

Jan. 9, 1934.

A. D. STEWART

1,942,946

COMPOSITION BOARD

Filed Sept. 22, 1930

2 Sheets-Sheet 1

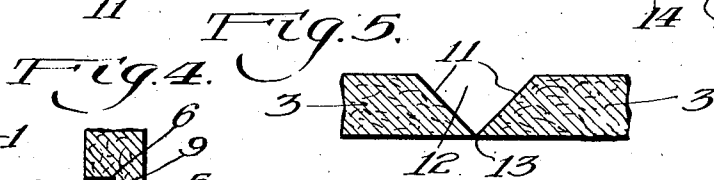
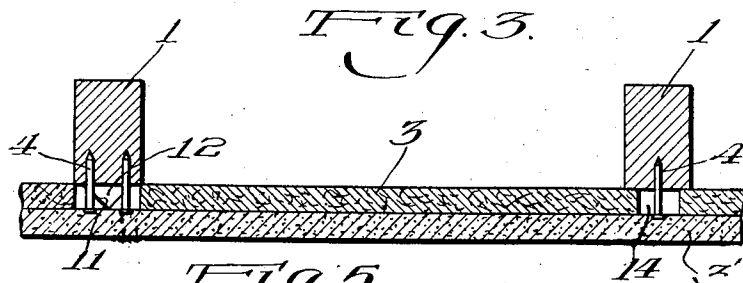
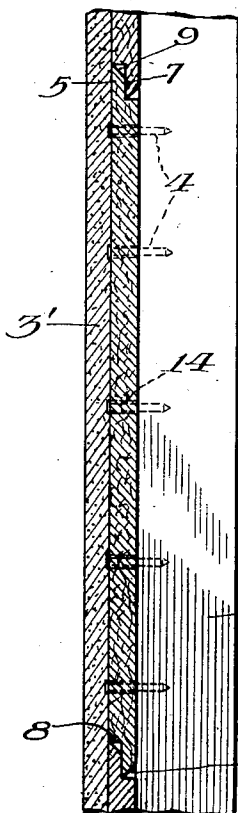
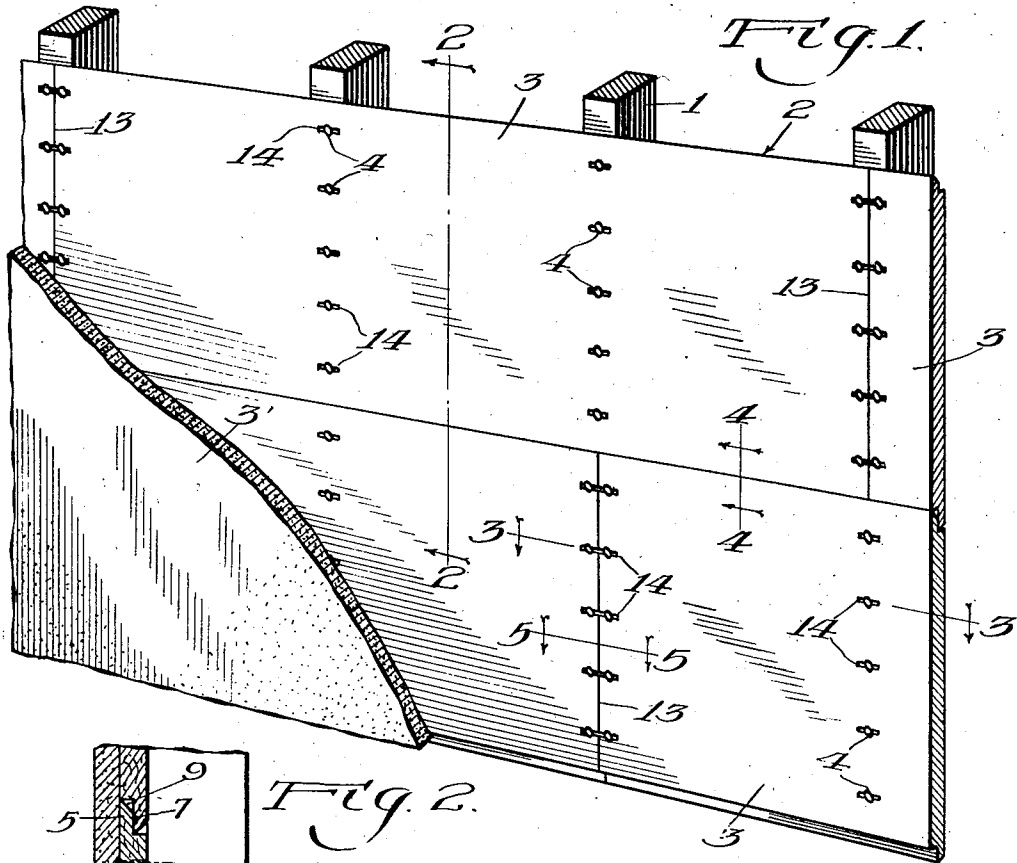


Fig. 5.

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Fig. 6.

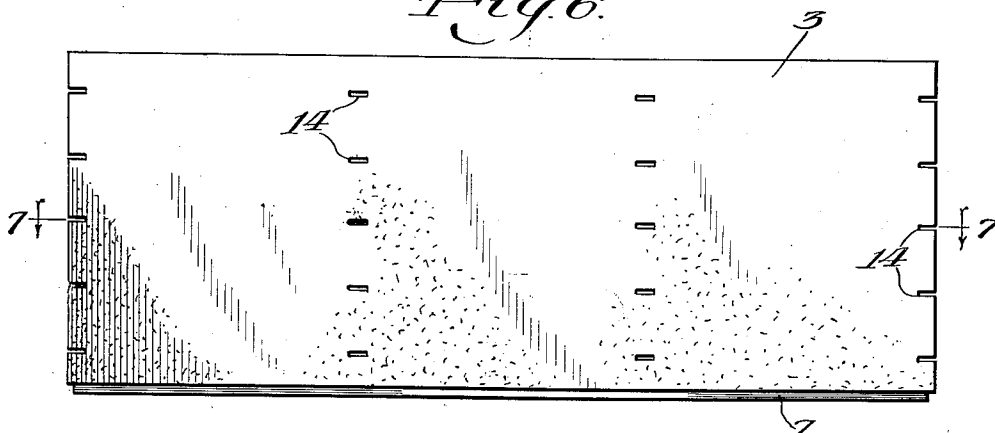


Fig. 7.

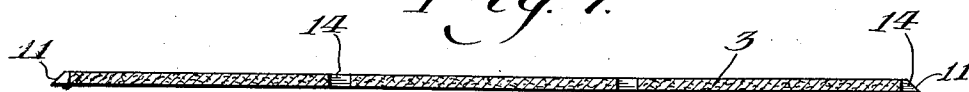


Fig. 8.

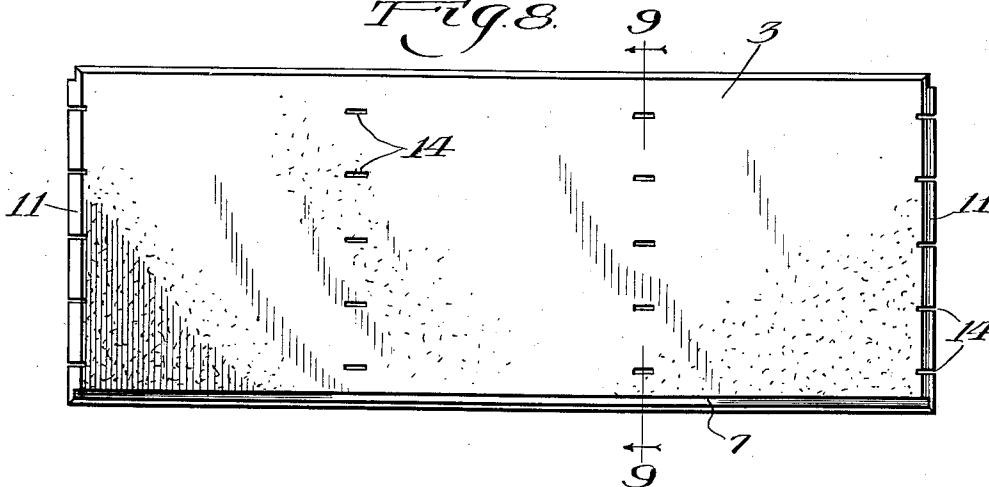
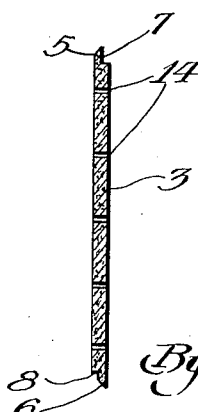


Fig. 9.



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UNITED STATES PATENT OFFICE

1,942,946

COMPOSITION BOARD

Albert D. Stewart, St. Joseph, Mo.; Hazel
Stewart, Administratrix of said Albert D.
Stewart, deceased

Application September 22, 1930
Serial No. 433,531

5 Claims. (Cl. 72-124)

This invention relates to improvements in wall boards used alone as such or used as a plaster base, and refers specifically to the provision of means used in connection with composition wall boards for permitting both longitudinal and transverse expansion or contraction of the composition boards laid as a wall or ceiling.

The utility, objects and advantages of my invention will be apparent from the accompanying drawings and following detail description.

In the drawings, Fig. 1 is a perspective view of a wall constructed of composition boards embodying my invention.

Fig. 2 is a sectional view taken on line 2-2 of Fig. 1.

Fig. 3 is a sectional view taken on line 3-3 of Fig. 1.

Fig. 4 is a fragmentary detail sectional view taken on the line 4-4 of Fig. 1.

Fig. 5 is a fragmentary detail sectional view taken on the line 5-5 of Fig. 1.

Fig. 6 is a top plan view of the front face of a composition board embodying my invention.

Fig. 7 is a sectional view taken on the line 7-7 of Fig. 6.

Fig. 8 is a bottom view of the rear face of the board shown in Fig. 6.

Fig. 9 is a sectional view taken on the line 9-9 of Fig. 8.

Referring in detail to the drawings, 1 indicates studdings which may be spaced a suitable distance from each other and which may serve as a foundation for a wall 2, which may comprise a plurality of composition boards 3 suitably laid and fastened to said studdings by means of nails or any other fastening means 4. The wall 2 may serve as a foundation for a plaster surface 3'. The boards 3 may be constructed of straw, straw waste, or any other suitable vegetable fiber, and may be formed in any desirable length, width and thickness, but inasmuch as such boards are particularly applicable for walls or ceilings, the length of the boards may preferably be such as to span one or more studs or stringers. For example, the boards may be made in standard dimensions as to length and width to conform with the usual practised spacing of stringers and studdings. A board of this character, particularly if the board is felted, possesses characteristics of insulation to heat and sound, and hence the degree of insulation desired ordinarily determines the thickness of the board.

Composition boards of the type hereinbefore described, if felted, are more or less porous and hence are extremely susceptible to moisture,

which consequently causes the board to expand or contract through comparatively wide limits. This expansion or contraction is especially troublesome where the board is used as a plaster base, inasmuch as the plaster is wet when applied and a portion of said moisture is readily transmitted to and absorbed by the baseboards. The plaster usually dries more quickly than the board, and when the plaster has dried and set the board still continues its expansion, buckling and thereby cracking the plaster.

To obviate this difficulty it has heretofore been proposed to construct a joint in such a manner that a crevice or channel may be provided upon the front face of the board at the juncture of adjacent boards, the theory being that when expansion takes place said crevice or channel thus provided will permit the boards to freely expand toward each other without buckling. It can readily be seen that by this construction when the plaster is applied, said plaster being in a more or less plastic condition, will fill the channels or crevices heretofore described and when the plaster dries and the board continues to expand said expansion is halted by the contact with the dry plaster within the channels or crevices.

By my invention I provide the longitudinal sides of the boards 3 with overlapping edges 5 which are constructed in such a manner that a permanent channel or aperture occurs at the juncture of adjacent boards, but such channel or crevice opens to the rear face of the board, that is, to the face opposite to the one to which the plaster 3' is applied. By this construction the face of the board, or more strictly speaking the face of the entire wall constructed of such boards, is substantially flat and is provided with no crevices at the joints into which wet plaster may be trowelled, which plaster when dry would prevent the free expansion of the board.

By referring particularly to Figs. 2 and 4, joints embodying this feature of my invention are clearly shown, wherein 5 indicates the overlapping edges of adjacent boards, which overlapping portions may be beveled as shown at 6. The longitudinal recesses 7 formed by the overlapping edges 5 may be of square section. In other words, edges 8 may be at substantially right-angles to the face or plane of the board proper. When such edges are joined in overlapping relation an elongated aperture 9 is formed within the joint itself which may "take up" or compensate for the expansion of the upper half portion of the board, whereas a channel or crevice 10 may be provided longitudinally of the joint which may open to the

rear face of the board. Said crevice or channel may compensate for any expansion which may take place in the lower half portion or rear face of the board. It can readily be seen that if excessive expansion takes place the beveled points of the overlapping edges 5, being of comparatively reduced cross-section, can easily be crushed, thereby preventing excessive buckling throughout the width of the board. Inasmuch as the plaster applied to the front faces of the boards cannot enter apertures 9 or crevices 10 said apertures and crevices will remain free to "take up" any expansive strain to which the boards are subjected.

To permit expansion at the transverse joints of the board each end of said boards may be beveled, as shown best at 11 in Figs. 3 and 5, said abutting beveled edges providing a transverse crevice or channel 12 at each of the transverse joints 13, said channels opening to the rear face of the board, that is, the face opposite to that to which the plaster may be applied. It can be seen from this construction that if longitudinal expansion takes place the major portion of said expansion will be compensated or "taken up" by the provision of the crevices or channels occurring at the transverse joints. If excessive expansion takes place the abutting edges of the beveled portions of the board being of comparatively reduced cross-section will be readily crushed, thereby preventing any strain due to the expansive stress being transmitted to the intermediate portion of the board. Hence, in this manner all expansion of the composition board will be "taken up" or compensated at the joints, and buckling or warping of the board will be eliminated.

To permit free expansion of the board in a longitudinal direction between adjacent studs or stringers, the fastening means or nails 4 instead of being driven directly through the material comprising the board may be driven through longitudinal apertures or slots 14 suitably spaced throughout the area of said board. The spacing of the slots 14 in a longitudinal direction, of course, will be governed by the spacing of the stringers or studs 1, and the spacing of the slots 14 in a transverse direction will be governed by the degree of strength required to suitably maintain the boards in fastened position upon the stringers. By the provision of the slots 14 any expansion which may occur, for instance, in the center of the boards, will be freely transmitted to the joints where, as has hereinbefore been described, such expansion will be compensated or taken up. Yet the boards 3 will be maintained firmly in contact with the stringers 1, slidable motion of the board with respect to said stringers only being permitted.

It is to be understood, of course, that instead of slots 13 a plurality of slits or incisions may be provided throughout the area of the board and the nails may be driven through said slits. By this means the nails, although preventing motion of the board normal to its surface, will permit slidable motion of said board with respect to the stringers inasmuch as the nails meet no appreciable resistance, since the fiber of the board has been ruptured in providing the slits.

Boards of the character hereinbefore described, especially felted fibrous boards, are seldom, if ever, homogeneous, and hence expansion and contraction occurs to a greater degree in one direction than in the other. If the board is so cut that expansion takes place principally in a

direction transverse to the length of the board, the slots 14 or slits, if the same are desired, may be provided in the board with their axis parallel to the axis of the studdings or stringers 1. In other words, said slots or slits may be provided in the board with their axes parallel to the line of major expansion of the board.

If desired, the slots 14 may be cut or projected only through a portion of the thickness of the board, leaving a portion of solid material of reduced section at the base of the slot. In this event the nail or other fastening means may pass through the slot and thence through the material at the base of the slot and into the studdings or stringers. By this construction, upon expansion or contraction taking place, a portion of the material at the place of the slot may be crushed by the fastening means, since it is of relatively reduced section and would offer negligible resistance to the sliding motion of the board.

By the expression "permanent expansion space" as used in the specification and claims is meant a space or channel provided at the joining edges of adjacent boards which will not be filled with plaster or any other solid material.

My invention, in addition to preventing the buckling of the boards comprising the base of the plaster wall and the consequent cracking of the plaster wall, due to expansion of the composition boards, prevents the cracking of the plaster due to the shifting of the studs or stringers when the building as a whole settles, or when the studs and stringers dry and warp. The interposition of the composition base wall between the studs or stringers and the plaster serves as a compensating or buffing medium which absorbs such displacements of the supporting studs or stringers without transmitting the same to the plaster surface.

I claim as my invention:

1. A wall comprising a plurality of composition boards arranged adjacent to each other in abutting relationship said boards being provided with overlapping edges, the corners of said overlapping edges being cut away rearwardly whereby to provide a relatively continuous plaster receiving surface and an opposite surface having permanent expansion spaces adjacent the overlapping edges.

2. A base for a plaster wall which comprises a plurality of composition boards arranged adjacent each other in the same plane and provided with overlapping edges, the corners of said overlapping edges being beveled rearwardly whereby to provide a relatively continuous plaster receiving surface and an opposite surface having permanent expansion spaces at the joints of adjacent boards.

3. A base for a plaster wall having a relatively continuous plaster receiving surface which comprises a plurality of composition boards arranged adjacent to each other in the same plane, opposite edges of said boards being corner notched respectively facing in opposite directions at opposite face sides of the boards forming a tongue at each of said opposite edges, one corner of each of said tongues being beveled.

4. A base for a plaster wall having a relatively continuous plaster receiving surface which comprises a plurality of composition boards arranged adjacent to each other in the same plane, two opposite edges of each of said boards being corner notched respectively facing in opposite directions at opposite face sides of the boards forming

ing a tongue at each of said opposite edges, one corner of each of said tongues being beveled.

5 A base for a plaster wall having a continuous plaster receiving front face comprising a plurality of composition boards disposed in edge abutting relationship, two opposite edges of each of said boards being rearwardly beveled, the re-

maining opposite edges of each of said boards being corner notched respectively facing in opposite directions at opposite face sides of the boards forming a tongue at each of said opposite edges, one corner of each of said tongues being beveled. 80

ALBERT D. STEWART.

10	35
15	90
20	95
25	100
30	105
35	110
40	115
45	120
50	125
55	130
60	135
65	140
70	145
75	150