Oct. 13, 1970

P. PESTEL ET AL

3,533,205

WALL CONSTRUCTION

Filed July 29, 1968

Fig. 1.

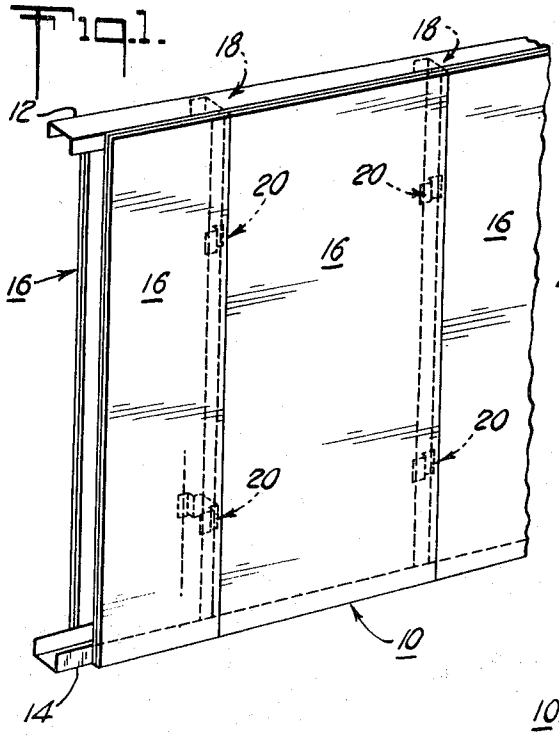


Fig. 2.

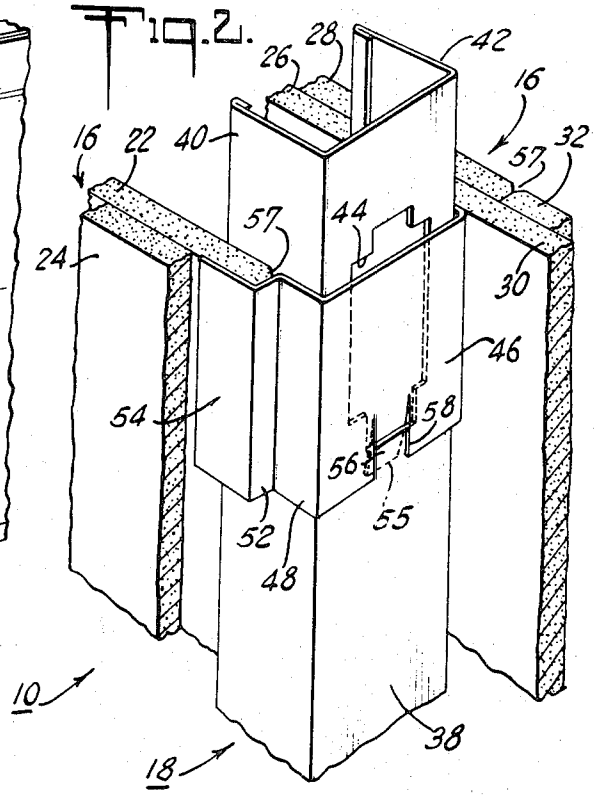


Fig. 3.

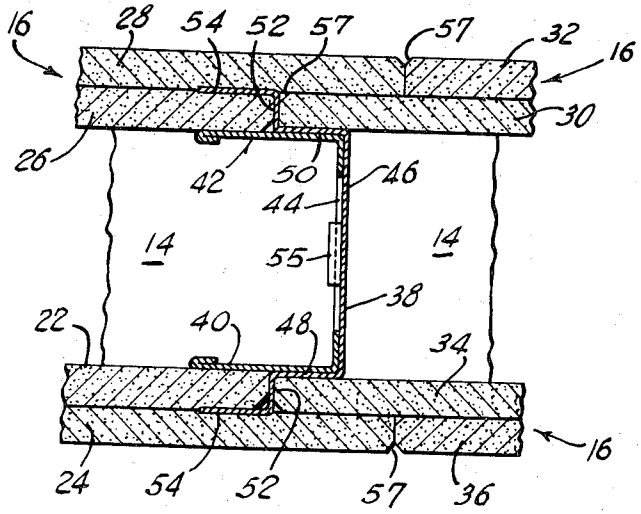


Fig. 4.

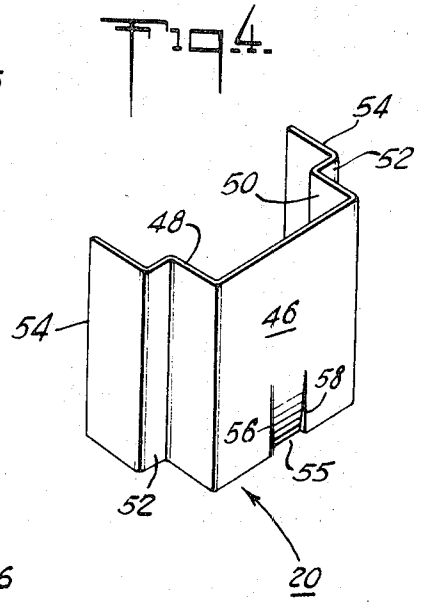
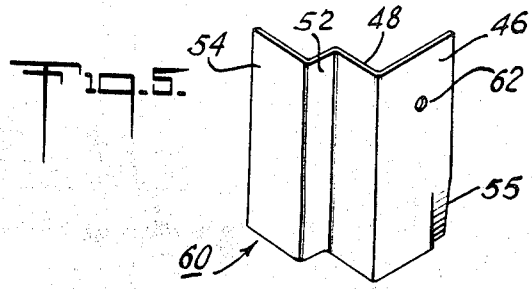


Fig. 5.



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WALL CONSTRUCTION

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U.S. Cl. 52—356 4 Claims

ABSTRACT OF THE DISCLOSURE

A wall construction utilizing laminated wallboard panels, conventional channel-shaped metal wall studs, and clips to fasten the wall panels to the studs to form a wall. The clips have a shape such that they readily fit into the edges of the wall panels, and also fit into openings in the flanges of the studs to fasten the panels to the studs without the use of nails or screws.

This invention relates generally to wall structures and components of such structure, and it relates more particularly to wall structures utilizing laminated wallboard panels, and to wall studs and clips to hold such panels in place.

In the general type of wall construction to which this invention pertains, conventional laminated wall panels made of two or more layers of gypsum wall board glued together are secured to metal support studs. Secondary supports or "runners" usually are employed to provide a base for the studs and to provide bracing and further support for the wall structure.

Channel-shaped metal studs have come into wide-spread use in walls to which the present invention pertains because of the ease and relative economy with which these studs can be manufactured. Such studs commonly have been used in wall constructions in which the wall panels are fastened directly to the studs by means of nails or screws. The usual operation of nailing or screwing wall panels to such prior art studs is undesirable because it is time-consuming, and for the further reason that the nail or screw heads must be covered with tape, "spackling" and the like to make the wall surfaces smooth.

To avoid the necessity of using nails and screws to secure wall panels to studs, various "nailless" and "screwless" wall structures have been devised. These "nailless" and "screwless" wall structures typically employ specially shaped studs, either with or without cooperating clip elements, to hold the wall panel units in place. The special shapes of such studs often make them expensive to manufacture.

In keeping with the foregoing, a general object of the present invention is to provide an improved wall construction, which overcomes the limitations of the prior art structures by providing an economical, simplified, "nailless" and "screwless" wall construction, one which makes use of conventional channel-shaped studs which can be produced in quantity at relatively low cost.

In accordance with this invention, the foregoing objects are attained by use of a special mounting clip which cooperates with a standard channel-shape stud and laminated wall panel units to achieve the desired wall construction.

Further objects, advantages, and details of this invention will become evident from the following description of the preferred embodiment, when read in conjunction with the accompanying drawings, in which:

FIG. 2 is a broken-away, cross-sectional perspective wall utilizing the construction of this invention;

FIG. 2 is a broken-away, cross-sectional perspective view of a portion of the wall construction shown in FIG. 1;

FIG. 3 is a cross-sectional plan view of the wall construction shown in FIG. 2;

FIG. 4 is a perspective view of the clip employed in the wall construction of this invention; and

FIG. 5 is a perspective view of a modified clip to be used in another embodiment of the invention.

FIG. 1 illustrates a wall structure **10** constructed in accordance with this invention. The wall structure **10** includes upper and lower channel-shaped supports or "runners" **12** and **14** which are secured, respectively, to the floor and ceiling of a room. Conventional metal channel-shaped wall studs **18** are fitted into the runners **12** and **14** at spaced distances from one another, and laminated wall panels **16** are fastened to the wall studs by means of metal clips **20**.

FIGS. 2 and 3 show in detail the arrangement of the wall panels, the studs, and the clips. Each of the wall panels **16** is formed of two gypsum sheets which are glued together face-to-face. Referring to FIG. 2, for example, gypsum sheets **22** and **24** are laminated together to form a panel **16** on one side of the wall structure **10**, and similar sheets **26** and **28** are laminated together to form another panel **16** on the other side of the wall. As is shown in FIG. 3, other sheets such as sheets **30** and **32**, and sheets **34** and **36** are laminated into further panels **16** which are engaged edge-to-edge with the first-named panels. The panels are laminated in offset relationship to one another so that the edge of each panel is step-shaped. A continuous succession of laminated two-ply wallboard panels **16** is secured to the wall studs **18** by means of the clips **20** to to form the wall structure **10** shown in FIG. 1.

Each of the wall studs **18** has a web portion **38** and side flanges **40** and **42**. The web portion **38** of the studs **18** contains an opening **44** which, in this particular case, is a "utility" opening through which electrical, or other wires or tubing, can pass. The use of such an opening is described more fully in U.S. Pat. No. 3,341,997, which is assigned to the same assignee as is this application.

FIG. 4 shows one of the chips **20** used to hold the laminated wallboard panels **16** to the wall studs **18** of the wall structure **10** of the invention. The clip **20** has a channel-shaped center section including a web portion **46** and side flanges **48** and **50**. Extending from the end of each of the flanges **48** and **50** are L-shaped extensions having portions **52** which are substantially perpendicular to the flanges **48** and **50**, and further portions **54** which are substantially parallel to the flanges **48** and **50**. The clip **20** has an integral fastener member or tab **55** formed by cutting the clip along the lines **56** and **58** (shown in FIGS. 2 and 4) and by bending the tab section so formed inwardly towards the flange portions **52**. As seen in FIGS. 4 and 5, clip **10** fits snugly around the stud **18** and is supported thereon by the tab **55**, which is fitted over the lower edge of the utility hole **44**, and also by the grip of the clip flanges **48** and **50** upon the studs **18**.

As can best be seen in FIGS. 2 and 3, the portions **54** of the chips **20** extend into the joints and between individual wall sheets in the wall panels **16** to hold the panels securely in place. The channel-shaped center sections of the chips **20** conform to and fit around the channel-shaped wall studs **18**. The individual sheets of the wall panels **16** are wedged apart slightly by the flange portions **54** of the clips **20** which are fitted between the laminations. The overlapping edges of the wallboard panels and the clips act together to hold the panels **16** securely in place on the wall studs **18**. The gypsum sheets forming the wall panels **16** preferably have beveled edges **57**.

The wall **10** is constructed by first securing the upper and lower runners **12** and **14** to the floor and ceiling, respectively, of a room in which the wall is to be con-

structed. Studs **18** are secured in runners **12** and **14** at intervals equal to the width of the wall panels **16**. Two panels **16** then are aligned on opposite sides of the studs, each extending between adjacent studs, and then the panels are clipped into place by inserting the outer flange portions **54** of the clips **20** between the laminations of the panel edges, and pushing the tab **55** down onto the lower edge of the utility hole **44**. After the first two wall panels are secured in place, two more panels are positioned so that their edges abutt the edges of the first set of wall panels. The abutting edges of the panels of the second set are held in place by the overlapping edges of the panels already in place. The opposite edges of the panels of the second set then are clipped to the next wall stud in the same manner as were the edges of the first two wall panels. This process is repeated until an entire wall is constructed.

Often it is desirable to use the clipping technique herein described to construct one side of a wall completely before constructing the other side. To enable such a construction to be made easily, a half-clip **60**, shown in FIG. 5, is used instead of the clip **20** to secure panels to the wall studs. Half-clip **60** is identical to a whole clip **20**, except that the clip **20** has been cut in half along the vertical center line of its web **46** to form the half-clip **60**, and in that the half-clip **60** has a screw hole **62** in the web **46**. One side of a wall is formed by use of the half-clips **60** in the same way as the whole clips **20**, except that each clip is fastened in place by means of a screw which is driven through the hole **62** and into the web of the wall stud **18**. The other half of the wall may be formed similarly by the use of half clips which are mirror images of the clips **60**.

Both the clips and the studs may be made of any suitable material. The clips and studs described herein are advantageously manufactured from relative thin-gauge rolled sheet steel. Furthermore, although use of laminated wall panels has been described, any type wall panels having a step and adapted to accept a flange portion of the clips described herein can be used. Also, the holes in the studs need not be "utility holes." Any opening in the studs shaped to receive the tabs of the clips will be sufficient, and, in fact, any means of securing the clips to the studs is contemplated for use in this invention.

It should be understood, of course, that the foregoing disclosure relates only to preferred embodiments of the invention and that numerous modifications or alterations may be made therein without departing from the scope of the invention as set forth in the appended claims.

What is claimed is:

1. A wall construction comprising, in combination, a plurality of laminated wall panels having mating vertically extending edges, a plurality of generally channel-shaped vertical stud members each having a web portion and side flanges, and means securing said panels to said studs in edge-to-edge alignment, said means including a plurality of clip members each having a web section, at least one side section, and an offset flange extending from said side section, said web section and said side section conforming respectively to the web portion and to a portion of the side flanges of said studs and being in

contact therewith, fastening means connecting said clip members to said web portions, said offset flange being generally L-shaped, having a first portion lying in a generally vertically extending plane and being substantially perpendicular to said side section and a second vertically extending portion substantially parallel to said side section, said substantially perpendicular portion of said flange extending into the vertical joint between the edges of adjacent wall panels and said substantially parallel portion of said flange extending between the laminations of said wall panels.

2. A wall construction as described in claim **1**, wherein each of said vertical studs has an aperture and said fastening means is a tab which fits over an edge formed by said aperture.

3. A wall construction as described in claim **2** wherein said apertures are utility openings formed in the web portion of said studs and said tab is formed in the web section of said clip.

4. A wall construction comprising, in combination, a plurality of laminated wall panels having mating beveled edges, a plurality of generally channel-shaped vertical opening therein and side flanges, and means securing said stud members each having a web portion with a utility panels to said studs in edge-to-edge alignment, said means including a plurality of clip members each having a web section with a tab fastener means cooperating with an edge of said utility opening for securing said clips to said studs and side sections having offset flanges extending therefrom, said web sections and said side sections of said clips conforming respectively to the web portions and to a portion of the side flanges of said studs and being substantially contiguous therewith said offset flanges being generally L-shaped, having a first portion substantially perpendicular to said side sections and a second portion substantially parallel to said side sections, said substantially perpendicular portion of said flanges extending into the joint between adjacent wall panels and said substantially parallel portion of said flanges extending between the laminations of said wall panels.

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U.S. Cl. X.R.

52—357, 481, 489, 714

PO-1050
(5/69)

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,533,205 Dated October 13, 1970

Inventor(s) Paul Pestel and Albert L. Lankford

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 1, line 68: delete "Figure 2 is a broken away, cross-sectional perspective" and substitute--Figure 1 is a perspective, partially broken away view of a--.

Column 2, line 39: delete "chips" and substitute--clips--.

Column 2, line 59: delete "chips" and substitute--clips--.

Column 2, line 61: delete "chips" and substitute--clips--.

Column 4, lines 23 and 24 (Claim 4, lines 3 and 4): delete "opening therein and side flanges, and means securing said stud members each having a web portion with a utility" and substitute--stud members each having a web portion with a utility opening therein and side flanges, and means securing said--.

SIGNED AND
SEALED
JAN 5 1971

(SEAL)
Attest:

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Attesting Officer

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Commissioner of Patents