March 16, 1965 T. J. KUMBURIS 3,173,178

PANEL INSTALLATION

Filed March 29, 1962 2 Sheets-Sheet 1

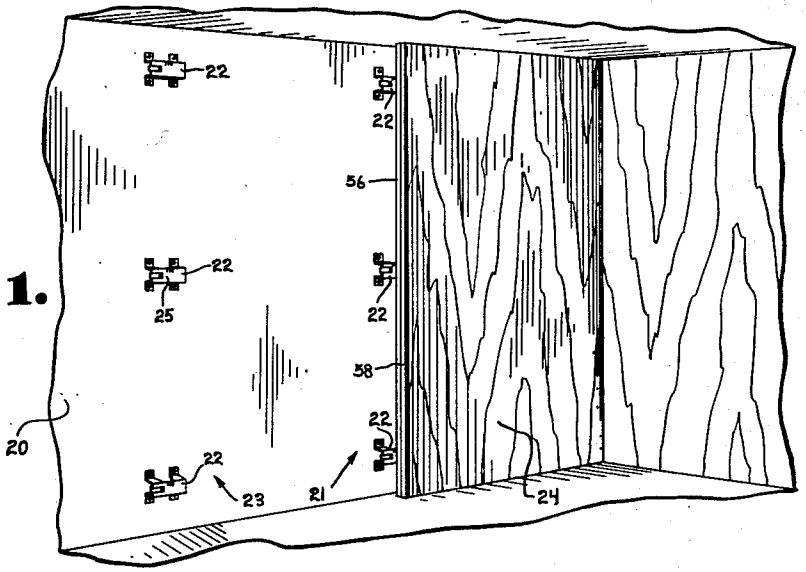


Fig. 1.

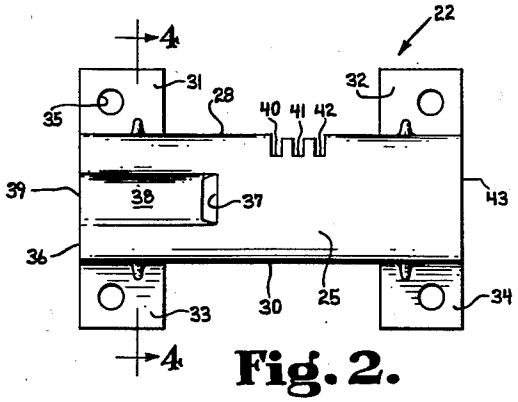


Fig. 2.

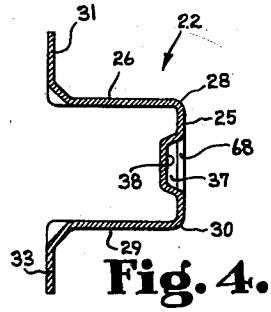


Fig. 4.

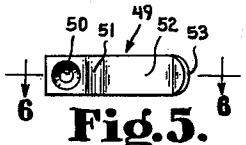


Fig. 5.



Fig. 6.

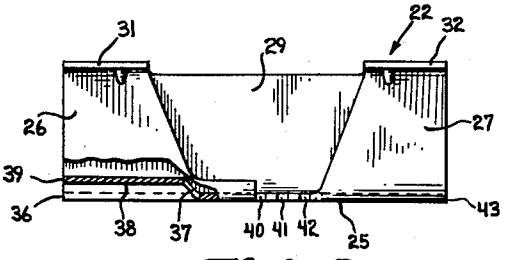


Fig. 3.

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PANEL INSTALLATION

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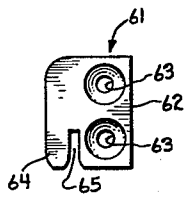


Fig. 7.

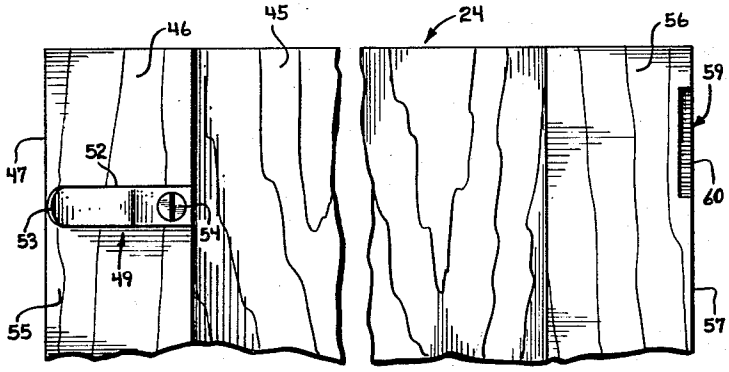


Fig. 8.

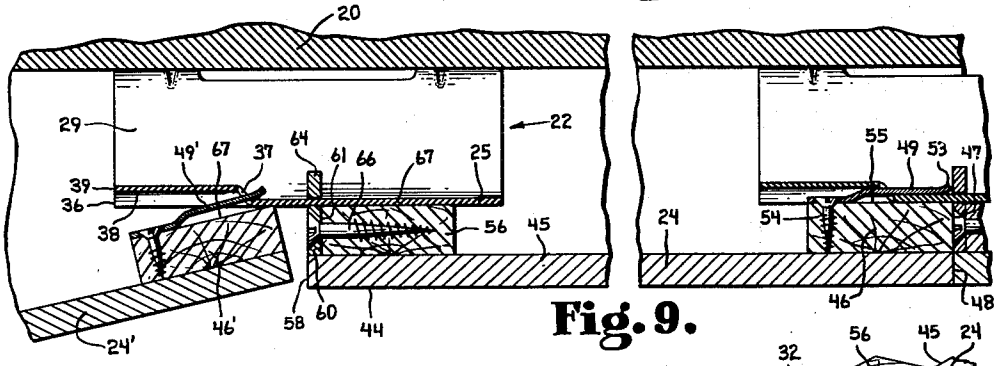


Fig. 9.

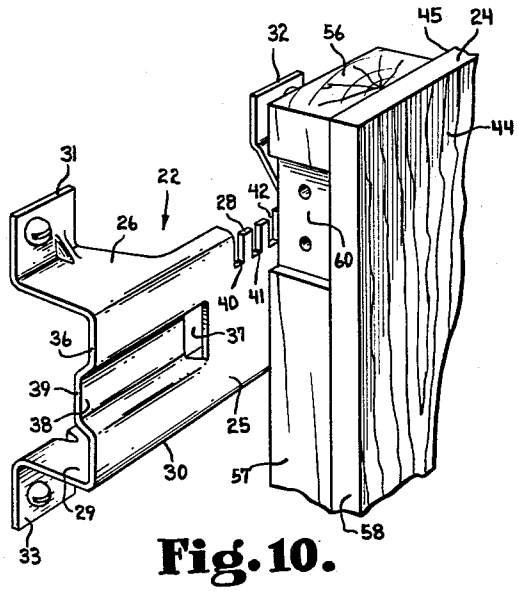


Fig. 10.

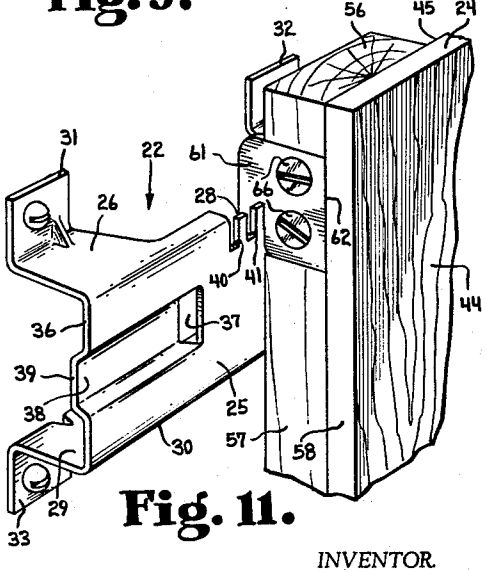


Fig. 11.

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PANEL INSTALLATION

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7 Claims. (Cl. 20—15)

The present invention relates to panel installation, and is particularly concerned with the provision of means whereby paneling may be easily, smoothly and neatly installed upon an existing wall structure with maximum facility. A primary object of the invention is to provide equipment for mounting upon a wall structure a series of prefabricated panels, the equipment being of such character that it may be readily installed with simple tools and by unskilled labor, that the butt joints between adjacent panels will be tight, that the paneling will be firmly supported from the wall structure against vibration and/or dislodgment, and yet that the entire installation may be readily removed from the wall structure without serious damage to the wall structure.

A further object of the invention is to provide a novel bracket constituting an element of the above described equipment and proportioned and designed for easy installation upon an existing wall structure and for cooperation with attachment elements mounted on panel elements to facilitate the accomplishment of the above-outlined objectives of the present invention.

Still further objects will appear as the description proceeds.

To the accomplishment of the above and related objects, my invention may be embodied in the form illustrated in the accompanying drawings, attention being called to the fact, however, that the drawings are illustrative only, and that change may be made in the specific construction illustrated and described, so long as the scope of the appended claims is not violated.

FIG. 1 is a fragmentary perspective view of a corner of a room, showing two adjacent panel elements installed in accordance with the present invention and showing an additional series of brackets to be used in mounting the next adjacent panel element;

FIG. 2 is an enlarged, front elevation of a bracket forming an element of the present invention;

FIG. 3 is a top plan view of the bracket of FIG. 2, parts being broken away for clarity of illustration;

FIG. 4 is a transverse section taken substantially on the line 4—4 of FIG. 2;

FIG. 5 is an elevation of a tongue constituting an element of the present invention;

FIG. 6 is a longitudinal section taken substantially on the line 6—6 of FIG. 5;

FIG. 7 is an elevation of a hook clip forming an element of the present invention;

FIG. 8 is a fragmentary rear elevation of a panel element with one tongue attached thereto;

FIG. 9 is a horizontal section illustrating a fragment of a bracket of one series, a bracket of an adjacent series, a panel fully mounted on said brackets and a further panel in the process of having one edge mounted upon the bracket of the second series;

FIG. 10 is a fragmentary perspective illustrating a further step in the process of securing a panel to a bracket; and

FIG. 11 is a similar fragmentary perspective view illustrating the same parts after completion of such step.

Referring more particularly to the drawings, the reference numeral 20 indicates an existing wall structure which, as shown, is a finished wall which it is desired to cover with new paneling. While the present invention is primarily concerned with the problem of redecorating a finished room by applying paneling to hide the walls

thereof, it will be appreciated at the description proceeds that the invention is adaptable, as well, to original construction, in which the "wall structure" is a skeleton consisting of framing and joists. In any case, a first series 21 of identical brackets 22 is arranged in suitably-vertically-spaced relation and in vertical alignment upon the wall structure 20, and a second series 23 of identical brackets 22 is similarly arranged in vertical alignment at a point suitably spaced from the location of the first series 21. The center distance between the series 21 and the series 23 will be substantially equal to the width of a panel 24 to be supported from the two series of brackets, as will appear below.

Each bracket 22 may preferably be a sheet metal stamping and comprises a body which is generally U-shaped in cross section to include a web or base 25 with arms 26 and 27 projecting from one lateral edge 28 and arms 29 projecting from the opposite lateral edge 30, said arms extending generally in the same direction. The arms 26 and 27 carry outwardly projecting foot means 31 and 32 at their distal ends and the arm 29 carries outwardly projecting foot means 33 and 34 which are substantially aligned with the foot means 31 and 32, respectively. Thus, the arms 26, 27 and 29 may be referred to as "carrier means" supporting the web 25 from the feet 31, 32, 33 and 34. Each foot means is formed with a perforation 35 therein for the reception of fastening means whereby the bracket 22 may be secured to the wall structure 20.

At a point substantially midway between its edges 28 and 30 and near its end 36, the web or base 25 is formed with a transversely-elongated slot or opening 37. In the illustrated embodiment of the bracket, a channel 38 is formed in the outer surface of the base 25, one end 39 of said channel opening through the end 36 of the base 25 and the other end of said channel defining a step through which the port 37 is formed.

In the illustrated embodiment of the bracket, the exposed edge 28 of the web 25 is formed with a plurality of notches 40, 41 and 42, progressively spaced from the location of the slot 37 toward the end 43 of the web, all of said notches being closer to said web end 43 than to the end 36 thereof.

Because of the vertical alignment of the brackets 22 of the series 21, it will be seen that the slots 37 of those brackets are disposed in a common vertical line; and similarly, the slots 37 of the brackets of the series 23 are disposed in a common vertical line. Preferably, but not necessarily, each bracket 22 of the series 23 is horizontally aligned with a bracket 22 of the series 21. It will be apparent that the slots 40, 41 and 42 of the brackets of each series will also be respectively vertically aligned.

The panels 24 are well known commercial products, are available in various standard lengths and widths, and are substantially uniform in dimensions, though they may vary in width by a few sixteenths of an inch. Each such panel normally has a finished face 44 and an unfinished face 45.

According to the present invention, backing plate means 46, which may be a continuous wood strip, is suitably secured to the face 45 of each panel 24 with one longitudinal edge 47 flush with the corresponding edge 48 of the panel 24. A series of tongues 49, which may preferably be formed of spring metal, is secured to the rear face 55 of the backing means 46, the tongues being equal in number and spacing to the brackets 22 of the series 21. Each tongue is formed near one end with a countersunk perforation 50 for the reception of a flat headed screw 54 whereby the tongue may be secured to the plate 46; and each tongue is offset as at 51 whereby, when the tongue is so secured in place (see FIG. 9) the

body 52 of the tongue is spaced from the backing plate surface 55 by a dimension approximately equal to the thickness of the bracket base 25. The distal tip 53 of each tongue is preferably bent slightly outwardly, as shown, and the tongue is so arranged on the backing plate that said tip is substantially flush with the edge surfaces 47 and 48.

A second backing plate means 56 is secured to the panel surface 45 adjacent the opposite edge 58 thereof. The means 56 may be a continuous strip, or it may be a plurality of vertically-separated pads spaced to conform to the loaction of the brackets of the series 23. In any case, one edge 57 of the means 56 will be substantially flush with the panel edge 58.

Hook clips 61 are provided for engagement with the edge 28 of each bracket of the series 23. Each such clip may preferably be a thin metal stamping formed to provide a square front edge 62 and formed with countersunk perforations 63, 63. A hook 64 is defined by a slot 65 opening through the lower edge of the plate and having a width substantially equal to the thickness of the bracket web 25. The thickness of each plate or clip 61 is substantially equal to the width of each slot 40, 41 or 42, so that each hook clip may be engaged with a bracket web with its slot snugly receiving the web and with its own thickness snugly received within one of the web slots.

With the tongues in place, the edge 47 of the backing plate is placed in contact with the surfaces of the webs 25 of the bracket series 21 at a point to the left of the aligned slots 37, whereby the tongue tips 53 are disposed in the respective channels 38 of the several brackets, and, with the panel somewhat canted, as suggested at the left end of FIG. 9, the panel is moved toward the right. Thereby, the tongue tips are caused to enter the slots 37. Now, the panel is rocked until the face 67 of the backing means 56 engages the webs 25 of the bracket series 23, whereupon the panel is pressed home to its final seat. If the panel in question is the first one being mounted on the wall structure 20, it will ordinarily be moved to a point at which the offset 51 engages the edge of the slot 37. If, however, another panel has previously been mounted on the wall structure, the panel being installed will be moved merely until its edge 48 engages the edge 68 of the previously-installed panel.

Now, the edge 57 of the backing plate means 56 will be mortised, as at 59, at a point adjacent each bracket of the series 23 and to a depth at least equal to the thickness of the hook clip 61. Since there may be some variation in the widths of adjacent panels, it is desirable to provide a plurality of slots, such as 40, 41 and 42, in the edge 28 of each bracket 22; and the mortising, adjacent each bracket, will be carried to a depth sufficient precisely to accommodate a hook clip 61 which is engaged in one or another of said slots. After the mortising has been accomplished, a clip is engaged in the selected notch of each bracket so that its body will be accommodated in the corresponding mortise and its edge 62 will bear upon the adjacent portion of the panel surface 45, and each clip will be secured to the backing plate means 56, as by the screws 66.

It will be apparent that, thus, the panel is securely mounted, by fastening means adjacent plural points on its opposite edges, against vibration or dislodgement relative to the wall structure 20.

However, if at some future date it should be desired to remove the paneling from the wall structure, either for replacement or for transportation to, and mounting in, some other location, such removal can be easily accomplished, and without significant damage to the wall structure, by simply removing the hook clips from the backing plate means 56 and disengaging the tongues 49 from the brackets, and then removing the brackets from the wall structure.

While the specific structure illustrated and above described is presently considered to be optimum, it will be apparent that slight variations therein may be made without significant sacrifice of functional advantage. For instance, the floor of the channel 38 in each bracket 22 might be wholly punched out, leaving the edge 68, which forms a boundary of the port 37 in the illustrated bracket, as a raw edge behind which a tongue 49 could be engaged. Also, it would be possible to dispense with the notches 40, 41 and 42 and to engage the hook clips over the exposed but continuous edge 28 of each bracket web, though such an arrangement would sacrifice the function of the notches in retaining each panel against dislodgement toward the left as viewed in FIGS. 1, 9 and 11. In such an arrangement, however, the clip hooks would still perform the function of retaining the panel edge 58 against movement away from the wall structure 20, and the presence of adjacent wall panels would inhibit movement of any panel in a direction parallel with the wall structure.

I claim as my invention:

1. In a wall structure, panel installation means comprising a plurality of brackets, each such bracket including foot means, web means spaced from and substantially parallel with said foot means, and carrier means supporting said web means from said foot means, the web means of each bracket being formed with a transversely-elongated slot therethrough and with a notch in one longitudial edge thereof, means cooperable with the foot means of each bracket securing the same to such a wall structure with a first series of brackets arranged on such wall structure with their slots disposed in a first common line and a second series of brackets arranged on such wall structure with their slots disposed in a second common line spaced from and substantially parallel with said first common line, a panel having parallel edges, the distance between said panel edges being substantially equal to the distance between said first and second common lines, a plurality of tongues, equal in number to the number of brackets in said first series, secured to a common surface of said panel adjacent one edge thereof, each tongue having a free end spaced from said surface and substantially coinciding with said one panel edge, said tongues being removably engaged in the slots of said first series of brackets, and a plurality of hook clips, equal in number to the number of brackets in said second series, said clips being secured to the opposite edge of said panel and being removably engaged in the notches of the brackets of said second series.

2. The panel installation means of claim 1 in which the web of each bracket is provided with a channel in its face remote from its foot means, said channel opening into said slot and through that end of said web adjacent said slot, said notch being disposed at a point more remote from said web end than is said slot.

3. The panel installation means of claim 1 in which said slot of each bracket is adjacent one end of said web and each such web is provided in one longitudinal edge with a plurality of notches spaced progressively from the location of said slot toward the opposite end of said web.

4. In a wall structure, panel installation means comprising a plurality of brackets, each such bracket including foot means, web means spaced from and substantially parallel with said foot means, and carrier means supporting said web means from said foot means, the web means of each bracket being formed with a transversely-elongated slot therethrough and with an exposed edge substantially perpendicular to the length of said slot, means cooperable with the foot means of each bracket securing the same to such a wall structure with a first series of brackets arranged on such wall structure with their slots disposed in a first common line and their exposed edges facing in a common direction, and a second series of brackets arranged on such wall structure with their slots disposed in a second common line spaced from and substantially parallel with said first common line and their ex-

posed edges facing in the same direction, a panel having parallel edges, the distance between said panel edges being substantially equal to the distance between said first and second common lines, a plurality of tongues, equal in number to the number of brackets in said first series, secured to a common surface of said panel adjacent one edge thereof, each tongue having a free end spaced from said surface and substantially coinciding with said one panel edge, said tongues being removably engaged in the slots of said first series of brackets, and a plurality of hook clips, equal in number to the number of brackets in said second series, said clips being secured to the opposite edge of said panel and being snugly removably engaged over the exposed edges of the brackets of said second series.

5. In a wall structure, panel installation means comprising a plurality of brackets, each such bracket including foot means, web means spaced from and substantially parallel with said foot means, and carrier means supporting said web means from said foot means, the web means of each bracket being formed with a transversely-elongated slot therethrough and with an exposed edge substantially perpendicular to the length of said slot, means cooperable with the foot means of each bracket securing the same to such a wall structure with a first series of brackets arranged on such wall structure with their slots disposed in a first common line and their exposed edges facing in a common direction, and a second series of brackets arranged on such wall structure with their slots disposed in a second common line spaced from and substantially parallel with said first common line and their exposed edges facing in the same direction, a panel having parallel edges, the distance between said panel edges being substantially equal to the distance between said first and second common lines, first backing plate means secured to a surface of said panel substantially flush with one edge thereof, a plurality of tongues, equal in number to the number of brackets in said first series, secured to said first backing plate means, each tongue having a free end spaced from said backing plate means and substantially coinciding with said one panel edge, said tongues being removably engaged in the slots of said first series of brackets, a plurality of plate-like hook clips, equal in number to the number of brackets in said second series, said clips being snugly removably engaged over the exposed edges of said brackets of said second series, second backing plate means secured to the same surface of said panel adjacent the other edge thereof and formed to provide faces set back from said other panel edge by a dimension at least equal to the thickness of one of said clips, and means for securing said clips to said faces while said clips are so engaged with said bracket edges.

6. In a wall structure, panel installation means comprising a plurality of brackets, each such bracket including foot means, web means spaced from and substantially

parallel with said foot means, and carrier means supporting said web means from said foot means, the web means of each bracket being formed with a transversely-elongated slot therethrough and with a notch in one longitudinal edge thereof, means cooperable with the foot means of each bracket securing the same to such a wall structure with a first series of brackets arranged on such wall structure with their slots disposed in a first common line and their notches opening in a common direction, and a second series of brackets arranged on such wall structure with their slots disposed in a second common line spaced from and substantially parallel with said first common line and their notches opening in a common direction, a panel having parallel edges, the distance between said panel edges being substantially equal to the distance between said first and second common lines, first backing plate means secured to a surface of said panel substantially flush with one edge thereof, a plurality of tongues, equal in number to the number of brackets in said first series, secured to said first backing plate means, each tongue having a free end spaced from said backing plate means and substantially coinciding with said one panel edge, said tongues being removably engaged in the slots of said first series of brackets, a plurality of plate-like hook clips, equal in number to the number of brackets in said second series, said clips being snugly removably engaged in the notches of the brackets of said second series, second backing plate means secured to the same surface of said panel adjacent the other edge thereof and formed to provide faces set back from said other panel edge by a dimension at least equal to the thickness of one of said clips, and means for securing said clips to said faces while said clips are so engaged in said notches.

7. As an article of manufacture, a panel-supporting bracket formed to provide a body which is generally U-shaped in transverse cross section and comprising an elongated, generally flat base having arms extending in a common direction from its lateral edges with foot means extending outwardly from the distal edge of each arm, said base being formed, substantially midway between its lateral edges, with a longitudinally-extending channel in its face remote from said foot means, said channel opening at one end through one end of said base and at its other end defining a step located nearer to said one base end than to the other end of said base, said step being formed with an opening therethrough, said base further being provided with a plurality of notches in one of said lateral edges progressively spaced from the location of said opening toward said other base end and all of said notches being nearer to said other base end than to said one base end.

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