

June 2, 1925.

1,540,045

C. W. UTZMAN

BOUND EDGE PLASTER WALL BOARD

Filed March 14, 1923

2 Sheets-Sheet 1

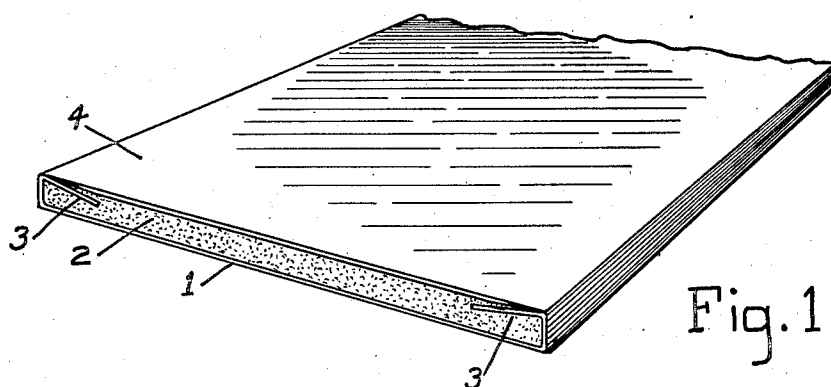


Fig. 1

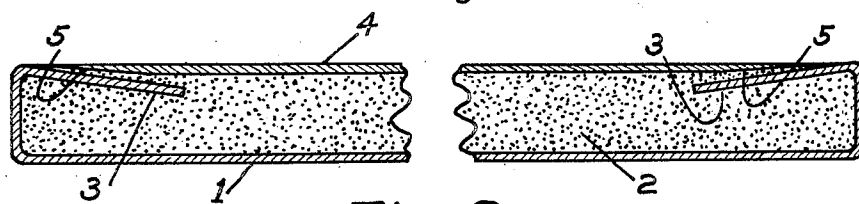


Fig. 2

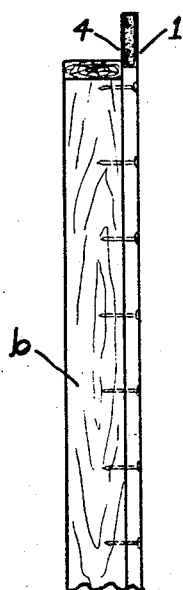


Fig. 4

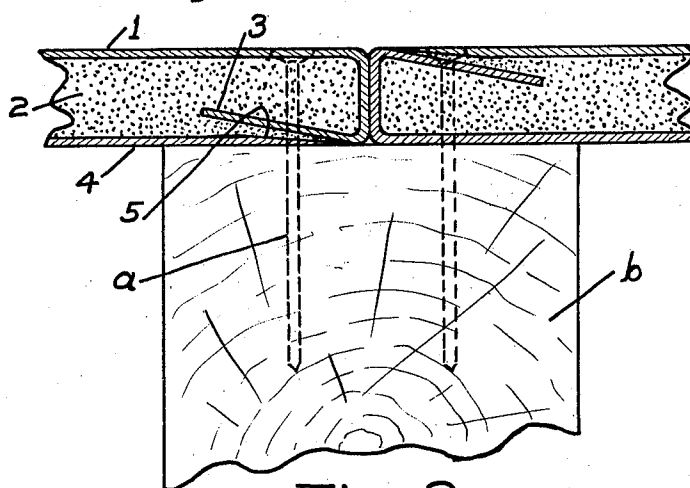


Fig. 3

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2 Sheets-Sheet 2

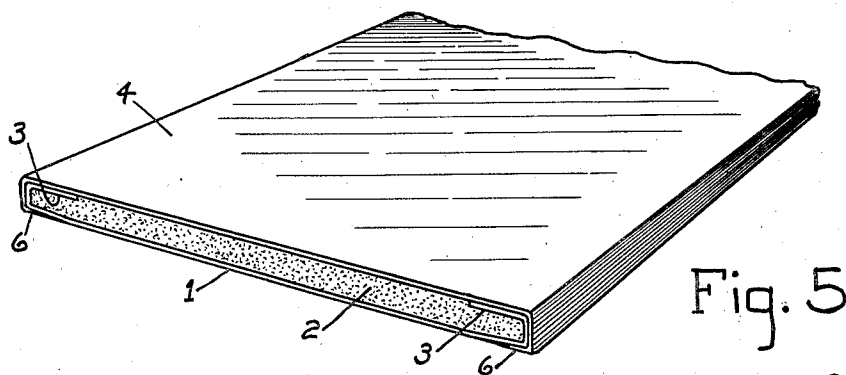


Fig. 5

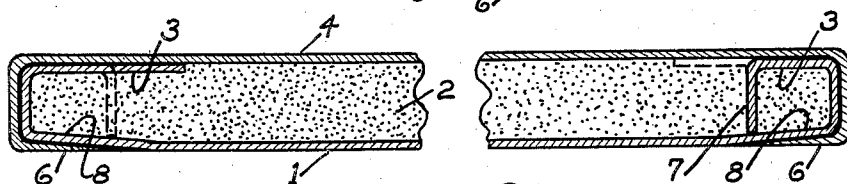


Fig. 6

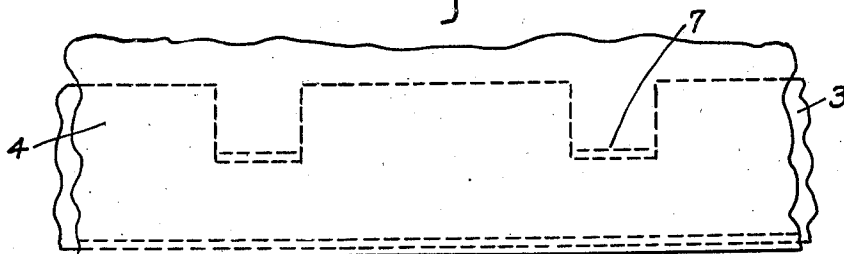


Fig. 7

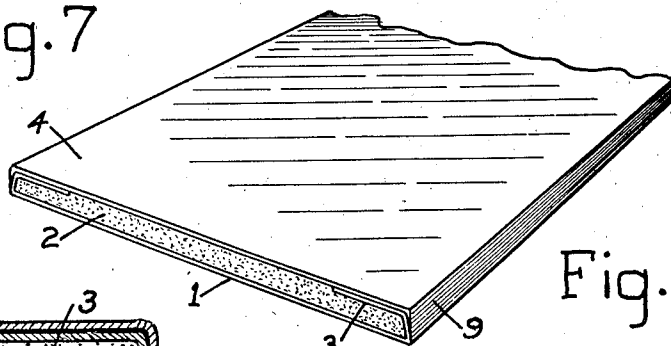


Fig. 8

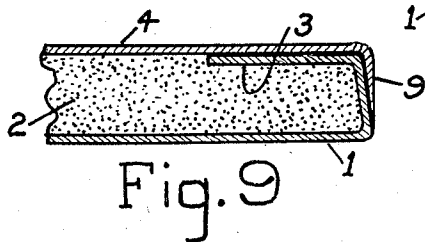


Fig. 9

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BOUND-EDGE PLASTER WALL BOARD.

Application filed March 14, 1923. Serial No. 624,931.

To all whom it may concern:

Be it known that I, CLARENCE W. UTZMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Bound-Edge Plaster Wall Board, of which the following is a specification.

This invention relates to building material and more particularly to an improved bound edge plaster wallboard.

Plaster board in building construction has been used for a long time as a substitute for wooden laths or the like in the erection of walls and ceilings and, having been nailed or otherwise secured to the studding or held in position, is given the usual coats of plaster to surface the wall or ceiling. At first such plaster board was constructed in flat sheets having a plaster or similar composition core with paper or fibrous material applied on each flat surface as a protective covering which also gave sufficient tensile strength to the core to maintain its conformation during the handling necessary in transportation and erection. Plaster board of this character varied in thickness and dimensions usually 36" long by 32" wide, as the standard width between centers of studs is customarily 16". Sizes of greater width and length were impracticable as the cover sheets would peel back and become torn in handling until the problem was solved by binding the longitudinal edges of the board as set forth in my Patent 1,034,746 of August 6, 1912. After this discovery plaster panel or wallboard came into vogue which could be fabricated in 48" widths and of a length to reach from ceiling to floor and in the development of plaster panel board it was found that it could be made sufficiently smooth of surface and thick enough to obviate the necessity of the heretofore usual coating of plaster so that the present plaster wallboard can be applied directly to the studding and provides a finished surface ready for decorating.

This invention relates to improvements in plaster wallboard constructed in accordance with my said Patent, 1,034,746, and possesses new and useful advantages thereover. It contemplates the production of a plaster wallboard of uniform thickness throughout

and in which the edges of the margins of the cover sheet brought about the longitudinal edges of the composition core will not project above nor cause the other cover sheet at its longitudinal margins to project above the main body of that side. This invention also contemplates the binding of the edge in such a manner that while the thickness of the board remains constant throughout, the longitudinal edges may be formed flat and at any angle to the flat main surfaces of the board desired, as well as providing means whereby the outer cover sheet may be brought substantially flush with the longitudinal edges and lie in the plane of the surface on that side on which it terminates.

The advantages of this particular construction of plaster wallboard will be pointed out as the different forms are described. With these and other objects in view, reference is had to the accompanying sheets of drawing, which illustrate the preferred forms of this invention with the understanding that minor detail changes may be made without departing from the scope thereof, and in which like reference characters indicate like parts.

Figure 1 is a view in perspective, illustrating a transverse edge in section, of one form of this invention.

Figure 2 is a view in transverse section, enlarged, of Figure 1.

Figure 3 is a view in transverse section illustrating an application of this form of wallboard to a stud.

Figure 4 is a view in end elevation of one board as applied to a stud.

Figure 5 is a view in perspective of a modified form of this invention.

Figure 6 is a view in transverse section, enlarged, of Figure 5.

Figure 7 is a top plan view, with parts broken away, of the edge portion of Figure 5.

Figure 8 is a view in perspective of another form of this invention.

Figure 9 is a view in transverse section, enlarged, taken at one edge of Figure 8.

In practicing the inventions set forth in my Patents 1,034,746 of August 6, 1912, and 1,029,328 of June 11, 1912, with the heavier chip paper usually employed in the two ply panel or wallboard, it has been found

that the board leaves the compression or forming roll in the form shown in Figure 6 of Patent 1,029,328, that is with the edge of the side margins of the top sheet resting upon and projecting above the inturned edge of the lower covering sheet and the upper face of the top covering sheet is not forced down flush with the upper faces of the inturned laps as shown in Figure 2 of Patent 1,034,746, as is accomplished with the thinner felt paper used in fabricating the four ply plaster board illustrated in these patents. The result is that with the heavier chip paper, when the top covering sheet is applied as the board passes under the forming roll, the inturned edge embracing flaps of the bottom sheet are of such stiffness that they are angularly depressed from the bend at the top corner of the edge, when the edges are scored to form the corners as set forth in my Patents 1,330,413 of February 10, 1920, and 1,383,249 of June 28, 1921, although the upper corner itself lies in the plane of the upper surface of the top cover sheet there is a slight depression along each longitudinal edge deepening from the corner of the edge of the board to the bottom of the longitudinal edge of the top sheet, which depression varies in width in accordance with the slight variations of the position of the top cover sheet caused by the variations of the width of the paper and the slight weaving of the paper in the machine before it is applied to the board.

On account of these depressions along each longitudinal edge the top sheet side of the board must be applied next to the studding to present a smooth exterior surface to the wall or ceiling. It has also been found in the practical manufacture of plaster wallboard in accordance with patents heretofore mentioned that the consistency of the plastic mixture for the core due to mechanical limitations of machinery at times is thicker than at other times, which results in the plastic core mass not uniformly and completely entering between the top of the folded over flap and under side of the longitudinal margin of the top cover sheet as the board passes under the forming roll and smoothing or ironing devices thereafter and also at times causes the edge of the top sheet to project above the adjacent upper corner of the edge of the board. The effect of this is that there are hollow spaces left between the covering sheets under the margins adjacent the edges of the top sheet so that when the wallboard is applied with the top cover sheet side against the stud and nailed thereto, the driving of the nail through such hollow spaces causes the margin of the wallboard at that point to be drawn against the stud below the exterior surface of the adjacent wallboard and at times bends the margin at such edge for a substantial distance caus-

ing a depression abutting the uniform edge of the adjacent wallboard upon the exterior wall surface.

This invention contemplates various related means for producing plaster wallboard that will be of uniform thickness throughout, that is the exterior dimension of thickness will be the same throughout each longitudinal bound edge of each wallboard so that all portions of each side surface will lie in the same respective plane. In such a wallboard either side may form the exterior of the wall and it will not be necessary to place one particular side against the studding and as each longitudinal edge when nailed to the studding will uniformly engage the stud throughout so that the exterior surfaces of the abutting edges of adjacent wall boards will lie in the same plane and the surface of the entire wall although made up of sections of wallboard will be uniformly smooth.

Figure 1 illustrates one form of this invention in which the bottom cover sheet 1 is folded about the longitudinal edges of the composition core 2 to bind the edges of the wall board with the margins 3 on each side folded over on top of the core and slightly depressed therein at a slight angle to the top surface, as shown. The top cover sheet 4 is laid over the top of the composition core body and over the upper sides of the inturned margins of the bottom sheet flaps with sufficient of the composition core material between the margins of the top sheet and flaps to bond them to each other. So far the construction is the same as disclosed in my aforesaid patents and the bottom sheet is preferably scored to form the corners of the respective edges as described in the later two of said patents. In order that the edges of the top cover sheet may be brought adjacent or approximately meet the upper corners of the respective longitudinal edges of the wallboard without projecting thereabove or without depressing the upper surface of the flaps between the corner and the adjacent edge of the top sheet, each margin 5 of each longitudinal edge of the top sheet is chamfered or beveled on the under side preferably so that each margin will taper from the usual thickness of the cover sheet for a distance approximately the width or less of the inturned flap of the bottom sheet to the respective edges of the sheet making the margins of this sheet at the edges extremely thin. No matter what the consistency of the plastic core body may be when the board is passed under the forming roll, at which time the top cover sheet is applied, sufficient of the plastic mass will be forced between the inturned flaps and margins of the sheet to bond them throughout to the very edges of the top sheet and allow the top sheet to be applied as a

flat surface from one upper corner of the longitudinal edge of the wallboard to the other. The usual smoothing or ironing device through which the wallboard afterwards passes will not only insure the upper corners of the longitudinal edges and entire upper surface of the top sheet lying in the same plane but will wipe off any excess of the plastic core mass that may exude beyond the edges of the top sheet.

Since the margins of the top sheet taper to an extreme thinness at the edges, the top sheet may be cut the exact width of the finished wallboard, or approximately thereto, which will insure the avoidance of a longitudinal depression adjacent the edges of the board on that side and any variation in the application of the top sheet causing the sheet to project beyond the edge or edges of the wallboard will not be objectionable on account of the thinness and flexibility of the edges of the margins of the top sheet will allow the usual edge straighteners of the machine to fold such projecting portions downward against the exterior of such edge proper without noticeably increasing the dimensions of the wallboard, likewise, should the variations in width of the top sheet lay the edge of the tapered margins at a distance from the top corner of the adjacent edge, the taper will cause a correspondingly less depression of the bottom sheet flap thereunder as the board passes under the forming roll and that entire surface of the wallboard from corner to corner of the longitudinal edges will lie in the same plane.

Figure 2 illustrates in enlarged detail the construction above described. Figure 3 illustrates the positions of two adjacent wallboards as nailed to a stud from which it is seen that no matter which surface of the wallboard is placed upon the stud the abutting edges will lie in the same plane and also that the entire surfaces of the boards engage the stud throughout. Figure 4 is another view showing the manner a wallboard constructed in accordance with this invention when applied with the top sheet side against the stud will engage the stud throughout and the nails driven adjacent the edge will not draw the edge board unevenly toward the stud, as in the case of the top sheet edge projecting above the plane of the top sheet side corners of the edges of the board.

Another form of this invention is illustrated in Figure 5 in which the bottom cover sheet 1 is folded to envelope the longitudinal edges of the plastic composition core 2 with the margins 3 of the edges of this sheet lying upon the top of the core, however, the top cover sheet 4 is of sufficient width to be folded about the longitudinal covered edges of the wallboard to embrace the mar-

gins of the bottom cover sheet and be secured thereto. It is preferable to score the bottom sheet along the lines where the bends in the folds of the margins form the corners of the board before the top sheet is applied and it is also preferable to score the top sheet along the lines where its margins fold over the core edge enveloping portions of the bottom sheet to provide square corners. It is preferable to accomplish this scoring of the top cover sheet just before it is applied to the wallboard so that there will be an exact register with the corners of the bottom sheet when the top sheet is folded thereover. The margins 6 of the top sheet are chamfered or beveled so that they taper from the bottom corner scorings to their respective edges. The scorings are so arranged on each side of the bottom sheet that the corresponding scorings of the top sheet will fold about the edges and will be the desired thickness of the wall board.

It is preferable to apply the top sheet and fold its margins about the longitudinal edges before subjecting the wallboard with its core in plastic condition to the final pressure that determines and maintains the uniform thickness, which pressure will also align the folded over margins of the top sheet in the same plane with the main portion of the bottom sheet. The portions of the top sheet contacting with portions of the bottom sheet may be secured or bonded thereto throughout the contact or any portion thereof by a film of the plastic body material or by an adhesive, such as silicate or soda, or by a combination of both. As aforesaid, it is preferable to accomplish the scoring of the top sheet just before it is applied, it is also preferable to chamfer or bevel the margins of the top sheet at the same time or just after the scoring so that the margins will taper from the outer scored lines to their respective edges, and variations in the width of the paper will not affect the finished wallboard because the scorings of the top and bottom sheets are so arranged that the outer top sheet will embrace the corners of the bottom sheet fold and the final pressure in applying the tapering margins of the top sheet on the under side of the bottom sheet will cause the angular portions 7 adjacent the innermost scoring of the bottom sheet to be adjusted in accordance with the amount of top sheet margin applied thereover. If it is desired to maintain the margins 3 of the bottom sheet against the under portions of the enveloping top sheet, the margins may be slit preferably at right angles to the edges sufficiently to form tongues 8 bent at right angles thereto and which will enter the composition body as the margins are folded down thereover and prevent the folded over por-

tions becoming depressed into the plastic core. In this form of this invention the wallboard is reversible, will engage the stud throughout its longitudinal edge, and possesses doubly protected longitudinal edges and edge corners.

Another modification is shown in Figures 8 and 9 in which the top cover sheet is cut wider than the desired width of the wallboard. The top sheet is scored preferably just before the sheet is applied to the plastic core after the margins 3 of bottom cover sheet 1 have been folded over to lie upon the top of the core. The scoring of the top sheet forms the top corners of the longitudinal edges and is arranged above the scorings of the bottom sheet that forms the lower corners of the said edges. The margins 9 of the top sheet are chamfered or beveled so that they will taper from the scorings to their respective edges and when folded down against the edge covering the portion of the bottom sheet will form rectangular longitudinal edges upon the wallboard. The scorings upon the bottom sheet are so arranged that the outermost scorings will allow the bend within the top cover sheet to be made within the desired thickness of the wallboard. The contacting portions of the bottom and top sheets may be bonded or secured by a film of the plastic body material or by an applied adhesive throughout the entire contact or by any combination of these desired. This form of wallboard is reversible and of uniform thickness throughout and its appearance or effectiveness is not affected by the variations in width or weaving of the top sheet during manufacture.

This invention also contemplates the applying of the marginal flap 3 of Figure 2 upon the outer surfaces of the top cover

sheet 4 with these margins chamfered or beveled, as 6 in Figure 6, the result being the same as if the bottom sheet 1 of Figure 6 was terminated at the scoring for the bottom corner bend of this figure.

What I claim is:

1. A plaster wallboard having a composition body with fibrous cover sheets thereon, one of said cover sheets enveloping the edges thereof and engaging the other, the margins of one of the sheets formed to provide means to bring the exterior surfaces thereof into the plane of the corners of the edges of the board on that side.

2. A plaster wallboard having a composition body with fibrous cover sheets thereon, one of said cover sheets enveloping the edges thereof and engaging the other, and the margins of one cover sheet chamfered to bring the exterior surfaces thereof into the plane of the corners of that side of the board.

3. A plaster wallboard having a composition body with fibrous cover sheets thereon, one of said cover sheets passing about the longitudinal edges of the wallboard to engage the opposite side thereof with the other cover sheet secured at its margins to the first sheet, said margins being chamfered to bring the exterior surfaces thereof into the plane of that side of the wallboard.

4. A plaster wallboard having a composition body with fibrous cover sheets thereon, one of said cover sheets passing about the longitudinal edges of the wallboard to engage the opposite side thereof with the other cover sheet secured over the margins of the first sheet, and the margins of the top sheet chamfered to bring the exterior surfaces thereof into the plane of the corners of that surface of the wallboard they engage.

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