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Davey et al.

[11] **3,745,734**

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[54] **JOINT CONSTRUCTION FOR CEILING PANELS**

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[51] **Int. Cl.** **E04c 1/34**

[58] **Field of Search** 52/311, 460, 461, 52/462, 463, 464, 467, 468, 470, 471, 586, 506, 716, 312

[56] **References Cited**

UNITED STATES PATENTS

3,353,321	11/1967	Heilweil	52/716
1,407,250	2/1922	Burnett	52/467
3,545,154	12/1970	Bobzin	52/471 X

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[57] **ABSTRACT**

An improved joint structure for a strip concealing means which covers fasteners that hold a ceiling panel in position. Angled grooves are provided in a ceiling board for receiving a strip. Between the angled grooves, staples are placed to fasten the board in position, and the strip is placed in the grooves to conceal the staples.

1 Claim, 3 Drawing Figures

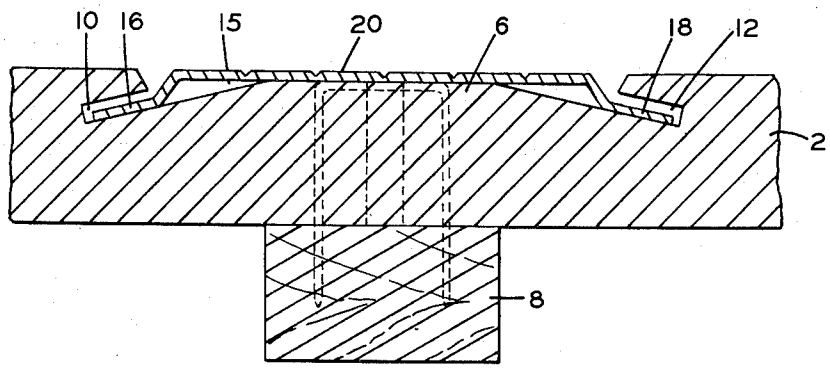


Fig. I

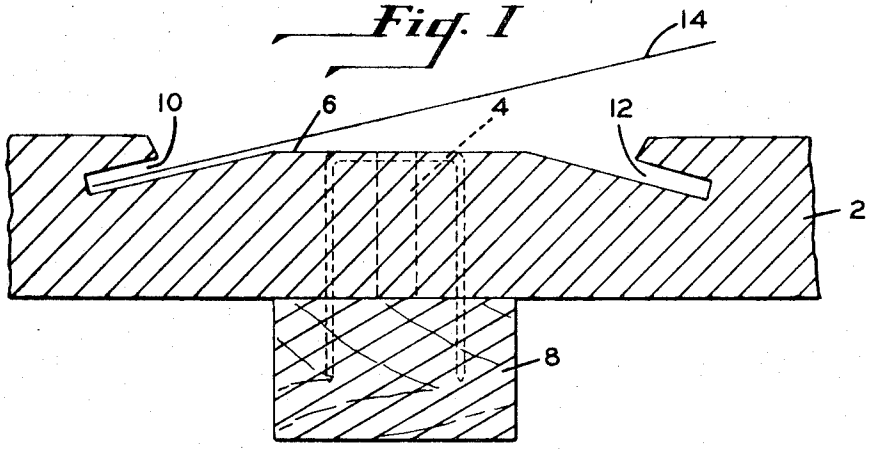


Fig. II

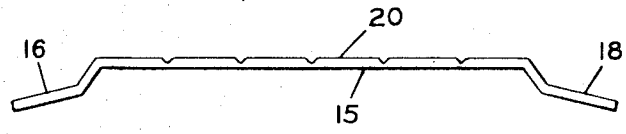
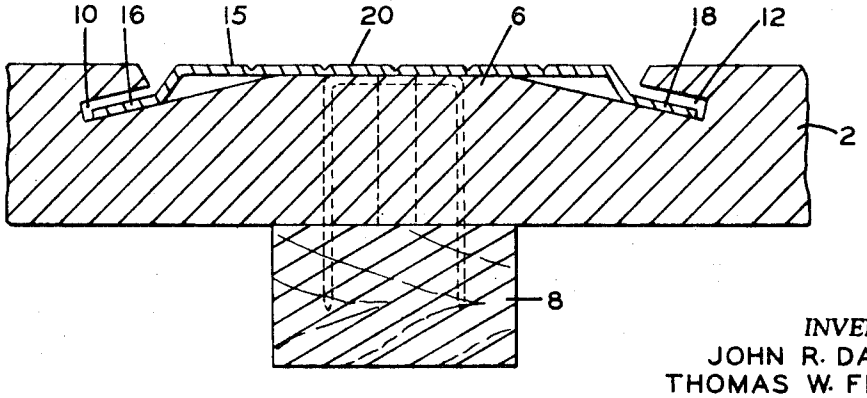


Fig. III



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JOINT CONSTRUCTION FOR CEILING PANELS

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention is directed to a structure for ceiling boards and, more particularly, to a joint structure used in conjunction with a concealing strip.

2. Description of the Prior Art

Heretofore, when a ceiling for a mobile home was assembled, large surface panels were fastened to supporting frame members. However, the exposed fasteners, such as nails, staples or rosettes have presented an unsightly appearance and have spoiled the attractiveness of the ceiling. One answer has been found in the placing of staples in a preformed groove or bevel in the panels. Since the staples, which are driven into the panels, are not always properly aligned in the bottom of the grooves, an unsightly appearance could result.

A panel assembly system as shown in U.S. Pat. No. 3,085,301 has been tried in which a flexible strip is inserted into mating grooves in the abutting edges of the panels. The flexible strip, however, does not always move smoothly in the grooves because quite frequently the fasteners, such as staples or nails, are not properly driven into place and interfere with the forward movement of the strip. Also, the flexible strip does not provide a sturdy structure.

In U.S. Pat. No. 3,545,154, an improvement was developed wherein a rigid strip was used with a raised center area which extended over any improperly driven staples or nails. Both the above structures utilized a flange structure for the strip which had the flange structure in the same plane. The grooves for receiving the flanges were also in a common plane in the board structure.

SUMMARY OF THE INVENTION

The invention pertains to a surface panel assembly in which the panel is grooved to receive rigid strips which cover the fasteners holding the board in position. The strip slides in two grooves which extend parallel to each other, but are angled relative to each other. The central area between the two grooves is raised to provide support to the center region of the strip and to provide a region for a staple guide structure which is set forth in copending application, Ser. No. 153,509 filed June 16, 1971, entitled, "Guide Groove for Staple Gun." The angling of the two parallel grooves provides for an advantage in manufacture of the board product and for a slight ease of assembly of the strip to the ceiling board structure.

BRIEF DESCRIPTION OF THE DRAWING

FIG. I is the showing of the board structure with the grooves therein;

FIG. II is the cross-sectional view of the strip which is placed in the grooves; and

FIG. III is a cross-sectional view of the strip assembled in the board and its groove structure.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to FIG. I, there is shown a cross-sectional view of a ceiling panel or board **2.** The boards are normally 4 feet wide and are fastened to the ceiling rafter structure of a mobile home. The rafters of the mobile home are 16 inches apart. Therefore, the 4 foot ceiling board would be fastened at its edge to one rafter and then at two separate points in the board 16 inches apart. It would then be fastened along its opposite edge to the fourth adjacent rafter. If the ceiling board is being fastened to a rafter in a center portion of the board, the ceiling board would have the configuration shown in FIG. I less the dotted line structure **4.** At the edge of the ceiling board, each edge of the ceiling board would have a configuration similar to that to the right or left of the dual dotted line structure **4.** One ceiling board would have the structure to the right of the dotted line while the adjacent ceiling boards would have a structure similar to that to the left of the dotted line structure. Consequently, when the two adjacent ceiling boards are placed side by side with the dotted line structure **4** representing the edge of the boards, the appearance of the joint at the edge of the boards would be the same as the appearance of the groove structure 16 inches in from either edge of the board. The board is provided with a raised structure **6** into which staples are passed to fasten the ceiling board to the underlying rafter structure **8.** It will be seen that the staples pass through the ceiling board **6** and grasp into the rafter **8** to hold the ceiling board in position. At a joint structure, it can be seen that one prong of each of the staples passes through an adjacent one of the boards to provide support to each of the two adjacent boards.

The ceiling boards are provided with a groove structure **10** and **12** which extend parallel to each other and are inclined at a slight angle relative to each other. The angle of the grooves is at about 13° relative to the plane of the surface **6.** The important feature is that the plane of each groove be such that the plane extends out beyond the surface of the board above the opposite groove. It will be noted that the line **14** which extends along the plane of the groove **10** is such that it is positioned above the upper surface of the ceiling board above the groove **12.** This is a particular advantage when the board is being manufactured. A saw would be positioned in the plane of the line **14** and would cut groove **10.** The waste cut out of the groove **10** is thrown along the plane of the line **14** and thus is not projected into the groove **12.** If the two grooves were in the same plane, as shown in the above-mentioned patents, the cutting of the groove **10** would cause the sawdust generated thereby to be thrown into the adjacent groove **12** and clog up this groove with sawdust. There is then required the additional step of cleaning out the groove **12** so that the strip element can slide into the groove.

FIG. II is a showing of the strip structure **15** which is placed in the grooves **10** and **12.** The strip has flanges **16** and **18** which extend into the grooves **10** and **12.** The strip structure also has a central body region **20** which may be provided with a decorative surface. This structure **20** overlies the surface **6** into which the staples have been placed. This central region **20** serves the purpose of providing a decorative cover for the staples.

This strip **15** is a rigid strip. In this invention, the rigid strip must be such that it can easily be pushed along grooves **10** and **12** from one end of a panel to the other end. Obviously, a strip which is flexible enough to be conveniently handled on a reel cannot have the requisite rigidity and ease of placement. Obviously, the strip need not be so rigid as to permit no flexure at all for lengths of 10 to 12 feet, but it cannot be flexible such that it may be wound on a reel and bent in radii of less than 1 inch. While the strip may appear to have a raised

area relative to the flanges **16** and **18**, it must be seen that this raised area does not exist relative to the plane of the staples. As can be seen in the embodiment of FIG. III, the underside of the central portion **20** of the strip is closely adjacent the surface **6** into which the staples are driven. Consequently, the assembled product does not have a strip with a central raised area which is designed to pass over improperly driven staples. There would be a tendency for the strip **15** to hang up on an improperly driven staple; therefore, the staples must be driven flush or substantially flush with the surface **6** of the ceiling board.

FIG. III of the drawings shows the assembled product with the strip **15** in position in the ceiling board **2**. The flanges **16** and **18** are in the respective grooves **10** and **12**. The central portion **20** closely overlies the surface **6** of the ceiling board in which the staples have been driven. Consequently, the strip **20** carefully conceals the staples from view.

What is claimed is:

1. A surface panel assembly comprising a panel having parallel front and rear wall surfaces and having a region into which staples may be passed to fasten the surface panel to an underlying support structure, a recessed area in the board structure on either side of the region to receive the staples, each of the recess areas having a groove which extends parallel with the groove on the opposite side of the area to receive staples and partly under the surface of the front wall surface, the planes of the two groove structures are not coextensive and, if extended, the planes would extend into the area above the region to receive the staples, said planes of the two groove structures extend at an angle of approximately **13°** from the plane of the region receiving the staples and the front wall structure of the panel assembly, and a strip with flanges positioned in each of the groove structures and a center portion which overlies the area which receives staples.

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