July 30, 1940. W. E. DRUMMOND 2,209,514

WALL CONSTRUCTION

Original Filed Oct. 16, 1933 2 Sheets-Sheet 1

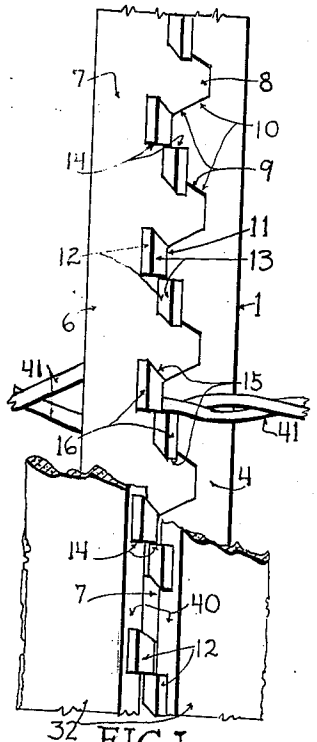


FIG. 1

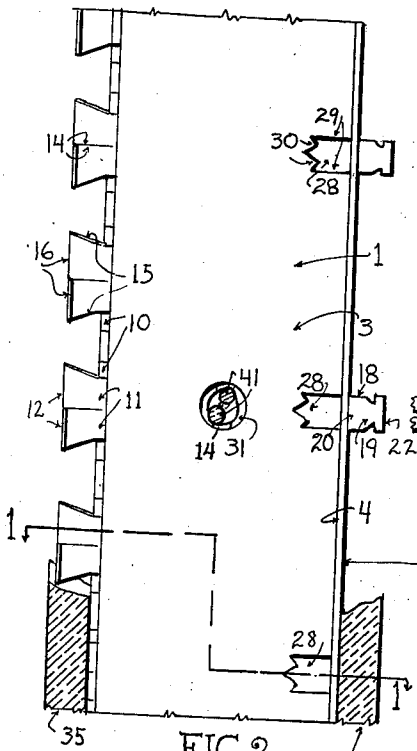


FIG. 2

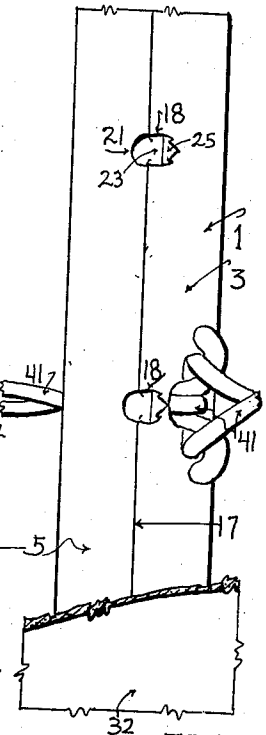


FIG. 3

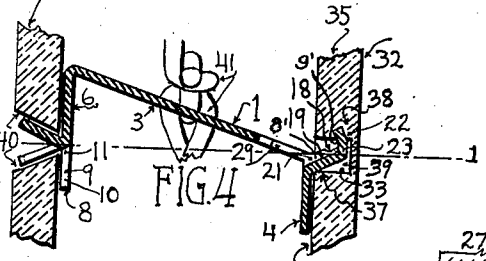


FIG. 4

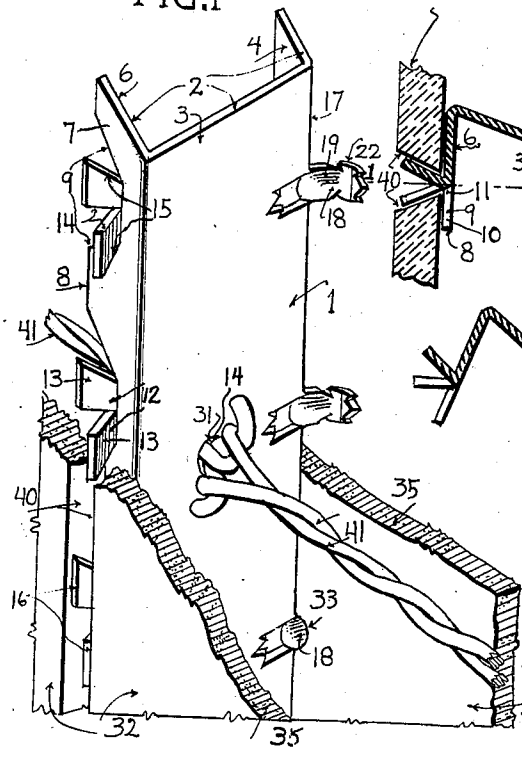


FIG. 7

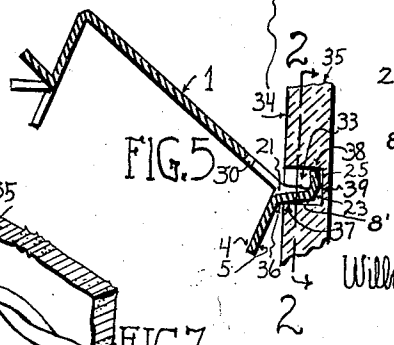


FIG. 5

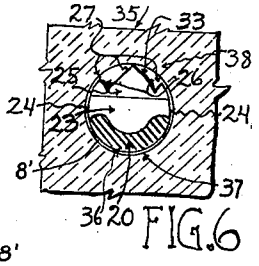


FIG. 6

William E. Drummond
INVENTOR.

July 30, 1940. W. E. DRUMMOND 2,209,514

WALL CONSTRUCTION

Original Filed Oct. 16, 1933 2 Sheets-Sheet 2

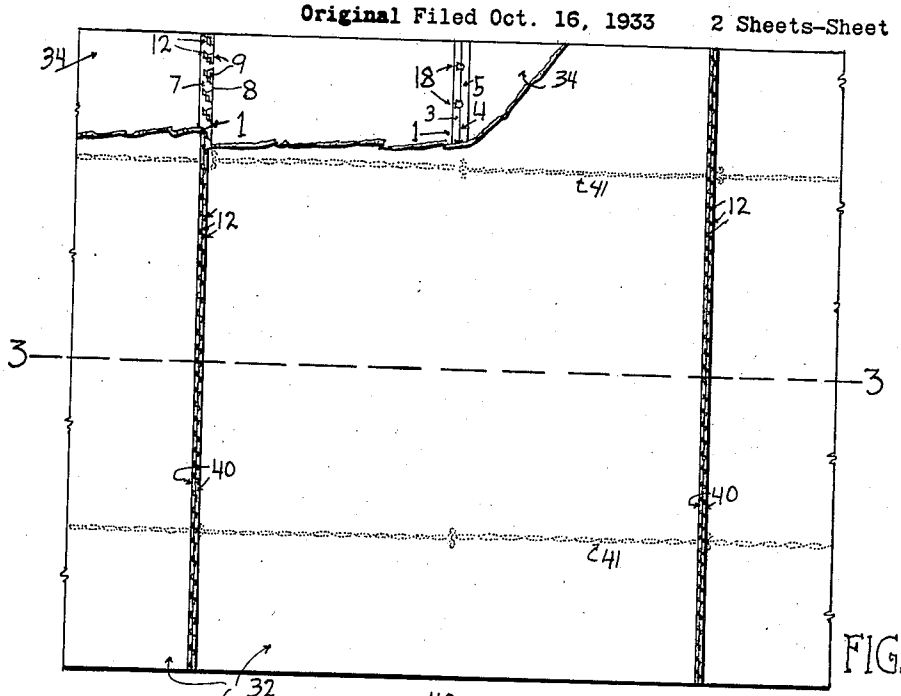


FIG. 8

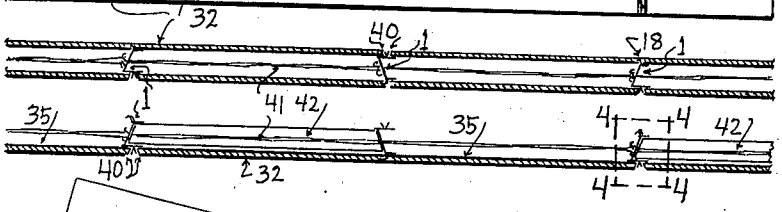


FIG. 9

FIG. 10

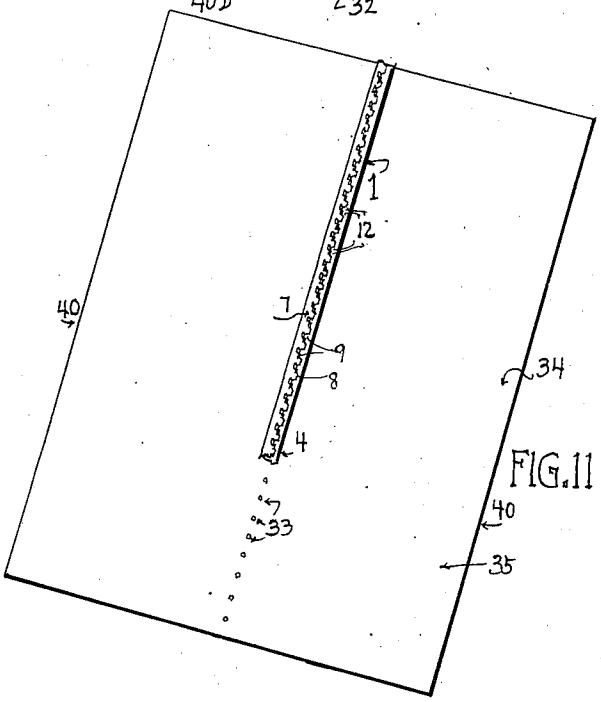


FIG. 11

William E. Drummond
INVENTOR.

Patented July 30, 1940 2,209,514

UNITED STATES PATENT OFFICE

2,209,514

WALL CONSTRUCTION

William E. Drummond, River Forest, Ill.

Application October 16, 1933, Serial No. 693,719
Renewed January 6, 1939

9 Claims. (Cl. 72—115)

My invention relates to wall and ceiling structure of the type having imperforate fibrous board facings such as gypsum, asbestos or wood fiber board and the like, combined with support members such as studs and more specifically to an improved support member whereby the board facings and the support members may be secured together in the erection of the wall or ceiling facing without the use of nails, screws or the like. The support member may be used in erecting single wall surfaces or double wall surfaces.

One of the objects of my invention is to provide a support member having attachment prongs extending from a bearing face of the member and adapted to secure the board facing members from the supported side.

Another object is to provide a support member that may be readily mounted on one side of board facing members having indented or cut out portions for receiving attachment prongs on the support member and securing the member to the board without necessarily piercing or marring the opposite side of the board.

Another object is to provide a support member having detent prongs extending from a bearing face of the member whereby, in erecting walls or ceiling linings, the adjoining end portions of board facing members may be secured in flush relation with cooperating means, such as twisted wires, being provided to exert lateral pressure on the board members and resiliently hold them in adjusted position without likelihood of jointure separation due to subsequent shrinkage of the board material.

Another object is to provide a support member for the erection of walls having flush joined imperforate board surfaces the component parts of which may be readily dismembered and re-used without likelihood of being defaced or broken in these operations.

Another object is to provide a support member that may be utilized in the erection of board faced walls having either two finished surfaces such as partitions, or one finished surface such as ceiling or room linings.

These and other objects that will be apparent through the further description of the invention, are attained in the support member hereinafter described and illustrated in the accompanying drawings, wherein:

Figure 1 is an elevational view showing support member or channel and two board joining, broken away to show wire and connector bar means;

Figure 2 is an elevational view at right angles with Figure 1;

Figure 3 is an elevational view opposite to Figure 1;

Figure 4 is a sectional view taken along the line 4—4 of Figure 2 showing support member in place with detent prongs securing board ends and with attachment prongs inserted in cut out or indented portions and piercing the fibrous material of the board facing;

Figure 5 is a similar sectional view of support member as positioned before it is pivoted about into locking position with board facing;

Figure 6 is an enlarged sectional view taken along the line 2—2 of Figure 5 of cut out or indented portion of board facing;

Figure 7 is a perspective view of channel with board facings broken away to show detent and attachment prongs on opposing flanges of channel with tie wires and connector bar;

Figure 8 is an elevation of board facings secured in place by support member with tie wires dotted to show their relative positions. A portion is broken away to show opposing wall structure and support members;

Figure 9 is a sectional view along the line 3—3 of Figure 8;

Figure 10 is a sectional view similar to Figure 9 of a modified structure with board facings on one side only;

Figure 11 is an enlarged sectional detail of the structure bounded by lines 4—4—4—4 of Figure 10.

Referring to the drawings and more particularly to Figure 7, one form of the support member generally designated by 1, is of distorted channel shape. The webbing 2 of channel 1 is relatively wider than the bearing flanges 3 and 4. Bearing flange 3, as shown, is bent to form an obtuse angle with webbing 2 and bearing flange 4 is bent to form an acute angle therewith. Yet the two flanges present substantially parallel bearing surfaces for the board facings, as shown in Figure 4.

Along the shoulder 2' formed by the webbing 2 and the flange 3 attachment prongs 8, 8 are formed in spaced alignment these being welded to or, as shown in Figs. 2, 3, 4, 5 and 7, cut and bendably thrust from the adjacent web portion, each having a shank portion 8' extending from the adjacent shoulder 2' at an obtuse angle to the flange 3, and terminating in a relatively small head portion 9 having inclined jagged points 10, 10, the head 9 extending from the shank 8' in parallel relation to the flange 3, the shank and

head having a hook-like profile as illustrated in Fig. 4 and having, around an annular axis, as seen on Fig. 6, a claw shape permitting the prong to be inserted in the circular hole or cut-out portion of the board 6.

Along the free side of bearing flange 4 detent prongs 5, 5 are formed, in spaced alignment parallel therewith, the prongs 5, 5 having remote planar lateral face portions 7, 7 disposed in staggered relation at opposite equal acute angles with the flange 4 and base portions disposed perpendicularly oposite to the inner hook-side 9' of the head portion 9 of the attachment prongs 8, 8 in a plane which bisects these opposite angles as indicated by the dotted line 1—1 Fig. 4, the prongs 5, 5 in one form as seen in Figs. 1, 2, 4, 5 and 7 being cut and bendably thrust from the flange 3 in contiguous pairs.

If the board facing is already positioned, a stud is placed so that the attachment prongs 8, 8 are inserted in the line of corresponding holes or cut out portions 11, 11 as shown in Figure 5. The stud is then pivoted about so that the jagged points 10, 10 of head portion 9 pierce the fibrous board material as the shank portion 8' bears against the opposite wall of the hole until the bearing flange is brought to rest against board facing 6. While in this position the stud is locked in position as a stiffening member on the board facing and is ready to receive the jointure of board facings on the opposite bearing flange 4, by which it is prevented from being rotatively loosened.

Should the channel be already in fixed position, the board facing is pivoted on the channel so that it may be locked into position. As the prongs do not protrude through the facing there need be no marring of the exterior surface that results with the use of other fastening means.

In order to secure the attached studs and boards in position in a wall structure wire loops 12, 12 are extended laterally between and thru the web portions of the studs, preferably in a plurality, as shown in Figs. 1, 2, 3, 4, 7 and 8, these being secured, each to another by means of connector bars 13, 13 having, preferably, a yoke shape as seen in Figs. 3, 4 and 5 around the horns of which one loop may be bendably secured while the mid portion passes thru the end of an adjoining loop to form, in the aggregate effect, a chain, as seen in Figs. 1, 7 and 9, the bars 13, 13 having each a bearing against the web 2 of the stud in being rotated thereagainst on the rim of the pass hole 14 so as to twistably shorten each loop and thus clamp the successively installed units in position in staggered relation, any increase in the tension of the chain on the last installed loop being reserved, if desired, to more tightly compress all units after the readjustment of any jointures is completed thus the boards, 6, 6, as seen in Fig. 8, are secured in place without nails or screws. Due to the fact that the detent and attachment prongs are disposed in a plane perpendicular to either bearing face of the stud 1, as seen by the dotted line 1—1 Fig. 4, the latter may be positioned with the web portion 2 disposed at either of two angles to the attached board without prejudice to its holding properties.

In erecting wall or ceiling structure of the units as described with board facings joined in flush relation at only one side, as illustrated sectionally in Figures 10 and 11, bridging members 15, 15 consisting of suitable rigid material are employed to separate and hold, correctly positioned at desired locations, any support members having attachment prongs 8, 8 secured to the support side of the board facing and extending to the web of the support member having detent prongs 5, 5 bearing against the free end of the board being joined to others. Separate wire means may be employed to secure these support and bridging members at locations adjacent the wire loop 12 that is here employed to secure the board facing in a manner identical with that above described for walls having two board facings. By this means the board facings may be made as secure as if there were board facings fastened to the opposing bearing flanges of the support members.

It will be observed that wall and ceiling structures built of units as hereinbefore described, having these support members as structural elements, may readily be dismantled after cutting the wire securing means and that the detached units may readily be dismembered by a rotational movement of the support member, both being adapted for reuse. As the board facings have not been nailed or screwed to the supporting member, there is no damaging of board facings and, upon being taken apart, they may be re-used.

It will also be observed that in wall or ceiling structure built up of units having these support members as structural joint supporting and securing means, ample space is provided not only for the occasional underpinning of board margins sometimes required to secure flush joints but also for a well keyed flush cementing of jointures, the cracking of which, due to the stabilizing effect of strongly secured parts, is not likely to occur.

As intended in the design of the channel members, all of the features of simplicity have been incorporated so that they may be manufactured with as little expense and with as few operations as possible. The detent and attachment prongs may be made integrally from the channel member by simple stamping means. The customary means of fastening board facings, that is, with nails and screws, have been done away with as a more rugged and pleasing jointure is provided.

It is to be understood, of course, that while I have described only the specific embodiment of my invention illustrated in the accompanying drawings, it will be apparent that modifications thereof may occur to those skilled in the art without departing from the spirit of this invention, and I desire, therefore, that the same be limited only by the prior art or by the scope of the appended claims.

I claim:

1. A structural unit for supporting and securing wall or ceiling boards comprising a channel member with opposing bearing flanges, integrally formed attachment prongs projecting arcuately from one bearing surface to attach to without penetrating through board facings, integrally formed detent prongs projecting angularly from other bearing surface to restrain but not to extend beyond the thickness of abutting board facings, wire securing means for producing a compressive force between adjacent parallel channels and thus clamp the board facings in position, the combination providing a means of fastening board facings without nails or screws in a secure manner yet capable of being dismantled without injury to board facings.

2. A structural unit for supporting and securing wall and ceiling boards comprising a channel member with opposing bearing surfaces, integrally formed attachment prongs projecting ar-

cuately from one bearing surface to attach to without penetrating through facing, integrally formed detent prongs projecting angularly from other bearing surface to restrain but not to extend beyond the thickness of abutting board facings, wire securing means for producing a compressive force between adjacent parallel channels and thus clamp the board facings in position, a bridging member fitting between adjacent channels to prevent turning on the tightening of the wire, the combination providing a means of erecting a single board surface without nails or screws in a secure manner yet capable of being dismantled.

3. A structural unit for supporting and securing wall or ceiling boards comprising a channel member with opposing bearing surfaces, integrally formed attachment prongs projecting arcuately from one bearing surface to attach to without penetrating through board facings, integrally formed detent prongs projecting angularly from other bearing surface to restrain but not to extend beyond the thickness of abutting board facings, means for producing a compression between adjacent parallel channels, and thus clamp the board facings in position.

4. A structural unit for supporting and securing wall and ceiling boards comprising a distorted channel member with opposing bearing flanges, integrally formed attachment prongs projecting arcuately from one bearing surface to attach to without penetrating through board facings, integrally formed detent prongs projecting angularly from other bearing surface to restrain but not to extend beyond the thickness of abutting board facings, wire securing means for producing a compression between adjacent parallel channels and thus clamp the board facings in position.

5. A structural unit for supporting and securing wall and ceiling boards comprising a substantially channel-shape support member with opposing bearing flanges, integrally formed attachment prongs projecting arcuately from one bearing surface to attach to without penetrating through board facings, integrally formed detent prongs projecting angularly from other bearing surface to restrain but not to extend beyond the thickness of abutting board facings, wire securing means for producing a compression between adjacent parallel support members and thus clamp the board facings in position.

6. A structural unit for supporting and securing wall and ceiling boards comprising a support member with opposing bearing surfaces, integrally formed attachment prongs projecting arcuately from one bearing surface to attach to without penetrating through board facings, integrally formed detent prongs projecting angularly from other bearing surface to restrain but not to extend beyond the thickness of abutting board facings, wire securing means for producing a compression between adjacent parallel support members and thus clamp the board facings in position.

7. A plurality of structural units for supporting and securing facings in oppositely staggered relation in walls, each comprising a member having parallel bearing flanges, integrally formed attachment prongs projecting angularly from one bearing face to attach in locked relation to, but not penetrate through, the board, and integrally formed detent prongs projecting acutely from the other face to overlap the ends, but not extending beyond the thickness of the boards in jointure, means for drawing up adjacent structural units and causing the detent prongs to grip the board ends consisting of wire loops capable of being twisted.

8. In a wall structure having board facing members secured in flush relation to opposite sides of support members having detent portions extending between the abutting sides thereof a plurality of wire loops extending laterally thru the support members in apertures provided therefor and joined thereat by connector bars to form chains, the loops in each chain being twistably stressed whereby to draw the support members and the intervening facing members compressively together and cause the detent portions of the former to grip the sides of the latter, two of the bars in each loop or chain pressing against the remote sides of corresponding support members.

9. In a wall structure having board facing members secured in flush relation to one side of laterally braced support members havings detent portions extending between the abutting sides thereof a plurality of wire loops extending laterally thru the support members in apertures provided therefor and joined thereat by connector bars to form chains, loops in each chain being twistably stressed whereby to draw the support members and the intervening facing members compressively together and cause the detent portions of the former to grip the sides of the latter, two of the bars in each loop or chain pressing against the remote sides of corresponding support members.

WILLIAM E. DRUMMOND.