

[54] MOUNTING MEANS FOR WALL PANELS

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3,319,983	5/1967	Zibell.....	52/489 X
3,487,598	1/1970	Lopina.....	52/481 X
3,561,182	2/1971	Madl, Jr.....	52/483 X
3,645,051	2/1972	Kolesar.....	52/484 X
3,712,015	1/1973	Nelson.....	52/481 X

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[51] Int. Cl..... E04b 2/52

[58] Field of Search 52/481, 489, 281, 357, 52/359, 483, 498, 404, 407; 50/360

[56] **References Cited**

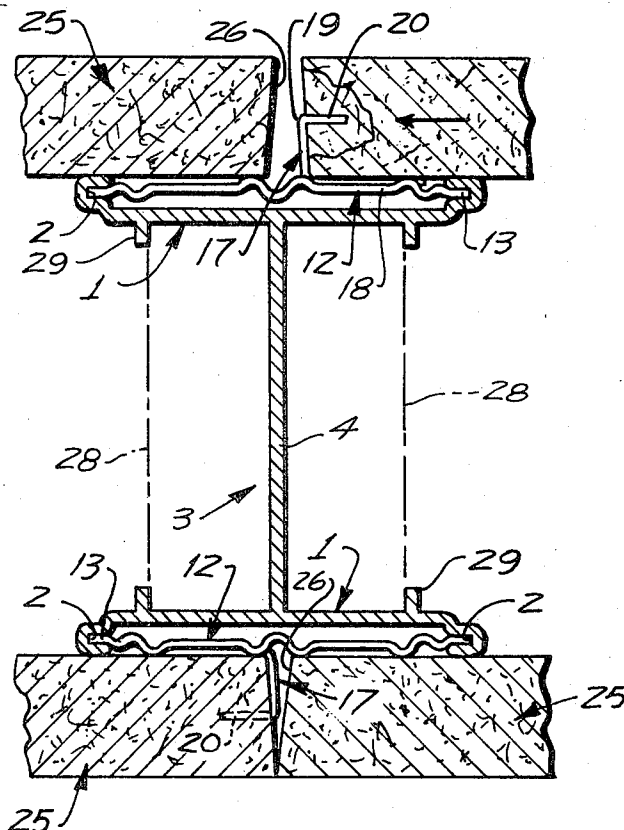
UNITED STATES PATENTS

2,568,490 9/1951 Dunham et al. 52/489

[57] **ABSTRACT**

A mounting means for wall panels including an extruded metal stud member having guide tracks to receive slide plates which, in turn, receive clip members joined to selected margins of the panel members.

13 Claims, 10 Drawing Figures



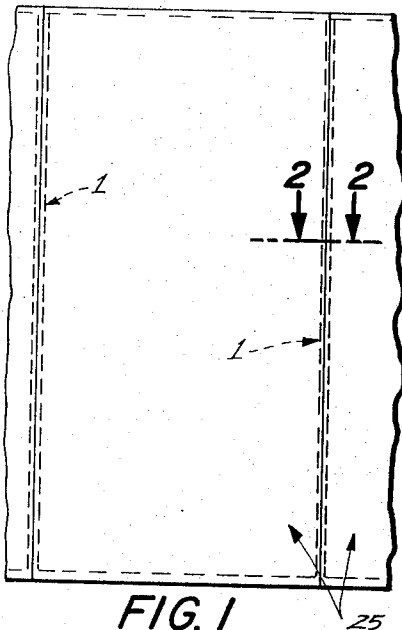


FIG. 1

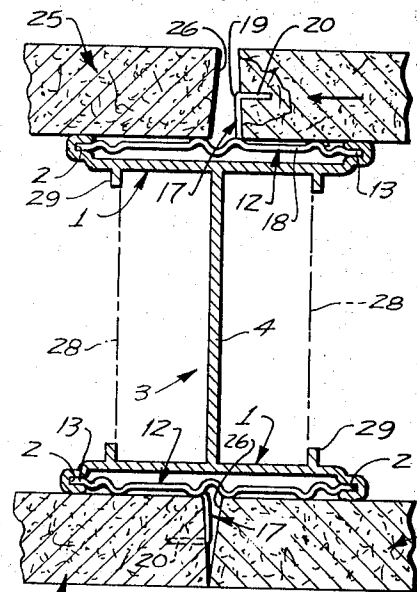


FIG. 2

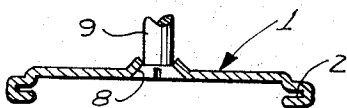


FIG. 7

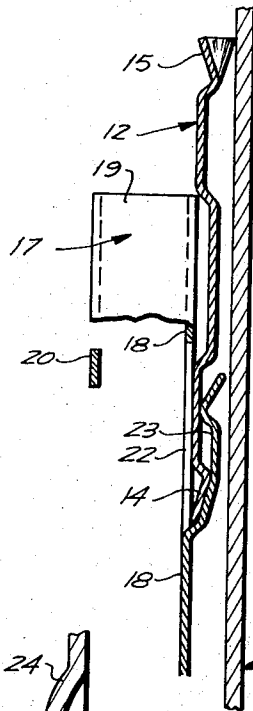


FIG. 4

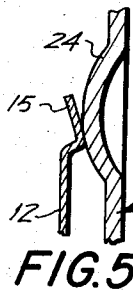


FIG. 5

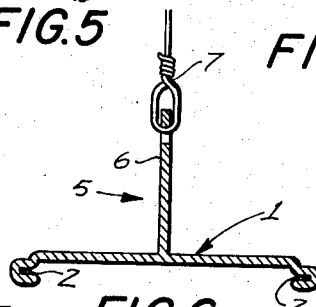


FIG. 6

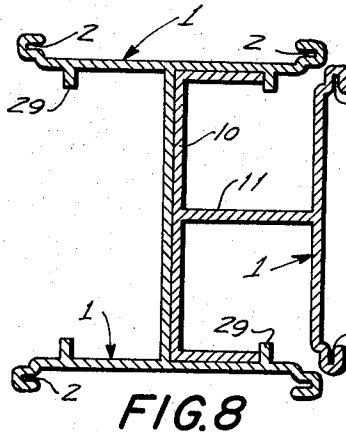


FIG. 8

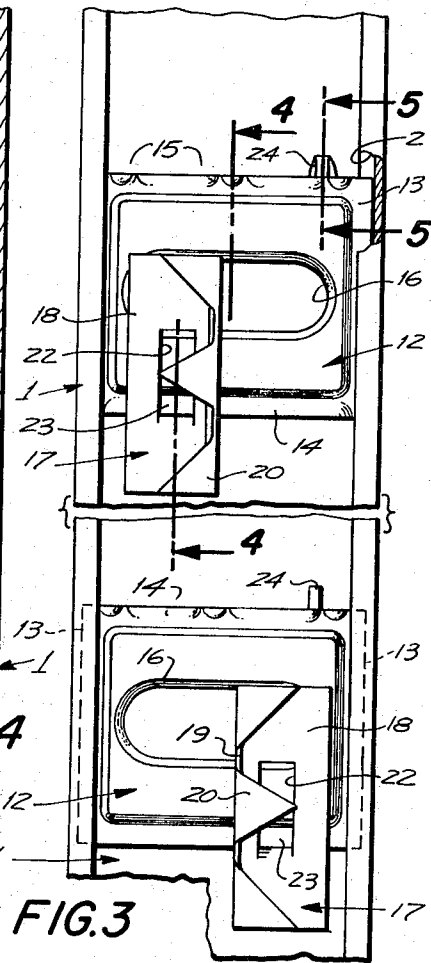


FIG. 3

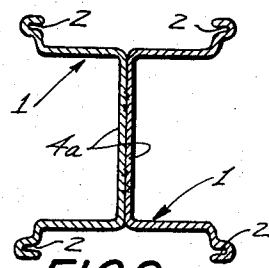


FIG. 9

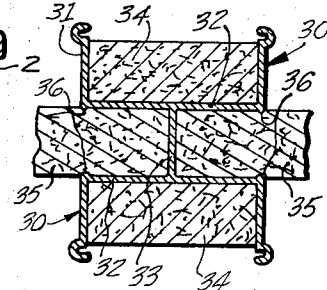


FIG. 10

MOUNTING MEANS FOR WALL PANELS

This invention relates to mounting means for wall panels, and is summarized in the following objects:

First, to provide a mounting means which utilizes extruded metal stud members having opposed tracks to receive a series of slide plates, each capable of limited sliding movement to engage and secure clips previously joined to selected margins of panels, such as the type known as dry wall panels.

Second, to provide a mounting means, as indicated in the preceding object, wherein the stud members are essentially I-shaped to provide tracks at opposite sides to mount opposing panels to form a partition wall, or may be T-shaped for use as suspended ceiling studs; or may be essentially flat to receive screws for supporting wall covering panels, or may have other configurations to permit use at wall corners or the margins of openings.

Third, to provide a mounting means, as indicated in the other objects, wherein the stud is provided with slide plate holding means so that the slide plates may be temporarily retained in raised or lowered positions so that the plates may later be moved along the stud to engage the panel clips.

FIG. 1 is a reduced fragmentary view showing adjacent wall panels and indicating by dotted lines the location of the mounting means.

FIG. 2 is an enlarged transverse sectional view taken through 2-2 of FIG. 1 showing the mounting means and adjacent portions of the wall panels.

FIG. 3 is an enlarged fragmentary front view of the mounting means with the wall panels omitted.

FIG. 4 is a further enlarged fragmentary sectional view thereof taken through 4-4 of FIG. 3.

FIG. 5 is another fragmentary sectional view thereof taken through 5-5 of FIG. 3.

FIG. 6 is a sectional view corresponding to FIG. 2 showing a modified form of the track strip.

FIG. 7 is a sectional view also similar to FIG. 2 showing a further modified form of the track strip.

Fig. 8 is a composite view showing a still further modification of the track strip.

FIG. 9 is a sectional view of the mounting means similar to FIG. 2 but on a reduced scale showing its construction if roll formed.

FIG. 10 is another sectional view corresponding to FIG. 2 showing a modification particularly suitable to provide a fire resistant wall.

The mounting means for wall panels includes a track strip 1 having marginal track grooves 2 facing toward each other and offset from the track strip so that a member extending between the grooves clears the track strip.

The track strip may be arranged in various combinations. For example, a pair of track strips form the flange ends of an I-shaped wall stud 3; that is, the track strips are joined by a web 4. As shown in FIG. 6, a single track strip may form part of a T-shaped suspended ceiling stud 5 provided with a web 6 which is perforated to receive suspension wires 7.

Still further, a single track strip may be provided with screw holes 8 for attachment by screws 9 to a backing wall, this arrangement being indicated in FIG. 7. In order to form corners or margins of openings, the wall stud 3 may receive a side mounting channel 10 connected by a web 11 to a track strip 1, as suggested in

FIG. 8. Other assemblies utilizing the track strip 1 may be employed to meet construction requirements.

The track strip 1 and the various webs or the like associated therewith are preferably formed of aluminum extrusions. Each track strip receives a set of slide plates 12, which are preferably formed of spring steel, although they too may be formed as aluminum extrusions. In the slide plate construction shown, the lateral margins 13 of each slide plate are received slidably in the opposed track grooves 2. Their remaining sides form cam margins 14. One side of each plate may be provided with corrugations 15 so that if several of the plates are inserted end-to-end into the track grooves, the contiguous ends will not wedge or bind. The central portion of each slide plate may have a reinforcing offset portion 16.

A set of clips 17 are provided, which are also preferably formed of spring steel. Each clip is channel shaped in end aspect forming a base flange 18 joined by a web 19 to a prong flange 20, serrated to form several teeth or prongs 21.

The base flange of each clip is provided with a cut out 22 which forms a retainer or clip spring 23. Two sets of clips are provided, one in which the prongs point to the left as viewed in FIG. 3, the other in which the prongs point to the right as viewed in FIG. 3. It is intended that each slide plate 12 receive one clip pointing either to the right or the left, the clip being received at the end of the slide plate opposite from the corrugations 15. The cam margin 14 aids in guiding the clip spring into position.

Once the slide plates 12 are slipped onto the track strip 1, they are separated from each other and the track strip is locally deformed between the slide plates 12 to form retainer ribs 24. The ribs are proportioned so that they limit longitudinal movement of the slide plates and retain them in separate regions. The dimensions of the retainer ribs may be such that, if desired, a slide plate may be forced past a retainer rib. Also, they may be so proportioned that if the track strip 1 is inverted and tapped, the slide plates 12 will wedge sufficiently as to remain in place when the track strip is returned to its initial position.

It is intended to utilize conventional wall panels 25 or similar ceiling panels such panels are usually formed of gypsum and are provided with slightly bevelled side edges 26. The prong flanges 20 of the clips 17 are sufficiently sharp so as to be forced into the side edges until the webs 19 are in contact with the side edges as indicated in FIG. 2.

Installation of a wall or ceiling by use of the mounting means is as follows:

Considering first a wall installation in which studs 3 are used, the studs are secured in place in a conventional manner. First, however, the studs are inverted to cause the slide plates to frictionally engage the retainer ribs 24. A set of right-handed or left-handed clips 17 are secured in the edge of the panel and spaced to correspond with every other slide plate 12 and located slightly below the corresponding slide plates. The panel is then set in position and the slide plates are tapped or pressed downward so as to receive and removably interlock with a corresponding clip spring 23.

The next panel is provided with the other set of clips 17, spaced so as to be located under the remaining set of slide plates 12. The track strip 1 and the slide plates 12 are of sufficient width that the clips 17 are capable

of limited lateral movement. As a result, the second panel need not be set with its edge in contact with the first panel but may be spaced therefrom as indicated in the upper portion of FIG. 2, so that initially a slot 27 is formed into which may be inserted a flat tool for the purpose of forcing the corresponding slide plates 12 downwardly for engagement with the second set of clips. After this is accomplished, the panel may be shifted laterally into contact with the previous panel as shown at the bottom of FIG. 2.

If it is desired to construct a fire retardant wall, fire-proof panels are used and in addition fire resistant strips 28 are placed at opposite sides of the web 4. These strips are placed in position prior to installation of the wall stud 3 and in order to retain them in position, ribs 29 may be provided.

Reference is now directed to FIG. 9 which is similar to FIG. 2 except that the mounting means is roll formed instead of being extruded. To accomplish this the mounting means is formed in two channel shaped parts providing two webs 4a which are spot welded together.

Reference is now directed to FIG. 10 which illustrates a modified fire resistant wall, which includes a pair of modified track strips 30 of channel shape cross section forming side flanges 31 joined by a cross web 32. The track strips are connected by a web 33. A fire resistant strip 34 is received in each track strip; whereas the space between the track strips 30 receive a pair of central panels 35 which abut the web 33 and is initially retained in place by rudimentary ribs 36.

While particular embodiments of this invention have been shown and described, it is not intended to limit the same to the details of the constructions set forth, but instead, the invention embraces such changes, modifications and equivalents of the various parts and their relationships as come within the purview of the appended claims.

I claim:

1. A building structure, comprising:
 - a. an elongated mounting strip having longitudinally extending side margins defining mutually facing coplanar spaced track channels offset from the mounting strip;
 - b. a set of slide plates, each slide plate including opposed longitudinal margins slidably fitting into the spaced track channels and a transverse pair of margins extending between the track channels and spaced from the mounting strip;
 - c. and a set of connecting members, each connecting member being fixedly attached to a selected edge of a panel and having a clip means thereon extending longitudinally with respect to the mounting strip and frictionally embracing a transverse margin of a corresponding one of said slide plates and holding said panel in position and whereby said slide plate may be moved along said tracks to disengage from said clip means to thereby release said panel from said mounting strip.
2. A structure as defined in claim 1 including a second set of said slide plates on said mounting strip, alternating with the slide plates of said first named set, a second set of said connecting members fixedly attached to an edge of a second panel, and said second set of connecting members frictionally embracing respective slide plates of said second set.

3. A structure as defined in claim 1 wherein said spring clips are slidable on said slide plates, in the direction of said transverse margins.

4. A structure as defined in claim 1 including stop means on said mounting strip between each adjacent pair of slide plates to limit each slide plate to a limited range of movement along said mounting strip.

5. A structure as defined in claim 4 wherein said stop means are configured to frictionally engage and releasably hold said slide plates in engagement therewith.

6. A structure as defined in claim 1, wherein:

- a. means are provided on the mounting strip for confining the slide plates to a series of regions;
- b. and the connecting members are secured to corresponding regions of the panel edge, whereby a connecting member is available to each slide plate.

7. A structure as defined in claim 1, wherein:

- a. the mounting strip is provided with a series of apertures and is attached to an adjacent surface by securing members inserted through the apertures.

8. A structure as defined in claim 1, wherein:

- a. the mounting strip includes a central web perforated to receive suspension elements.

9. A structure as defined in claim 1, wherein:

- a. the mounting strip is paired with a second mounting strip and joined thereto by a web to form a wall stud.

10. A structure as defined in claim 1, wherein:

- a. a pair of mounting strips are joined by a web to form a wall stud;
- b. and a third mounting strip is disposed perpendicular to the pair of mounting strips.

11. A structure as defined in claim 1, wherein:

- a. the connecting members are channel shaped having a pair of flanges one flange being serrated and forced into the edge of a panel, the other flange being flat and provided with said spring clip element.

12. A structure as defined in claim 1, wherein:

- a. a pair of mounting strips are provided, each mounting strip being in the form of a channel to receive a fire resistant strip therein;
- b. the pair of mounting strips being connected by a web and forming therewith oppositely facing channels to support an intermediate fire resistance panel.

13. A structure as defined in claim 1 wherein:

- a. each slide plate is a sheet metal plate and one transverse margin is provided with corrugations to permit initial insertion and movement of the slide plates along the track in end-to-end relation, and stop means on said strip between adjacent slide plates to space the slide plates apart.

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