

March 4, 1952

A. ELMENDORF

2,587,985

WALL AND METHOD OF MAKING IT

Filed April 19, 1946

Fig. 1.

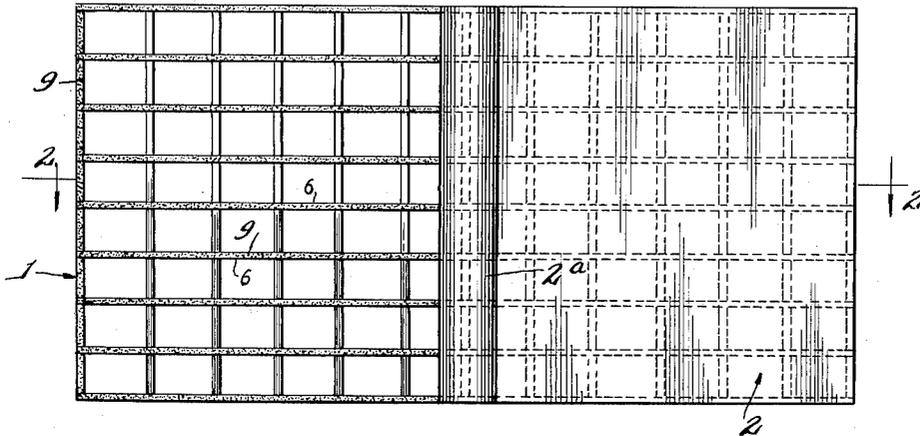


Fig. 2.

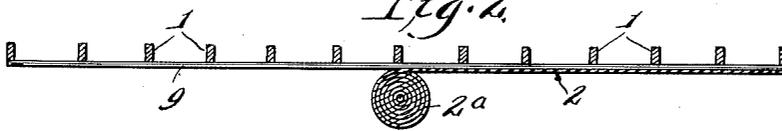


Fig. 3.

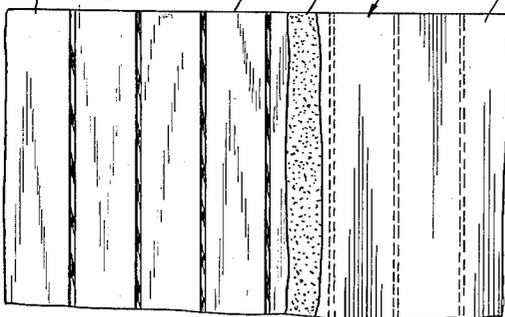


Fig. 4.

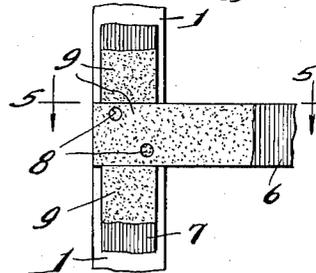


Fig. 5.

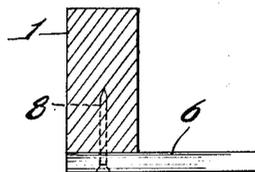
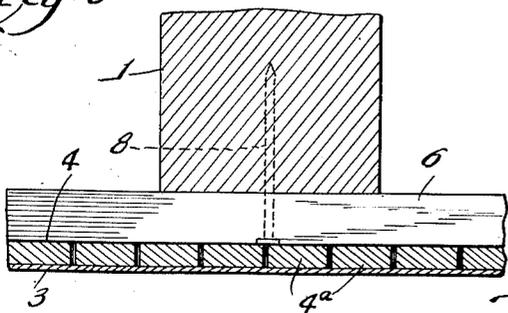


Fig. 6.



By.

Inventor:
Armin Elmendorf.
Attorney:
Wm. F. Frensdorff,

UNITED STATES PATENT OFFICE

2,587,985

WALL AND METHOD OF MAKING IT

Armin Elmendorf, Winnetka, Ill.

Application April 19, 1946, Serial No. 663,472

15 Claims. (Cl. 20-4)

1

It is common practice in building construction to use various types of wall boards, secured directly to the studs or furring of the usual wall framings, in lieu of the more common lath and plaster. The object of the present invention is to make it possible to face the frame structure for a complete wall, as large as most of the interior walls of rooms in dwellings, with a single sheet of material that shall be low in cost, of light weight, easy to handle and apply, and the equal of or superior to the usual types of wall boards in resisting blows tending to rupture the same.

A further object is to produce a wall construction that shall have not only the characteristics just described but, also the further characteristic of presenting an exposed surface that is continuous and without joints as is the surface of a perfect plaster wall, for example.

In carrying out my invention I make use of sheets of strong paper or fiber board that has a width equal to the height of wall which may be any one of a number of standard heights, and of any desired length. To one side of this sheet is bonded a thin layer of wood that has been treated to make it flexible and will permit the composite sheet to be rolled up, preferably with the wood on the convex side. This material is then bonded to the selected wall frame structure, with the wood against the framing and the paper forming the exposed side or face of the wall.

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

Figure 1 is a more or less schematic elevation of a wall frame structure upon which the process of facing it has been partially carried out; Fig. 2 is a section on line 2-2 of Fig. 1; Fig. 3 is a face view of the improved facing material, only a fragment at a corner thereof being shown and the paper layer being broken away to expose the flexible wood backing; Fig. 4 is a front view of a fragment of the frame structure as it appears in the left hand half of Fig. 1, but on a much larger scale; Fig. 5 is a section on line 5-5; and Fig. 6 is a section similar to Fig. 5, but on a larger scale and showing the facing material in place.

In the drawing, 1 represents any usual or suitable wood frame adapted to be faced on at least

2

one side to produce an imperforate wall; the frame comprising the common spaced, upright stud construction. The facing material for this structure is a long sheet 2, flexible in the lengthwise direction so that it may be rolled up, and stiff across its width; the sheet being shown in Fig. 1 as having been partially unrolled, the remaining portion of the original roll being indicated at 2^a.

The facing material is composed of a single sheet 3 of kraft or jute paper from .016 to .030 inch thick, or fiber board up to about .060 inch thick; and a thicker layer 4 of wood bonded thereto with adhesive 5. The paper or fiber board is as wide as the height of the wall and may originally have been of indefinite length. The wood has a thickness of from about .10 to .25 inch. The grain of the wood runs across the width of the paper sheet and is broken down in structure, in the direction of the grain, sufficiently to permit the composite sheet to be rolled up. The wood may be of the type that has been dried under constraint, so as not to expand as much as like wood dried without being in any way constrained, upon absorbing moisture. While the wood may be made flexible by the method of my prior Patent 1,778,251, it is preferably divided into narrow strips, with each strip remaining connected to the continuous strips by little strands, as is the material disclosed in my Patent 2,018,712.

The composite facing material is preferably not placed in direct contact with the studs, but is bonded to horizontal furring. In the arrangement shown, furring strips 6 are nailed to the studs so as to extend throughout the length of the wall, in spaced relation to each other in the vertical direction. These strips may be about one and five eighths of an inch wide and be from three eighths to three quarters of an inch thick. With a spacing in the vertical direction as great as seven or eight times the width of a strip, between strips, there is provided sufficient bonding surface and also adequate reinforcement for the facing material in the spaces between the studs. Short pieces 7, of the same stock as the strips 6, should be placed lengthwise of the studs between consecutive horizontal strips at the corners of the rooms; such pieces being secured to the studs by nails 8, in the same manner as strips 6.

When the facing is to be applied to the wall frame structure, with the strips 6 and 7 nailed thereto, the exposed faces of these strips and the wood face of the composite sheet material

are coated with a dry bonding adhesive, which is then allowed to dry to the point at which one coating will bond to the other upon the application of momentary heavy pressure. There are various commercial adhesives of this type available; an example being an adhesive having a natural or a synthetic rubber latex as a base. A good formula for such adhesive is given in my Patent 2,141,708, where the adhesive is used to bond a flooring to a subfloor. With the adhesive coatings so dried, and the composite sheet facing wound in a roll, the roll is placed in an upright position in front of the framing, at an end of the latter. The material is unrolled a little so that its free end may be laid flat against the marginal portion of the framing along the near vertical edge of the latter and be what may be termed "spot bonded" to the framing; thus holding the end of the facing sheet in place temporarily and allowing the sheet to be unrolled and progressively laid against the framing. As the facing sheet is unrolled, it may be bonded here and there by tapping it with a mallet or otherwise exerting enough pressure to form bonds in small scattered areas. When the whole of the framing has been covered the worker goes back to the starting end and pounds or heavily rolls the facing along the lines of all horizontal strips and the vertical filling pieces at the corners of the room; this operation being carried on progressively from the starting end to the finish.

It will be seen that the composite facing material may be made in lengths limited only by the size of rolls which it is practicable to handle, sections being cut off as needed. If this practice is followed, and the sheets are made in a few standard widths, almost any wall frame structure may be faced with little or no waste of material, and such walls regardless of length, may be supplied with a satisfactory face containing no joints and no breaks or openings, not even a nail hole.

I have found that good bonding can be obtained along the horizontal strips when they are not more than three eighths of an inch thick, even though they yield substantially under the application of the heavy pressure required to bond the facing material to the same. Thicker strips need be used only when greater rigidity in the finished structure is desired. In any case the cost of these strips is small and not much labor is involved in nailing the same in place. Therefore, since the work of applying the adhesive coatings and of subsequently installing the facing sheet is performed quickly and easily, the combined cost of labor and material for facing a wall framing is low.

It should be further noted that, when the composite sheet is not too long to make it impracticable, it may be unrolled and laid flat on the floor, face down, for applying the adhesive thereto; the sheet being then upended and pressed against the adhesive coatings on the reinforcing strips.

There is a further important result achieved from the use of my improved method. When the composite sheet is rolled up the structure of the paper is disturbed along the division lines between the strips 4^a, so that slight ridges appear on the face thereof, along such lines, when the sheet is again flattened. These ridges give to the wall a vertical line effect and tend to make less noticeable uneven background and joints in the wood veneer. The ribs themselves are softened in outline, being somewhat jagged, because the

distortion of the paper which causes them follows the wood grain along the joints in the veneer.

I claim:

1. The method of covering a wall frame structure containing spaced studs, faces of which are exposed on one side of the structure, so as to provide it with a continuous face highly resistant to rupture from blows struck against the same, which comprises the securing of furring strips crosswise of the studs and spaced apart from each other several times the width of the strips, with the furring strips in contact with the exposed faces of the studs, creating a flexible panel as wide as the height of the wall and as long as the width of the wall and composed of a layer of wood and a layer of paper bonded together and capable of being rolled up, providing the wood face of the panel and the outer faces of said strips with coatings of dry bonding adhesive, rolling up the panel when the adhesive is so dry that it will not adhere to the paper facing during this step, placing the roll against the strips at one end of the frame structure with the adhesive on the loose end of the panel in contact with the adhesive on the strips, unrolling the panel so as to place it in position completely to cover said frame structure, and applying pressure at enough areas in the face of the panel to cause the entire coating on the strips to adhere firmly to the coating on the panel.

2. A method as set forth in claim 1, wherein the panel is pressed against the frame structure while, being laid against the same, at only enough points to hold the panel temporarily in place, and wherein afterward the necessary bonding pressure is applied to all areas in the face of the panel that register with coated areas on the frame structure.

3. The method of covering an open-work wall frame structure so as to provide it with a facing having a continuous exposed surface and being highly resistant to rupture from blows struck against the same, which comprises creating a panel as wide as the height of the frame structure and as long as the width of the latter composed of a layer in the form of a strong flexible self-supporting sheet of fibrous material and a flexible layer of wood bonded to the first mentioned layer so that the panel may be wound into a roll having its axis parallel to the strips, providing the wood face of the panel and an exposed face of the frame structure with coatings of dry bonding adhesive, rolling up the panel, placing the roll against the frame structure with the free end of the panel overlying the marginal portion of said structure along one vertical edge of the latter, unrolling the panel and laying it in contact with said structure throughout the entire length of the latter, and applying momentary pressure to the panel at many closely spaced spots to cause the two adhesive coatings to merge into a single layer uniting the panel and the frame structure.

4. A method as set forth in claim 3, wherein the wood layer of the panel is formed from a sheet of wood veneer from .10 to .25 inch thick by slitting the same along lines extending in the general direction of the grain so as to transform it into narrow strips joined together by strand-like elements, and wherein the layer of fibrous material consists of paper from .016 to .030 inch thick.

5. A method as set forth in claim 3, wherein

5

6

the first mentioned layer consists of fiber board that has a thickness not exceeding .06 inch.

6. A wall of a building comprising a portion of the frame structure of the building and a facing for the same consisting of a preformed two ply sheet bonded thereto, said sheet being composed of an inner single layer of wood divided into narrow strips all extending in the same general direction, and an outer layer of flexible material.

7. A wall as set forth in claim 6, wherein the outer layer is fiber board not over .06 inch thick.

8. A wall of a building comprising a portion of the frame structure of the building and a facing panel for one side thereof having a width equal to the height of the wall and a length equal to the width of the wall, said panel comprising an inner single layer of wood divided into strips extending across the width thereof, and being bonded to the frame structure, and an outer layer of paper that is in one sheet.

9. A wall as set forth in claim 8, wherein the wood is from .10 to .25 inch thick and the outer layer is paper that has a thickness of from .016 to .030 inch.

10. A wall of a building comprising a portion of the frame of the building that contains spaced upright studs, narrow horizontal cross pieces fastened to the studs and extending from one end of the wall to the other, the cross pieces being spaced apart in the vertical direction several times the width thereof, and a single preformed panel engaged with said cross pieces and bonded thereto, said panel being composed of an inner layer of wood, in which the grain runs up and down, and an outer layer in the form of a sheet of heavy fibrous material, the wood layer being divided into narrow strips along vertical lines.

11. A wall of a building comprising a portion of the frame structure of the building and a facing for the same consisting of a preformed two ply sheet bonded thereto, said sheet being composed of an inner layer of wood divided into narrow strips and an outer layer of paperlike material deformed to produce slight ridges following the division lines between the wood strips.

12. The method of covering an open-work wall frame structure, having an exposed side, so as to provide it with a continuous face highly resistant to rupture from blows struck against the same, which comprises creating a panel as high and as wide as the wall, composed of a layer of wood and a layer of fibrous material bonded together, the wood layer being flexible so that the panel may be laid flat or be wound into a roll, providing the wood surface of the panel and the exposed side of the frame structure with coatings of dry bonding adhesive, allowing the adhesive to dry, and then applying momentary pressure to the face of the panel at many closely spaced spots, while the latter is in contact with the frame structure to cause the coating on the frame structure to unite with the coating on the panel.

13. The method as set forth in claim 12, wherein the adhesive is applied to the panel while it is lying flat, and wherein the flat panel is then upended to engage it with the frame structure.

14. The method of covering a side of a wall frame containing spaced, upright studs the faces of which are exposed on said side, which comprises nailing narrow, horizontal cross members to the said exposed faces of the studs, with each such member extending from one end of the frame to the other and spaced apart from each other in the vertical direction several times the width thereof, creating a flexible panel as long as the width and as wide as the height of the wall, composed of a layer of wood, the grain of which runs crosswise, and a layer of fibrous material bonded together, laying the wood face of the panel against said cross members, with adhesive interposed between the panel and said members, and pressing the panel against the cross members to complete the bonding of the panel to the frame.

15. The method of covering a side of a wall frame containing spaced, upright studs the faces of which are exposed on said side, which comprises nailing narrow, horizontal cross members to the said exposed faces of the studs, with each such member extending from one end of the frame to the other and spaces apart from each other in the vertical direction several times the width thereof, creating a flexible panel as long as the width and as wide as the height of the wall, composed of a layer of wood, the grain of which runs crosswise, and a layer of fibrous material bonded together, forming the panel into a roll, unrolling the panel and progressively laying its wood face against said side of the wall, with adhesive interposed between the panel and the cross members, and pressing the panel against the cross members to bond the panel to the same.

ARMIN ELMENDORF.

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