement sheet, stripping the transfer sheet and stencil and curing said asbestos-cement sheet.

7. In the method of making an asbestos-cement multiple unit simulating siding, the steps comprising forming an asbestos-cement sheet by a wet pressing operation with a pressure employed of the order of 150 lbs. per sq. in., applying a cut-out stencil of the design of the joint simulating lines and carrying a granular coating to overlie said asbestos-cement sheet, laying a transfer sheet carrying a coating of surfacing material to overlie said stencil, pressing the assembly thus formed to join said coatings to said asbestos-cement sheet, stripping the transfer sheet and stencil from the assembly and curing the cement.

8. In the method of making an asbestos-cement multiple building unit simulating siding panel, the steps comprising forming an asbestos-cement sheet by a wet pressing operation, preparing a stencil of the design of the mortar joint lines of a plurality of building unit courses by securing a mixture of a granular surfacing material and cement to one face thereof by a water-soluble adhesive, preparing a transfer sheet by applying a coating comprising a mixture of a granular surfacing material and cement to one face thereof with a water-soluble adhesive, laying the stencil with its coated surface against the asbestos-cement sheet, laying the transfer sheet with the coating thereon against said stencil, pressing the assembly thus formed to partially embed the granular coatings into said asbestos-cement sheet and to compress and densify such sheet, stripping the transfer sheet and stencil from the assembly and curing the cement material.

9. In the method of making an asbestos-cement multiple unit simulating siding, the steps comprising preparing a wet asbestos-cement base sheet, preparing a stencil of the design of the mortar joints of a plurality of courses of building units by securing thereto a coating layer comprising a mixture of granular material, pigment, and cement, by a water-soluble adhesive, preparing a transfer sheet by securing to one face thereof a coating material comprising a granular material and cement by a water-soluble adhesive, laying said stencil to overlie said base sheet with said coating in contact with said base sheet, laying said transfer sheet to overlie said stencil and base sheet with the coating thereon in contact with the stencil and base sheet, placing the assembly thus formed with a plurality of similar assemblies in a press with a filtering screen between adjacent assemblies, pressing such assemblies by imposing thereon a pressure of the order of 2200 lbs. per sq. in., removing the assembly from the press, stripping said stencil and transfer sheet from the assembly and curing the cement.

GEORGE SMOLAK.

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