Feb. 5, 1929. 1,701,291

M. K. ARMSTRONG

PLASTER BOARD

Filed July 12, 1919

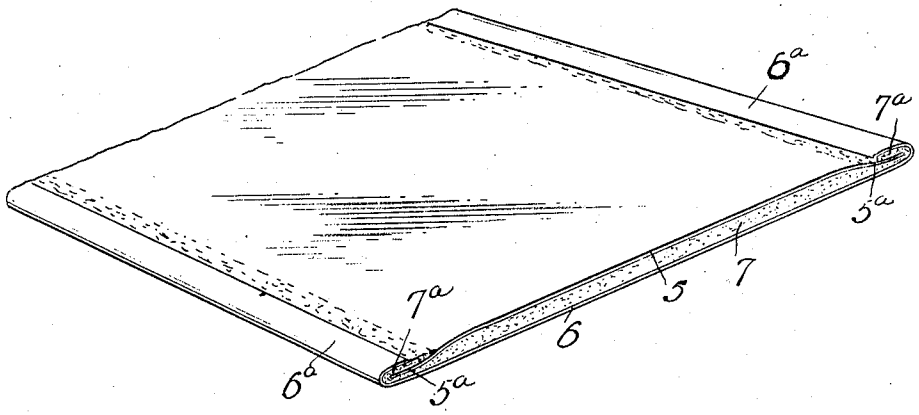


FIG. 1.

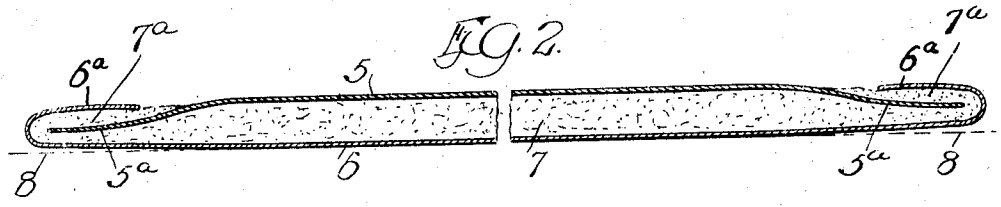
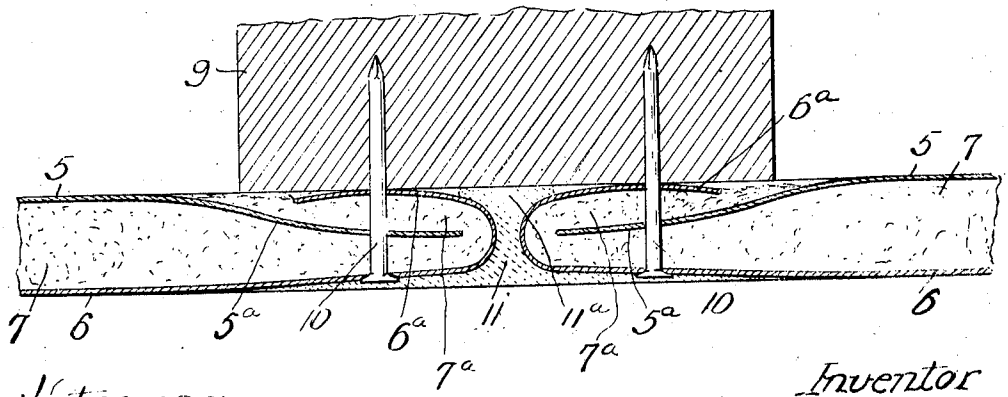


FIG. 2.

FIG. 3.



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UNITED STATES PATENT OFFICE.

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PLASTER BOARD.

Application filed July 12, 1919. Serial No. 310,470.

This invention relates to improvements in plaster boards and consists of the matters hereinafter described and more particularly pointed out in the appended claims.

The present application is a continuing application as to common subject-matter disclosed in the two cases and claimed herein, of my Patent No. 1,348,387.

The term "plaster board" is used herein generically, although the specific kind of board is more technically known in the art as "wall board", which is a board to be applied directly to the studding and to take the place of both lath and plaster in the finishing of interior walls.

The board consists generally of top and bottom covering sheets of paper or other fibrous material, preferably a manila paper, either fully or partially sized, and of an intermediate layer consisting of a plaster body to which the said covering sheets are adhered.

Such boards of the kind heretofore produced, have been made either with the edges of the plaster body exposed at the edges of the covering sheets, which are of like widths, or with the one covering sheet made wider than the other sheet and with the projecting marginal parts of the first sheet turned over upon itself to enclose the edges of the plaster body, and with the second sheet overlapped upon and cemented to the turned-over marginal parts of the other sheet, thus binding the edges of the board.

Board of both kinds has been made by means of a continuous process in which the plastic mix for the body is applied to an advancing bottom sheet and the top sheet is applied and the plastic mix is spread to the desired thickness by passing the board forming material between rolls,—the marginal portions of the bottom sheet in the case of the bound edge board, having been turned over by suitable folders, prior to its reaching the spreading rolls.

While superior to the unbound board, the bound edge board lastmentioned has several disadvantages. One of the chief of these is due to the fact that the top sheet is apt to be insecurely cemented at its edges to the turned-over marginal parts of the bottom sheet, so that said edges curl or stand away from the body of the board and are apt to be torn or broken away, thus greatly reducing the strength of the board at its edges.

The object of the invention is to produce a board wherein the edges of the top sheet are enclosed, and in which the edge itself is so reinforced as to reduce to a minimum, the possibility of breaking the edges of the board.

Other advantages of the board will be pointed out as I proceed with my specification.

In the drawings:

Figure 1 illustrates a perspective view of a piece of plaster board, embodying my invention.

Figure 2 illustrates, on an enlarged scale, a transverse section through the improved plaster board.

Figure 3 illustrates a cross section through the adjoining margins of two pieces of plaster board nailed to an upright studding.

Referring now in detail to that embodiment of the invention illustrated in the accompanying drawings:—5 and 6 indicate respectively, the top and bottom sheets or coverings of fibrous material such as paper, and 7 indicates the plaster body of suitable thickness between and enveloped by said top and bottom sheets or coverings.

The bottom sheet 6 is made of a strip of paper of a width greater than that of the top sheet 5, and the margins 6^a of said sheet 6 are turned over upon and in overlapping relation with the margins 5^a of the top sheet 5, which is depressed into the plaster body. In the manufacture of said plaster board, plaster is permitted to flow upon the surface of the margins 6^a and during the turning-over of said margins, the plaster thereon engages the top surfaces of the margins 5^a, so as to provide an adhesive layer of plaster 7^a between said margins. The plaster layer 7^a which forms a continuation of the main plaster body, securely affixes or cements the turned-over margins 6^a of the bottom sheet to the depressed margins 5^a of the top sheet, so that a rounded, bound edge is provided for the board, with the edges of the margins 6^a facing towards the median line thereof.

The margins of the board are tapered or beveled away from the plane of the face of the board provided by the sheet 6, towards the rounded edge, as clearly shown by comparison of said edges with the lateral prolongations of said face, indicated by the

dotted lines 8 in Figure 2. This tapered-off formation is advantageous for the following reason.

When applying the board to a studding 9, as shown in Fig. 3, the edges of adjoining boards are spaced equally on each side of the center of said studding, with that side of the boards formed by the top sheets 5 placed against the studding. This brings the sides of the boards formed by the sheets 6 outermost, so that they may be finished off in the desired manner. Nails 10 are driven through the margins of the board sections, each nail passing through the plaster body 7, plaster layer 7^a, and three thicknesses of paper coverings, that is to say, the sheet 6 at the beveled margins, the depressed, enclosed margins 5^a of the sheet 5, and the turned-over margins 6^a of the sheet 6, which margins 6^a engage against the studding. After the nails have been thus driven in, a joint or seam filler in the form of a suitable plastic material, 11, is applied to fill up the space between the adjacent rounded edges of the boards, and over the adjacent beveled or tapered-off margins thereof, and the filler is then leveled off so that its outer surface is flush with the exposed surfaces of the sheets 6 of the boards. A part of this filler will also get behind the rounded edges of the boards and form a head 11^a which, when the filler has hardened, will act as a key or locking means, preventing the filler from falling out of place. This filler, when it has been leveled off, will also cover up the nail heads, so that they will not be visible in the finished wall.

The bevelling of the margins of the sections may be produced by a modification of the machine shown in my Patent No. 1,348,387, by giving a slight inclination to the edges of the conveyor belt 15 on which the plaster board is carried.

Other advantages of the improved plaster board will be manifest to those familiar with the art. It will be noted that no edges of either sheet of paper forming the board are exposed outwardly towards the edges of the board. The edges of the marginal parts 6^a of the bottom or outer sheet, are turned inwardly and securely cemented, and there is no danger of their being dislodged or detached in the handling of the board, the rounded edges of which are perfectly bound, without any free edge of paper near thereto to be torn or broken away in the handling of the board.

The marginal parts 5^a of the top or inner sheet, are not only depressed below the overlapping marginal parts 6^a of the bottom sheet to such an extent as to provide a sufficient body of plaster to securely and efficiently attach them together and make both marginal parts thus a component part of the board, but in addition, the said marginal parts of the top sheet act by their tensile strength to reinforce the marginal parts of the board and to strengthen the same at its edges.

In the making of the board, the sheets are preferably so proportioned that the marginal parts of the top sheet approach as nearly as may be, the edges of the board, thus not only giving all the reinforcement to the edges of the board that may be obtained by this construction, but also insuring three thicknesses of paper adjacent the edge of the board, to be engaged when nailing the board in place.

Another feature of the board which is important is the fact that the plaster at the edges of the board always completely fills the rounded fold or bend of the marginal part of the bottom sheet that binds the edge of the board. The edges of the board are thus always solid and there is no space between the edge of the plaster and the part of the paper which encloses said edge. This feature of the board is brought about in the making of the board by reason of the fact that the layer 7^a of plaster is turned over with the marginal parts 6^a of the bottom sheet when said parts are brought into overlapping engagement with the marginal parts of the top sheet.

While in describing the board, I have referred to paper as the preferred coverings for the plaster body, it will be understood that the invention is not limited threto, as sheets or strips of any material adapted to the purpose may be used, and I, therefore, in the claims, refer to the sheets enclosing the plaster body of the board, as a fibrous material.

I claim as my invention:

1. A plaster board comprising a plaster body and top and bottom sheets of fibrous material adhered to and forming a covering for said plaster body, said bottom sheet being wider than the top sheet and having its margins turned over and inwardly so as to lap the margins of the top sheet, the marginal parts of the board being tapered or beveled on one side thereof.

2. A plaster board comprising a plaster body and opposed sheets of fibrous material adhering to and forming a covering for said plaster body, one of said sheets being wider than the opposed sheet and inclosing the edges of the plaster body and overlapping the marginal parts of the other sheet, the said other sheet having its marginal parts depressed below said overlapping marginal parts of the opposed sheet with a substantial plaster layer interposed between the adjacent parts of the overlapping and underlapping marginal parts of said sheets.

3. In a plaster board, a body made of plastic material, the surfaces of said board being parallel for a distance crosswise of the

board, thence tapered to the edges, the edges rounded and the whole enveloped in a folded sheet of enveloping material.

4. A plaster board comprising a body, a relatively stiff covering sheet of fibrous material adhering to one face of the body and extending to adjacent one edge of the body, and a second covering sheet adhering to the other face of the body and having an extension at one side folded over to inclose the edge of the body and overlie a portion of the body and the edge portion of the first covering sheet.

5. A plaster board comprising a body, a relatively stiff covering sheet of fibrous material adhering to one face of the body and extending to adjacent one edge of the body, and a second similarly relatively stiff covering sheet adhering to the other face of the body and having an extension at one side folded over to inclose the edge of the body and overlie a portion of the body and the edge portion of the first covering sheet.

6. A plaster board comprising a body, a relatively stiff imperforate covering sheet of fibrous material adhering to one face of the body and extending to adjacent one edge of the body, and a second covering sheet adhering to the other face of the body and having an extension at one side folded over to inclose the edge of the body and overlie a portion of the body and the edge portion of the first covering sheet.

7. A plaster board comprising a body, an imperforate covering sheet adhering to one face of the body and extending to adjacent one edge of the body, and a second covering sheet adhering to the other face of the body and having an extension at one side folded over to inclose the edge of the body and overlie a portion of the body and the edge portion of the first covering sheet.

8. A plaster board comprising a body, an imperforate covering sheet adhering to one face of the body and extending to adjacent one edge of the body, and a second imperforate covering sheet adhering to the other face of the body and having an extension at one side folded over to inclose the edge of the body and overlie a portion of the body and the edge portion of the first covering sheet.

9. A plaster board comprising a body, a relatively stiff imperforate covering sheet of fibrous material adhering to one face of the body and extending to adjacent one edge of the body, and a second relatively stiff imperforate covering sheet adhering to the other face of the body and having an extension at one side folded over to inclose the edge of the body and overlie a portion of the body and the edge portion of the first covering sheet.

10. A plaster board comprising in combination a board-like body of plaster or the like which is thinner near the edges than the body of the board, and covering material enveloping the edges of said board and adhering to the plaster body.

11. A plaster board comprising in combination a board-like body of plaster or the like which is gradually reduced in thickness near the edges thereof, and covering material enveloping the edges of said board and adhering to the plaster body.

12. A plaster board comprising in combination a board-like body of plaster or the like, having enveloping covering material over the face side and edges thereof, said board being beveled a distance in from the edges, whereby the face side of the board near the beveled portions lies below the plane of the face surface.

13. A plaster board comprising in combination a board-like body of plaster or the like, having enveloping covering material over the face side and edges thereof, said board being beveled a distance in from the edges to position the face surface of the beveled portion below the plane of the face surface of the board, and the opposite face of the board being also slightly beveled at the edges thereof, whereby when a pair of boards is placed edge to edge a depression is formed for receiving plaster or the like to cover and conceal the joint between the boards.

14. A plaster board comprising a board-like body of plaster or the like, the side edges of which are substantially rounded and covered with protecting covering material adhering thereto, the curvature of said edges being such as to provide a depression of substantial width between adjacent boards placed edge to edge to receive material for concealing the joint and providing continuity of surface between adjacent boards.

15. In a wall or analogous structure, the combination comprising a plurality of wall boards placed edge to edge, each consisting of a board-like body of plaster having enveloping covering material adhering thereto and having the edges thereof smoothly reduced in thickness to provide depressions of substantial width between adjacent boards, supports for the edges of said boards and a plastic joint filler placed in said depressions and formed flush with the outer surface of said boards to conceal the joints and provide continuity of wall surface.

16. In a wall or analogous structure, the combination comprising a plurality of wall boards placed edge to edge, each consisting of a board-like body of plaster having enveloping covering material adhering thereto and having the edges thereof smoothly tapered to provide depressions of substantial width and of gradually increasing

depth, supports for the edges of said boards, and a plastic joint filler placed in said depressions and formed flush with the outer surface of said boards to conceal the joints and provide continuity of wall surface, the rear edges of said boards being slightly rounded to provide enlarged pockets at the back of the boards to receive a quantity of joint filler to form keys to anchor the body of joint filler in place.

17. A composite wall comprising, in combination, separate plaster sheets having adjacent depressed margins, filling material applied to the depressed margins to provide a continuous plane surface for the plaster sheets and filling; and a layer of fibrous material bonding to the plastic body of the board interposed between the plastic body and filler to reinforce them mutually.

18. A method of erecting a wall which is characterized by forming plaster sheets having respective depressed margins covered with a layer of fibrous material such as paper; nailing the said plaster sheets to the wall studding with the depressed margins adjacent each other; and supplying a filler to the adjacent depressed covered margins so that the fibrous covering shall be interposed between the filler and the plaster sheet whereby said fibrous covering reinforces the filler as well as the plaster sheet margin and serves to bond them together.

19. A method of erecting a wall which is characterized by forming plaster sheets having respective depressed margins; a covering sheet of fibrous material to each plaster sheet including its depressed margin; causing the plaster sheets to set; nailing the covered set plaster sheets to studding to form a wall with their depressed margins adjacent each other; and applying a plastic filler to the covered depressed margins to produce a continuous plane surface of the covered areas of the plaster sheets and the filler; and permitting the plastic filler to set.

20. A method of erecting a wall comprising the securing of plaster or the like, having smooth beveled edges, with their beveled edges adjacent and forming a more or less tapered depression between the adjacent sheets, the means for securing the board being placed within the said depression; and introducing a filling material in said depression to bridge the interval between the adjacent sheets and to conceal said fastening means.

21. A method of erecting a wall comprising the placing edge to edge sheets of plaster board or the like having exposed surfaces in substantially the same plane but having depressed adjacent areas protected by fibrous covering material; and applying filling material to the depression so that the exposed surfaces of the filling material shall merge with the exposed surfaces of the sheets.

22. A manufactured wall board sheet having two parallel surfaces in its two greatest dimensions and a surface at the edge of the board, the surface at the edge of the board having a slanting relation to the parallel surfaces and means for holding a plastic material on the slanting surface to form a continuous surface between the adjacent edges of the exposed surfaces of adjacent boards when in place.

23. A manufactured wall board sheet having two parallel surfaces in its two greatest dimensions and a surface at the edge of board having a slanting relation to the parallel surfaces and an undercut portion adjacent the slanting surface for holding a plastic material on the slanting surface to form continuous surface between the adjacent edges of the exposed surfaces of adjacent boards when in place.

24. In combination, the frame of a house, manufactured wall board sheets extending between portions of the frame and having edges extending along portions of the frame, the wall board sheets having nailing surfaces at the sides of the respective boards and between the planes of the outer and inner surfaces and a space adjacent the edges of the nailing surfaces of and between the adjacent edges of adjacent sheets and a hardening plastic means for filling the space between adjacent sheets.

25. In combination the frame of a house, manufactured wall board sheets extending between portions of the frame and having edges extending along portions of the frame, the wall board sheets having nailing surfaces at an angle less than a right angle to the surface next to the frame, and a means for filling the space between the two adjacent edges of adjacent wall board sheets, connecting the outer surfaces thereof and covering the nailing surfaces.

26. In combination, the frame of a house, manufactured wall board sheets extending between portions of the frame and having edges extending along portions of the frame, the wall board sheets having surfaces at their edges making acute angles with the respective surfaces adjacent the frame and between the outer and inner surfaces of the wall board sheets, a hardening plastic means filling the space between adjacent sheets, and adjacent edges of adjacent sheets having surfaces coacting with the filling means to hold the latter in place.

In testimony that I claim the foregoing as my invention, I affix my signature this 27th day of June, A. D. 1919.

MORGAN K. ARMSTRONG.