Feb. 21, 1950 A. ELMENDORF 2,498,403

METHOD OF FACING FRAME STRUCTURES

Filed April 19, 1946

Fig. 1.

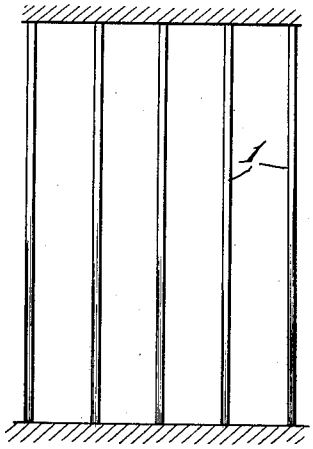


Fig. 2.

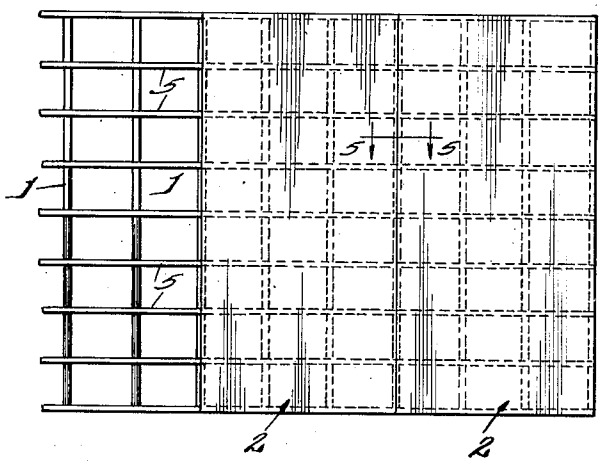


Fig. 4

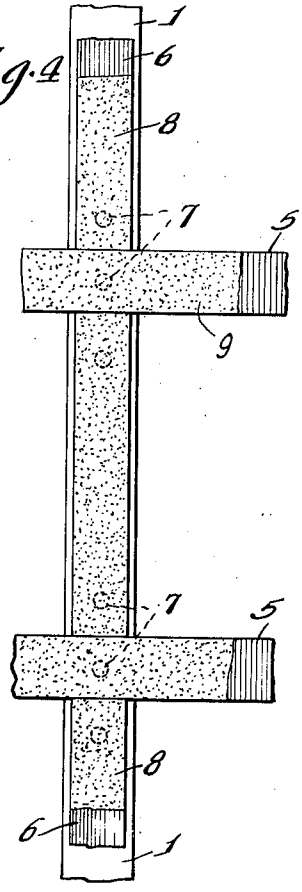


Fig. 3.

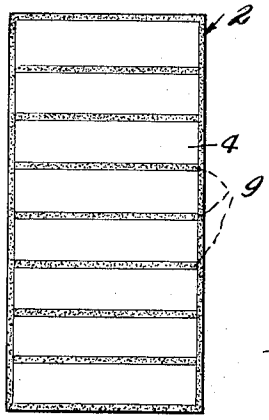


Fig. 5.

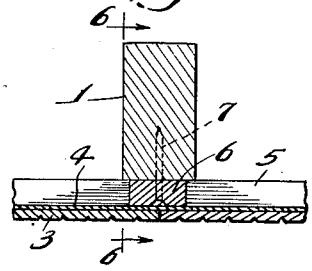
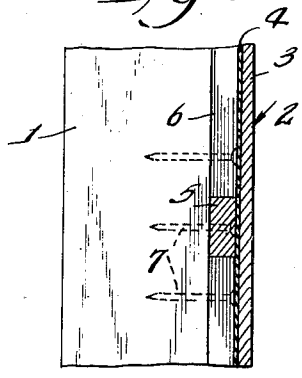


Fig. 6



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METHOD OF FACING FRAME STRUCTURES

Armin Elmendorf, Chicago, Ill.

Application April 19, 1946, Serial No. 663,471

3 Claims. (Cl. 20—4)

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In my prior application Ser. No. 520,909, I have disclosed a novel type of panel which, in its simplest form, may be composed of a layer of processed wood veneer having a backing of tough paper bonded thereto. Panels of this two-ply type, with the veneer from one twelfth to one fourth inch in thickness, can be bonded to plaster walls or the like and give service that is entirely satisfactory. However, the same is not true where the panels must be applied directly to a wall frame structure that contains large open spaces as, for example, the spaces between the studs of the most common type of frame for a wall; this being due to the fact that, although these panels are stiff in the lengthwise direction, they bend easily along lines parallel with the wood grain.

Such panels can be reenforced with wood strips bonded to the paper backings in a predetermined pattern. While such reenforced panels are sufficiently stiff to make them entirely satisfactory for direct attachment to the studs or other frame elements, it is necessary to drive nails through the panels and into the frame. There are certain disadvantages in the use of such exposed nailing.

The primary object of the present invention is to make possible the reenforcing of panels of the aforesaid non-rigid type in the same way as when the reenforcing strips are applied in the factory without, however, resorting to exposed nailing in making installations.

In carrying out my invention, the reenforcing strips are not applied to the panels in the factory and need not even be made there, as long as material is available at the point of installation from which proper strips may be formed.

Therefore, viewed in one of its aspects, the present invention may be said to have for its object a simple and novel method of installing panels and separate reenforcing strips, arranged in a predetermined pattern with respect thereto.

In making an installation, the reenforcing elements for any desired number of panels are nailed to the members of a wall frame structure, and then the panels are bonded to the strips. Thus the reenforced panels may be said to be nailed to the frame structure without the presence of oxposed nailing.

The various features of novelty whereby the present invention is characterized will hereinafter be pointed out in the claims; but, for a full understanding of the invention and its objects and advantages, reference may be had to the following description taken in connection with the accompanying drawing, wherein:

Figure 1 is an elevational view of a fragment

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of a simple wood framework for a wall, the principal members of which are spaced, upright studs; Fig. 2 is a face view of a larger fragment of the wall frame, partly faced in accordance with the present invention; Fig. 3 is a rear view of one of the preformed panels having on limited areas thereof adhesive for the purpose of securing it in its intended place on the wall; Fig. 4 is a front view, on a much larger scale, of a fragment of one of the studs in the wall frame, partially concealed by panel-reenforcing strips nailed thereto and having adhesive on their outer faces; Fig. 5 is a section on line 5—5 of Fig. 2, on the same scale as Fig. 4; and Fig. 6 is a section on line 6—6 of Fig. 5.

Referring to the drawing, 1, 1 represent the studs present in common forms of building walls and partitions construction and normally spaced sixteen inches apart; these studs being intended to be representative of any usual or suitable open-work adapted to be faced, at least on one side, with panels of any kind. 2, 2 are panels each composed of a single layer of wood veneer 3, with the wood grain running lengthwise of the panel, backed with strong paper 4, bonded thereto. These panels may conveniently be of the type disclosed in the aforesaid application, the wood being processed so as not to expand more than from one third to one half as much as will a like piece of wood, not processed in any way, upon absorbing moisture. The veneer may be from one twelfth to one quarter of an inch thick and the thickness of the paper may be from .01 to .03 inch. Such a panel may be made stiff for direct nailing to a wall framing by bonding wood reenforcing strips to the paper backing; thereby creating a panel that is lighter and cheaper than a plywood panel. However, such a reenforced, preformed panel must still be nailed to the wall framing, just as in the case of plywood, and leave exposed nailing.

In accordance with the present invention, the reenforcing strips are not attached to the panels in the factory but at the time of installing the panels in their positions of final use. In other words, the reenforcing strips are nailed to the studs or other framing and the panels, which were delivered in a flexible condition, are then bonded to the strips, completely covering the nails.

There may be, and preferably are, both transverse and longitudinal strips, 5 and 6, respectively. The transverse strips need not be cut into lengths corresponding to the width of a panel, but may be of any length which is a multiple of

the distance between the centers of consecutive studs, or only long enough to span the distance between two consecutive studs; the only requirement as to length being that no free ends should be left floating in the spaces between studs. The longitudinal strips are simply short pieces overlying and extending lengthwise of some of the studs in the spaces between the transverse strips; such vertical strips being needed only on those studs in front of which two panels meet. All of the strips are fastened to the studs with suitable nails 7. The strip material may be from three eighths to three quarters of an inch thick and have a width in the neighborhood of one and one half inches. The spacing between the transverse strips 5 may be from three to eight times the widths of the strips. The greater the spacing, the lower is the cost. The upper limit for the spacing is determined, however, by the shear strength of the paper backing element of the panel. If the bond between the strips and the paper backing covers substantially less than one eighth of the surface of the paper, failure of the bond is apt to occur through shearing of the paper.

After the strips have been nailed to the studs, a layer of adhesive 8 is applied to their outer faces. Adhesive is likewise applied to the paper backing of each panel in a pattern 9, corresponding to the arrangement of the strips to be covered by that panel when the latter is placed in its proper position against the frame structure on which the strips have already been secured. Consequently, when a panel is set in place against the framing, the adhesive on the back thereof registers and contacts with the adhesive on the reenforcing strips allotted thereto.

I much prefer to use adhesive of the "dry bonding type," which is applied in a wet state and is allowed to dry until its "grabbiness" is reduced to such that when a panel is engaged with the strips on the wood framing, the adhesive coatings will adhere to each other only when subjected to considerable momentary pressure. There are available several commercial adhesives possessing this characteristic: for example, adhesives composed primarily of natural or synthetic rubber latices. When a panel, so coated, is placed against the frame structure, after the adhesive on the same and on the strips has become sufficiently dry, it may be slid about until it is in exactly the right position and then be fixed there by a few sharp blows. This partial or spot bonding is followed by the application of the requisite pressure, through mallet blows or otherwise, to the face of the panel along each vertical and horizontal strip contacting the back. By this means the bonds between the strips and the panel may be made the equal of the bonding ordinarily obtained in factory production. One panel after another is installed until the whole framing is covered. When the job is finished the wall has the appearance of being surfaced with a single continuous sheet of wood, free from nail holes or damage that is apt to result from nailing through the panels.

Although the cross strips or furring may yield somewhat under pressure or blows against the face of a panel, this does not militate against obtaining good bonding throughout the length of each strip.

I claim:

1. The method of facing the side of a wall containing parallel studs spaced apart and having faces exposed on said side of the wall; which consists in covering said side with wood strips placed against said faces of the studs in parallelism with each other, extending crosswise of the studs and spaced apart lengthwise of the studs to form a ladder-like structure with the same; nailing the strips to the studs; applying adhesive to the outer sides of the strips and to the backs of panels composed of a single layer of wood veneer from one twelfth inch to one quarter inch thick bonded to a paper backing; and pressing the backs of the panels against said strips, with the wood grain running transversely of the latter, to secure the panels and strips together.

2. The method of facing a side of a wall provided with an openwork frame exposed on one side and leaving openings whose combined areas are several times as great as the combined areas of the outer surfaces of the frame, which consists in covering the latter side of the wall with strips about one and one half inches wide and arranged parallel with each other and spaced apart at right angles to their lengths from three to eight times their widths, nailing the strips to the framework, applying adhesive to the outer faces of the strips and to the backs of panels composed of wood veneer from one twelfth inch to one quarter inch thick bonded to a paper backing, placing the panels with their backs against the strips, with the grain in the veneer positioned crosswise of the strips, and pressing the panels against the strips to effect good bonding.

3. The method of facing a building wall containing exposed studs arranged in parallel, spaced relation to each other, with panels composed of a single layer of wood veneer bonded to numerous wood strips about one and one half inches wide, which consists in forming rudimentary panels each composed of a sheet of wood veneer from one $\frac{1}{2}$ inch to $\frac{1}{4}$ inch thick bonded to a paper backing, laying the strips of wood against the outer sides and crosswise of the studs, with the strips arranged in parallel relation to each other and distributed lengthwise of the studs with spacings between them from three to eight times as great as their widths, nailing the strips to the studs, placing adhesive on the outer faces of the strips and on the backings, and pressing the rudimentary panels against the strips with their backs in contact with the strips and with the grain in the veneer extending crosswise of the strips.

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