United States Patent [19]

Yohe

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[54] **HOLLOW WALL STRUCTURE**

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[21] Appl. No.: **461,919**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 364,053, May 25, 1973, abandoned.

[52] **U.S. Cl.** **52/241**; 52/489; 52/492

[51] **Int. Cl.**[2] **E04B 2/78**

[58] **Field of Search** 52/36, 489, 495, 241, 498, 52/496, 476, 492

[56] **References Cited**

UNITED STATES PATENTS

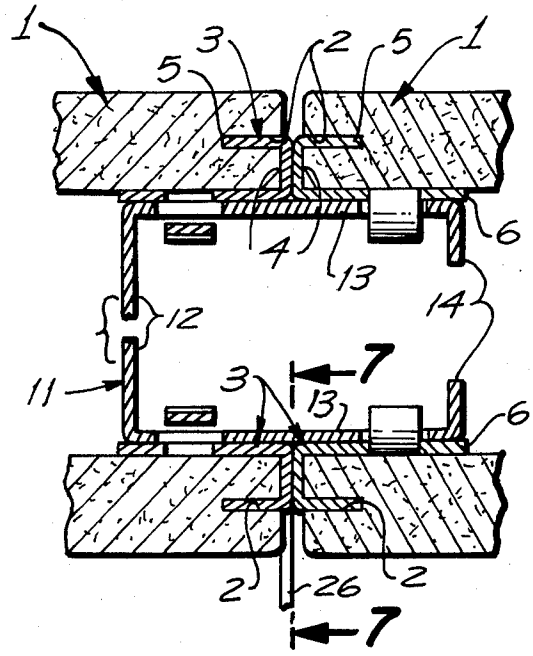
2,994,413	8/1961	Levy et al.	52/489 X
3,412,515	11/1968	Finon	52/496 X
3,640,042	2/1972	Kidney	52/484 X
3,722,163	3/1973	Satkin et al.	52/486 X
3,732,660	5/1973	Byssing	52/498 X

Primary Examiner—Ernest R. Purser
Assistant Examiner—Carl D. Friedman
Attorney, Agent, or Firm—Lyon & Lyon

[57] **ABSTRACT**

A hollow wall structure utilizing wall panels having slits in opposite vertical edges which slidably receive channel shaped margins of elongated fastener strips; each fastener strip having a series of spaced pairs of clip elements, the members of each pair facing in opposite directions and so arranged that the clip elements facing in the same direction may be raised or lowered to register with a corresponding series of slots provided in a channel shaped wall stud then lowered to engage the wall stud and lock the panel in place; the upper ends of the studs being mounted in a header having downwardly open marginal slots which slidably receive the upper ends of the panels. Any selected panel being removable by inserting a blade between the selected panel and adjacent panels to engage each fastener strip of the selected panel and slide its clip elements clear of the stud slots.

8 Claims, 8 Drawing Figures



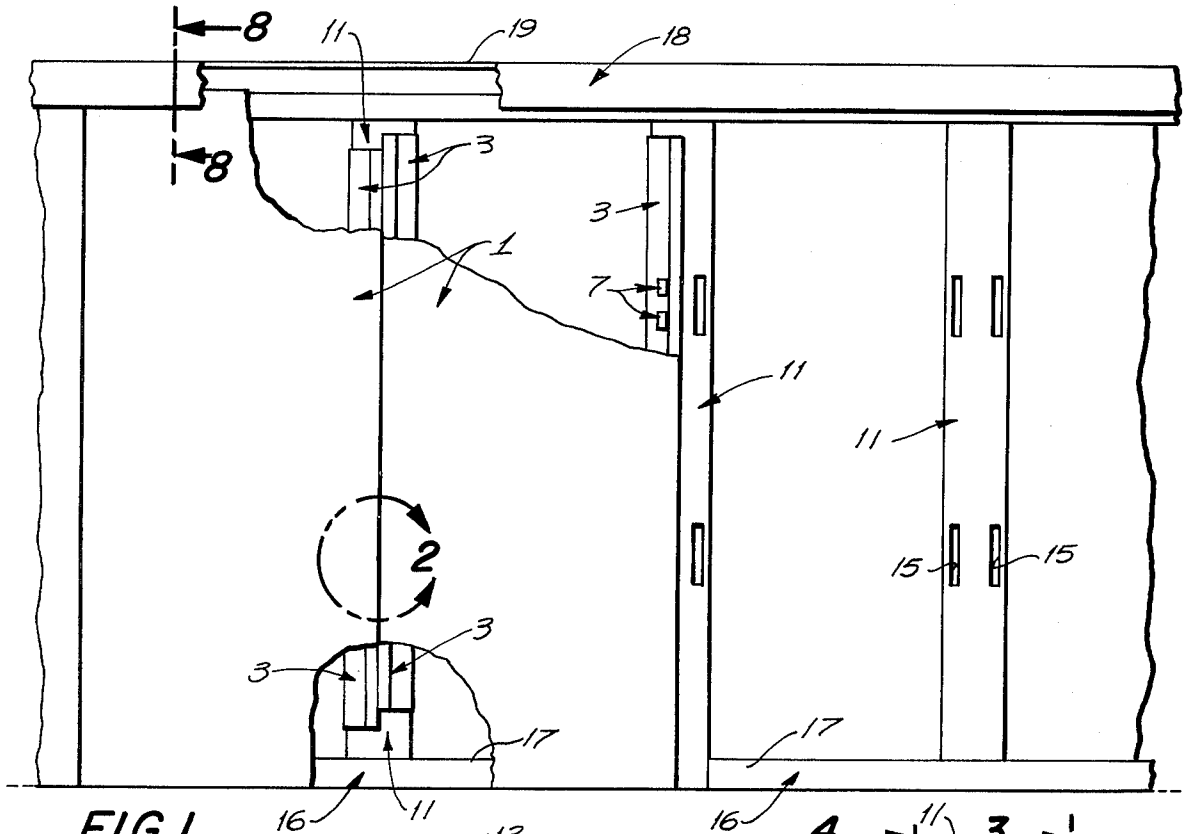


FIG. 1

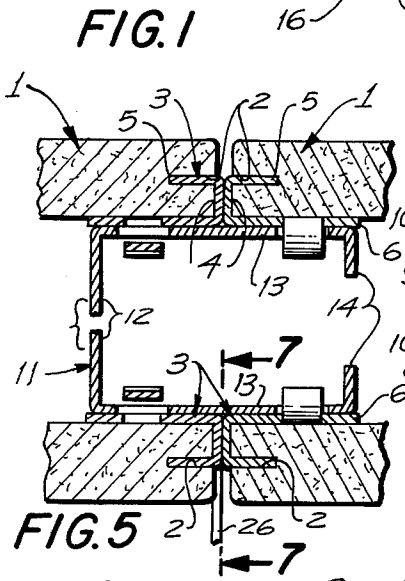


FIG. 5

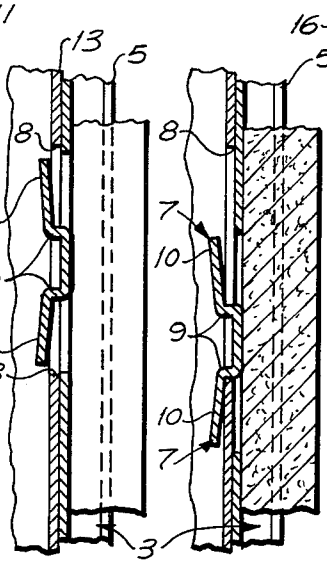


FIG. 4

FIG. 3

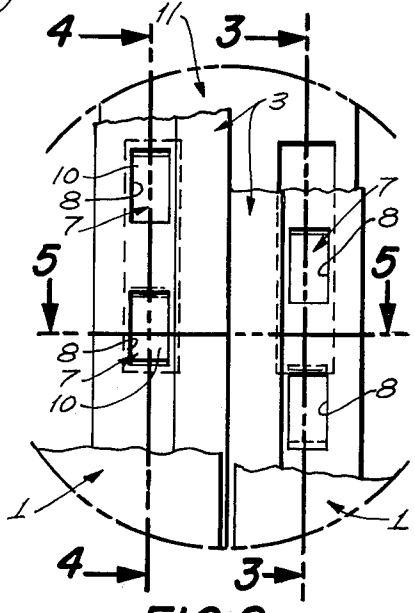


FIG. 2

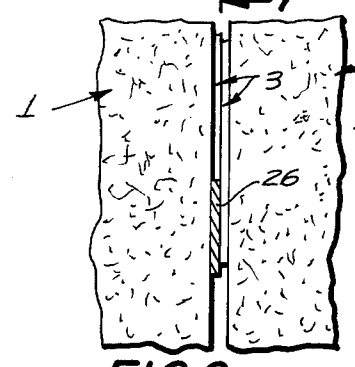


FIG. 6

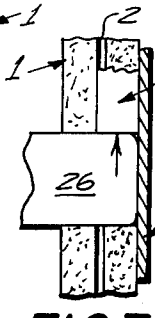


FIG. 7

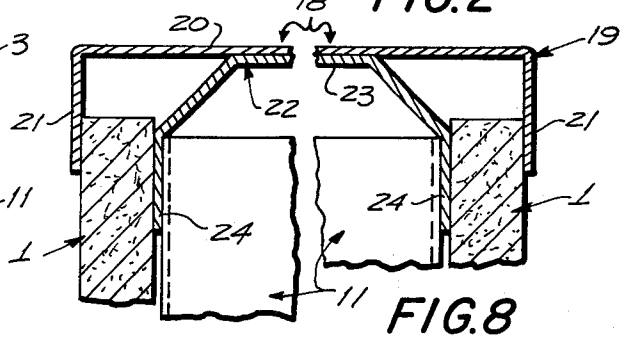


FIG. 8

HOLLOW WALL STRUCTURE

This Application is a continuation-in-part of application Ser. No. 364,053 filed May 25, 1973 entitled HOLLOW WALL STRUCTURE, now abandoned.

SUMMARY OF THE INVENTION

This invention is directed to a hollow wall structure and is summarized in the following objects:

First, to provide a hollow wall structure which is particularly suited for the construction of hollow partition walls that may be later disassembled and relocated, the structure involving a minimum number of easily assembled or disassembled parts.

Second, to provide a hollow wall structure including novely arranged fastener strips and cooperating wall studs, the fastener strips having means for slidable attachment to the margins of wall panels and also having mounting clips arranged to be received in slots provided in the wall studs whereupon the fastener strips and their mounting clip may be moved so as to secure the wall panels to the studs.

Third, to provide a hollow wall structure as indicated in the preceeding object wherein a selected panel may be removed by inserting a blade to engage each of its fastener strips to slide the fastener strips and their mounting clips to clear the slots in the corresponding studs.

Fourth, to provide a hollow wall structure as indicated in the preceeding object which includes a novel header construction having downwardly facing retainer channels for receiving the upper margins of the panels as well as permitting limited vertical displacement of a selected panel in the course of fitting the panel in place or removing the panel.

DESCRIPTION OF THE FIGURES

FIG. 1 is a fragmentary side view of the hollow wall structure with portions broken away to illustrate the internal construction.

FIG. 2 is an enlarged fragmentary side view taken within circle 2 of FIG. 1.

FIGS. 3 and 4 are enlarged vertical fragmentary sectional views taken through 3—3 and 4—4 respectively, of FIG. 2.

FIG. 5 is an enlarged horizontal fragmentary sectional view taken through 5—5 of FIG. 2.

FIG. 6 is a fragmentary side view of a pair of panels indicating in section a blade inserted for manipulation of a fastener strip.

FIG. 7 is a fragmentary sectional view taken through 7—7 of FIG. 5 showing the manipulating blade for a fastener strip.

FIG. 8 is an enlarged fragmentary sectional view taken through 8—8 of FIG. 1.

The hollow wall structure utilizes conventional wall panels 1 which are usually formed of gypsum board and are provided with edge grooves or slits 2 in their opposite vertical side margins. The panel is preferably the width between wall studs which are usually spaced 24 inches on center, however, the width may vary or may be doubled or tripled to span several wall studs.

The vertical margins of the wall panels slidably receive fastener strips 3. Each fastener strip includes a channel margin 4 including a flange 5 which is adapted to fit in a slit 2 of a wall panel 1. Each fastener strip preferably extends almost the length of the wall panel and includes a second flange or laterally extended portion 6 which fits contiguous to the margin of the wall panel.

Each fastener strip 3 is provided in the laterally extended portion 6 with a series of vertically spaced sets of clip elements 7. Each set of clip elements comprises two clip elements which are formed by a pair of U-shaped slits 8 extending in opposite directions, one slit extending upwardly, the other slit extending downwardly. The material within each slit is pressed from the normal plane of the laterally extended portion 6 to form an offset portion 9. Extending from the offset portion is an offset tongue 10 which extends essentially parallel to the portion 6 or in slight angular relation thereto.

A plurality of wall studs 11 are provided which are channel shaped in cross section. Each wall stud includes a web 12 joined to mounting sides or flanges 13 having inturned reinforcing extremities 14. Each mounting side 13 is provided with a vertical series of slots 15. Each slot is dimensioned to receive a set of clip elements 7 causing the laterally extended portion 6 to occupy a position contiguous to the mounting side 13. Thereupon the fastener strip 3 may be moved longitudinally relative to the panel 1 and the wall stud 11 to cause the tongue 10 of either clip element 7 to engage a margin of the slot 15.

The wall studs 11 are received in a bottom channel 16 between upwardly extending side flanges 17. The bottom channel is suitably secured to an underlying floor preferably by conventional fastener means not shown and which may be removed. Similar conventional fastener means join the lower ends of the wall studs to the bottom channel or the wall studs may be merely set in place, that is, wedged between the side flanges 17 or the wall studs may be spot welded to the flanges 17.

Fastened to the ceiling in vertical alignment with the bottom channel 16 is a header assembly 18 which comprises outer channel 19 including a web 20 and depending side flanges 21. Secured within the outer channel 19 such as by spot welding is an inner channel 22 having a web 23 and side flanges 24. The side flanges 24 are spaced inwardly from the side flanges 21, a sufficient distance to receive the upper margins of wall panels 1. Also the side flanges 24 have a greater vertical depth than the side flanges 21, and preferably include diverging portions 25.

Installation of the hollow wall structure is as follows:

The bottom channels 16 and the header assembly are placed in vertical alignment. The wall studs which have pairs of slots at each side are spaced center to center the same distance as the width of the wall panels 1. Each wall panel slidably receives a pair of fastener strips 3. The panel is tilted so that its upper end may be inserted between the flanges 21 and 24, and moved upwardly therebetween as the panel is brought into contiguous relation to the stud 11 separated therefrom by the fastener strips 3. The fastener strips are moved upwardly or downwardly to bring the clip elements 7 into registery with the slots 15. The fastener strips 3 may then be moved downwardly, preferably, or upwardly to cause one of the clip elements of each pair to slip over an end of the corresponding slot 15 as shown in FIG. 3.

The side flanges 21 and 24 extend downward a sufficient distance to retain the upper margin of the wall panel after engagement of the clip elements 7 with the

lower margins of the slot **15**. The diverging portions **25** facilitate reception of the upper margin of the panel when held in an angular position permitting the side margins of the panel to be grasped. Also an angle blade, not shown, may be used as a tool engaging the lower end of the panel for the purpose of raising the panel and then control lowering the panel while the fastener strips **3** are pressed against the mounting sides **13** of the wall studs **11**.

The panels **1** are spaced from each other a slight distance equal to the thickness of the metal forming a pair of fastener strips **3**. This space can receive a blade **26** equal in width to the metal thickness of a fastener strip. By inserting a blade **26** between a pair of panels below a fastener strip **3**, the engaged strip may be raised to disconnect its clip elements **7** from the slots **15** of the corresponding stud. Similarly, by inserting the blade **26** above a fastener strip, the fastener strip may be pressed downward to cause its clip elements **7** to engage the slots **15** of the corresponding stud **11**.

The fastener strips **3** are sufficiently shorter than the panels **1** to provide space for insertion of the blades **26** below or above the fastener strips. Because the fastener strips are movable relative to their panels, corresponding slots **15** of the different studs need not be at the same levels. Also, because of the slidable nature of the fastener strips the panels may be readily aligned as they are set in place, without disturbing the interconnection between fastener strips **3** and studs **11**.

While for purposes of illustration, a vertical wall partition is disclosed, the structure may form a horizontal wall or ceiling, the wall studs serving as ceiling joists.

While I have fully described my invention it is to be understood that I am not to be limited to the details herein set forth, but that my invention is of the full scope of the appended claims.

I claim:

1. A partition wall structure comprising a plurality of panel members having longitudinal slits in the edges of their side margins and mounting means therefor, said mounting neabs comprising:

a. an upwardly open bottom channel member;

b. inner and outer top channel members, forming a spaced pair of channels receiving the upper margins of panel members;

c. a plurality of vertically disposed wall studs, their extremities fitted in the bottom channel member and the inner top channel member;

d. each wall stud including opposed vertically extending mounting sides, each mounting side having a vertically spaced series of clip element receiving slots opening toward said panels;

e. a plurality of elongated channel-shaped retainer strips each including a channel margin having a first flange slidably fitting an edge slit of a panel member, a web overlying the edge of the panel member inwardly of the slit, and a second flange confronting the margin of the panel member at its inner side facing said mounting sides of said studs;

f. the second flange of each retainer strip including a series of clip elements spaced in correspondence to the wall stud slots, and engaged with corresponding end margins of the series of wall stud slots whereby upon sliding movement of the retainer strip relative to both the wall stud and the panel member said clip elements may be engaged with or disengaged from the margins of said slots.

2. A partition wall as defined in claim **1**, wherein:

a. the webs of the retainer strips received by adjacent panels are in confronting relation and individually accessible to effect longitudinal movement of the corresponding retainer strip for engagement or disengagement with a corresponding wall stud to permit individual mounting or removal of a panel member.

3. A partition wall as defined in claim **1**, wherein:

a. the wall studs are slidable along said channels to align their slots with the corresponding clip elements.

4. A partition wall as defined in claim **1**, wherein:

a. the clip elements of each retainer strip are arranged in pairs extending in opposite directions, and the slots in the wall studs are each of sufficient length to receive a pair of clip elements, whereby the retainer strips at opposite sides of a panel may be moved in either direction for engagement with or disengagement from the slots of the wall studs.

5. A partition wall structure having a rectangular panel member having an outer side, an inner side and, a longitudinal slit in a vertical edge thereof, panel mounting means, comprising:

a. a. an elongated channel shaped retainer strip including a first flange, a second flange and a connecting web, the retainer strip being carried by the slitted vertical edge of the panel with the first flange being longitudinally slidable in the slit, the web overlying the edge portion inwardly from the slit, and the second flange overlying the corresponding margin of the inner side of the panel;

b. the second flange having a set of clips offset inwardly from the panel and extending longitudinally of the retainer strip;

c. and a wall stud including a side confronting the second flange, said side having a set of slots for receiving simultaneously the set of clips;

d. each retainer strip being of shorter length than the panel and the web being engageable to slide the retainer strip longitudinally with respect to both the wall stud and the panel to cause simultaneous engagement of the clips with the wall stud at corresponding ends of the wall stud slots.

6. A partition wall as defined in claim **5**, wherein:

a. said side of said wall stud is provided with two sets of slots receiving the clips of a pair of retainer strips fitted along the margins of a pair of adjacent panels, with the webs of the retainer strips in abutting relation;

b. said webs being accessible from the outer sides of the panels for individual sliding movement of the retainer strips to secure or release the corresponding panel.

7. A partition wall as defined in claim **6**, which further comprises:

a. a header assembly receiving the upper ends of a plurality of wall studs and forming a downwardly directed channel receiving the upper margins of an initially tilted panel upwardly inserted therein as the panel was moved into position for engagement with corresponding wall studs.

8. A partition wall as defined in claim **5**, wherein:

a. the retainer strip is provided with two sets of clips arranged in pairs facing in opposite directions and the wall stud slots are each of a length to receive a pair of clips whereby each retainer strip may be disposed with either end uppermost and may be moved longitudinally downwardly or upwardly to effect locking engagement with the wall stud.

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