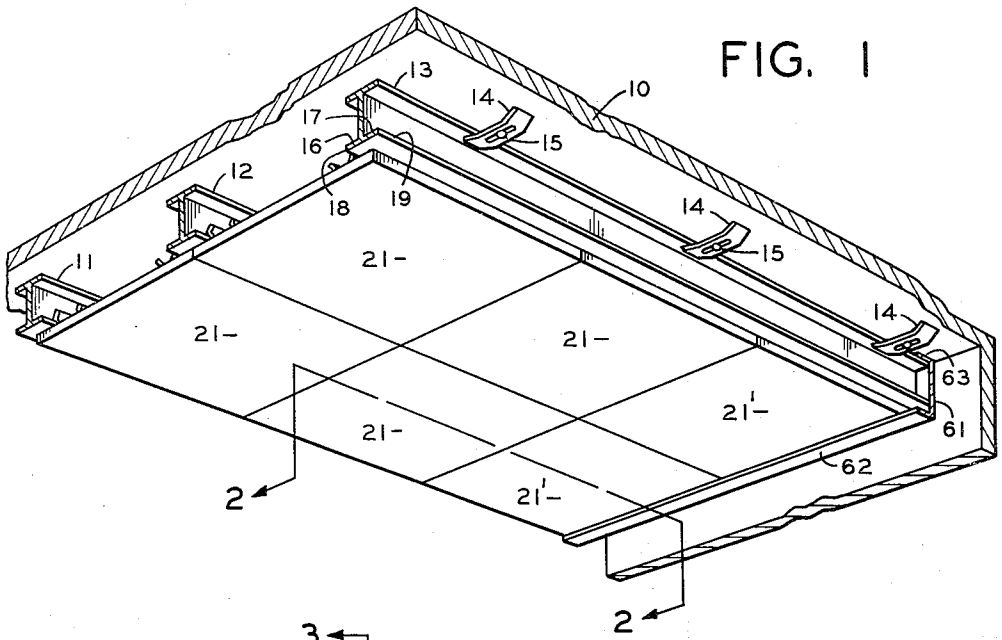
March 6, 1962 J. P. MOORE 3,023,866

PANEL ASSEMBLY

Filed April 20, 1960 2 Sheets-Sheet 1

FIG. 1



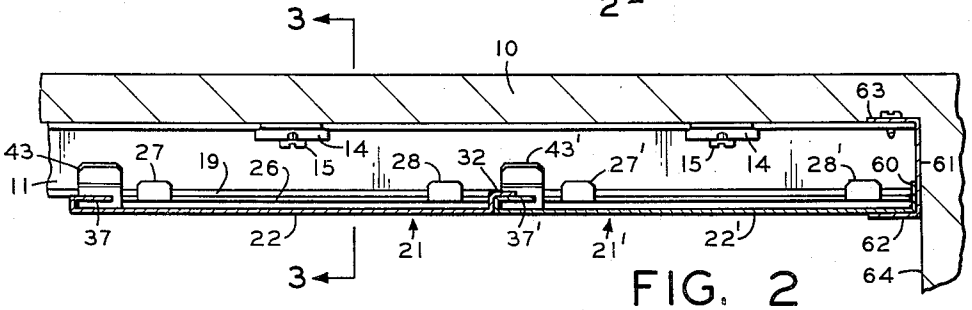


FIG. 2

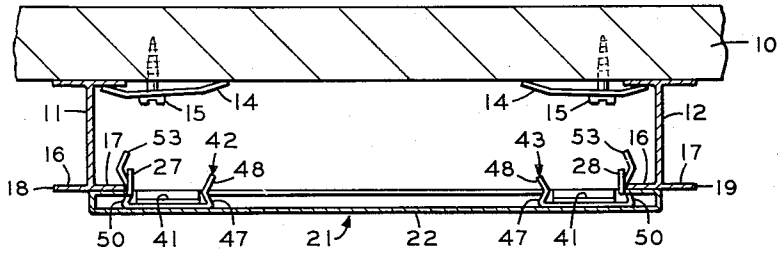


FIG. 3

INVENTOR.
JAMES P. MOORE
BY Kingsland, Rogers & Ezell
ATTORNEYS.

March 6, 1962 J. P. MOORE 3,023,866

PANEL ASSEMBLY

Filed April 20, 1960 2 Sheets-Sheet 2

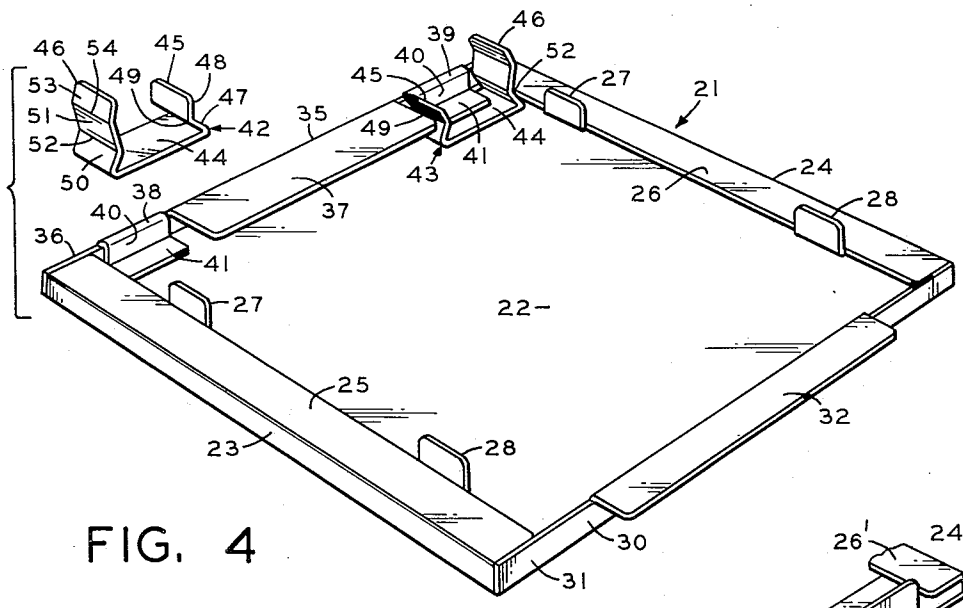


FIG. 4

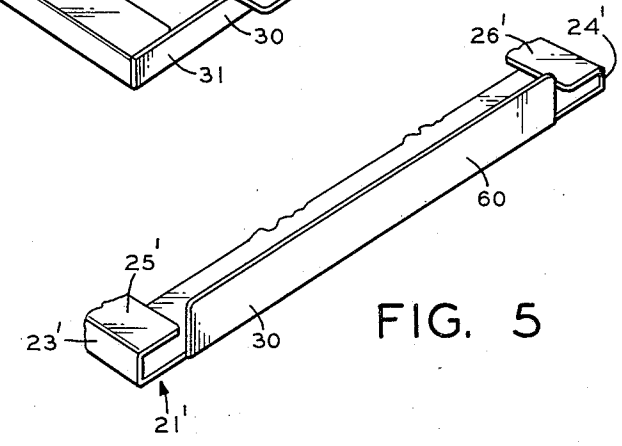


FIG. 5

INVENTOR.
JAMES P. MOORE
BY Kingsland, Rogers & Ezell
ATTORNEYS.

United States Patent Office

3,023,866
Patented Mar. 6, 1962

3,023,866

PANEL ASSEMBLY

James P. Moore, 4104 Davis St., St. Louis 23, Mo.

Filed Apr. 20, 1960, Ser. No. 23,534
5 Claims. (Cl. 189—88)

The present invention relates to a panel assembly for the construction of a ceiling or wall surface, and more particularly involves a panel assembly that comprises a plurality of panels, each of which is separately mountable and replaceable, and thus, when mounted, will remain steadily fixed in place, but which can be readily removed upon the application of strategic forces.

The panels are adapted to be mounted to a plurality of parallel beams, each of the beams having generally horizontal flanges depending axially from each of its sides. The panel includes flanges for retaining a pair of hooks that are constructed of spring material, and the hooks are adapted to be wedged between opposing flanges of adjacent beams. The hooks are located generally toward one end of each panel, and the opposite end of that panel has a flange that overlies the adjacent panel. Thus, each panel is held in place by an adjacent panel and by the hooks.

The hooks have been found to retain the panels in such a way that vibrational and other normally encountered loads will not affect their retainment. However, the clips are replaceable on each panel so that, should they become bent or lose their resiliency, their replacement is readily facilitated.

Accordingly, it is a principal object of the invention to provide a panel assembly in which each of the panels is separately removable from the assembly.

Another object of the invention is to provide a panel assembly having individual panels, with each panel having its own means for attaching that panel to a mounting surface. A subsidiary, but important, object is to provide each panel with retaining means that are removable and replaceable from the panel.

Yet another object of the invention is to provide a panel assembly having means for attaching a plurality of panels to a mounting surface in which the means provide a rigid securement of each panel to the surface.

Still another object of the invention is to provide a panel assembly that is adapted to be mounted in spaced relationship to a mounting surface so that acoustical material may be applied between the panel assembly and the mounting surface.

Other objects and advantages will be readily apparent to those skilled in the art.

FIGURE 1 is a perspective view of the invention, partly in section, showing an assembly of six panels mounted to a ceiling;

FIGURE 2 is a view in section taken along the lines 2—2 of FIGURE 1;

FIGURE 3 is a view in section taken along the lines 3—3 of FIGURE 2;

FIGURE 4 is a perspective view showing the top side of a single panel with one retaining clip removed; and

FIGURE 5 is a partial perspective view of the leading edge of a panel that is adapted to be mounted adjacent a transverse surface.

Referring now to the drawings, a typical ceiling is designated by the numeral 10. There are a plurality of I-beams 11, 12, and 13 attached by conventional clips 14 and screws 15 to the ceiling 10. It is to be noted that the I-beams 11, 12 and 13 are shown by way of example, and that other forms may be employed, such as V-beams, H-beams, or the like. Those skilled in the art are aware of the various ways in which these other types of beams might be fastened to a ceiling surface 10.

Regardless of what type of beam 11, 12 or 13 is used, it should have horizontal flanges 16 and 17 or similar projections depending transversely from either side of the beam so as to present longitudinal edges 18 and 19.

The spacing of the beams 11, 12 and 13 should be such that the distance between opposing flange edges 18 and 19 (for example, the flange 17 of beam 11 and the flange 16 of beam 12) will cooperate with the clips to hold the panels as will be described.

A separate panel 21 is illustrated in FIGURE 4. This panel includes a bottom plate 22 that is preferably flat, although it may have a different shape if desired. The plate 22 is also preferably of rectangular shape, and may have various designs of perforations or etchings on it. The panel 21 is formed of a flat plate that is bent in a particular manner. Thus, opposite parallel edges 23 and 24 are formed by upturned flanges, and depending inwardly from the upturned flanges 23 and 24 are flanges 25 and 26 that are spaced from the bottom 22 and generally parallel to it. Projecting upwardly from each of the inturned flanges 25 and 26 are a pair of guide tabs 27 and 28. The guide tabs 27 and 28 are such that they will rest against the aforementioned opposed flange edges 18 and 19 of adjacent beams 11 and 12.

One end 30 of the panel 21 has its edge defined by an upturned flange 31, and there is an outwardly projecting flange 32 depending from the flange 31. The flange 32 is parallel to the bottom 22 of the panel 21 and is somewhat narrower than the distance between the edges 23 and 24.

The end 35 opposite the end 30 also is defined by an upturned flange 36 depending from the bottom plate 22. There is an inturned flange 37 above and parallel to the bottom 22, and the top surface of the flange 37 is about the same distance from the bottom 22 as the bottom surface of the flange 32. The flanges 37 and 32 are also approximately the same width.

Outwardly from the flange 37 are a pair of tabs 38 and 39, each having a downwardly extending portion 40 and an inwardly extending portion 41. The inwardly extending portions 41 are parallel to the plate 22 and spaced therefrom a slight distance.

A pair of clips 42 and 43 are adapted to be retained beneath the tabs 38 and 39. Accordingly, each clip 42 has a flat base 44 with upwardly depending hooks 45 and 46 at its end. The hook 45 has an inwardly depending portion 47 joined to an outwardly depending portion 48 by a bend 49. The hook 46 has an inwardly depending portion 50 joined to an outwardly depending portion 51 by a bend or crease 52, and the portion 51 is joined to an inwardly depending portion 53 by a bend 54.

Each of the clips is adapted to be placed with the body 44 between the portion 41 of a tab 38 or 39 and the bottom 22, with the hook portions 45 and 46 wedged between the sides of the flange 37 and the edges of a flange 25 or 26. One of the clips is shown in position in FIGURE 4. As can be seen, the edges of the flanges 26 and 37 engage respectively, the creases 52 and 49. To remove the clip 43, it need only be slid away from the tab 39 and lifted away from the panel 21.

FIGURE 5 shows the arrangement of a panel that is to be used adjacent a wall. In the description of this embodiment, prime numbers are used to correspond to the numbers used in the description of the panel of FIGURE 4. Thus, the panel 21' has edge flanges 23' and 24', and these edge flanges have inturned flanges 25' and 26'. It is only the forward end 30' of the panel that differs from the previously described panel. This embodiment eliminates the flange 31, but has a taller upstanding flange 60.

Referring to FIGURES 1 and 2, there is a U-shaped bracket 61 having legs 62 and 63 mounted adjacent a wall 64. The leg 62 supports the bottom 22' of the panel 21' and the flange 60 rests against the body of the U-shaped channel 61.

In the use of the panel structure, the panel 22' is first slid within the channel 61, so that the leg 62 supports the leading end of the panel 22' with the flange 60 resting against the channel 61. Then the clips 42' and 43' are snapped between the edges 18 and 19 of adjacent beams such as the beams 11 and 12. The panel 21' is then in position, and successive panels may be added. Each of the successive panels is attached separately by fitting its flange 32 above the flange 37 of the next preceding channel and then pivoting the panel upwardly until the clips 53 snap into place. The guide tabs 27 and 28 will abut the beams 11 and 12 and preclude transverse sliding of the panel.

Each panel is separately removable from the installation. A convenient means for such removal involves the insertion of a wire hook, or the like, through the panel to be removed and exerting a downward pull. For those panels that have perforations through them, the wire hook may be passed through one of the perforations near the clips 42 and 43. Panels without perforations through them may be provided with a small hole between the clips 42 and 43 to receive the wire hook. Such holes would not ordinarily be visible except upon close examination of the panels.

Sound absorbing material or insulating material may be placed between the panels and the ceiling and between adjacent beams. The panel arrangement of the present invention is more than sufficiently strong to support such material. In fact, the clips are horizontal to retain up to five times or more of the combined weight of the panels and the sound absorbing or insulating material.

It is to be understood that the foregoing description and the accompanying drawing have been given by way of illustration and example. It is also to be understood that changes in form of the elements, rearrangement of parts, and substitution of equivalent elements, which will be obvious to those skilled in the art, are contemplated as within the scope of the present invention which is limited only by the claims which follow.

What is claimed is:

1. A panel assembly comprising a rectangular plate, a border perpendicular to the plate depending from each edge of the plate, an outwardly projecting flange depending from one border for overlying the border of an adjacent plate and inwardly projecting flanges depending from the edges adjacent the one having the outwardly projecting flange, and a clip removably attached to each of the inwardly depending flanges for resiliently fastening the panel to a pair of beams.

2. The panel assembly of claim 1 wherein the clips are positioned toward the edge opposite the one having the outwardly projecting flange.

3. A panel comprising a plate having parallel side edges and parallel front and rear edges, a flange spaced above the panel and supported by the panel adjacent the rear edge thereof for overlying the front edge of a similar panel, a pair of clips removably attached to the panel against the side edges thereof, the clips projecting above and inwardly of the side edges for clamping the panel to a pair of beams, and guide means depending upwardly and inwardly from the side edges of the panel for positioning the panel in relation to the beams.

4. A rectangular surface panel comprising a plate having a bottom surface, inturned flanges parallel to and spaced above the bottom surface being attached to a pair of opposed edges of the bottom surface, an outturned flange above and parallel to the bottom surface and attached to one of the remaining edges, a clip retaining means depending from the other remaining edge, and clip means releasably retained by the retaining means for snapping the panel to a mounting surface.

5. The panel of claim 4 wherein the retaining means includes a pair of tabs depending inwardly from the other remaining edge and a flange above and between the tabs, and the clip means includes a pair of clips each having a portion adapted to be placed between a tab and the bottom surface, and a pair of upstanding hook members adapted to be wedged between an inturned flange and the inwardly depending flange, the outturned hooks projecting above the flanges for resilient engagement with the mounting surface.

References Cited in the file of this patent

UNITED STATES PATENTS

1,861,615	Venzie	June 7, 1932
1,998,423	Stubbs	Apr. 16, 1935
2,153,320	Venzie	Apr. 4, 1939