Feb. 19, 1935. H. W. BROWN ET AL 1,992,054

PANELING ARRANGEMENT

Filed Nov. 22, 1932 3 Sheets-Sheet 1

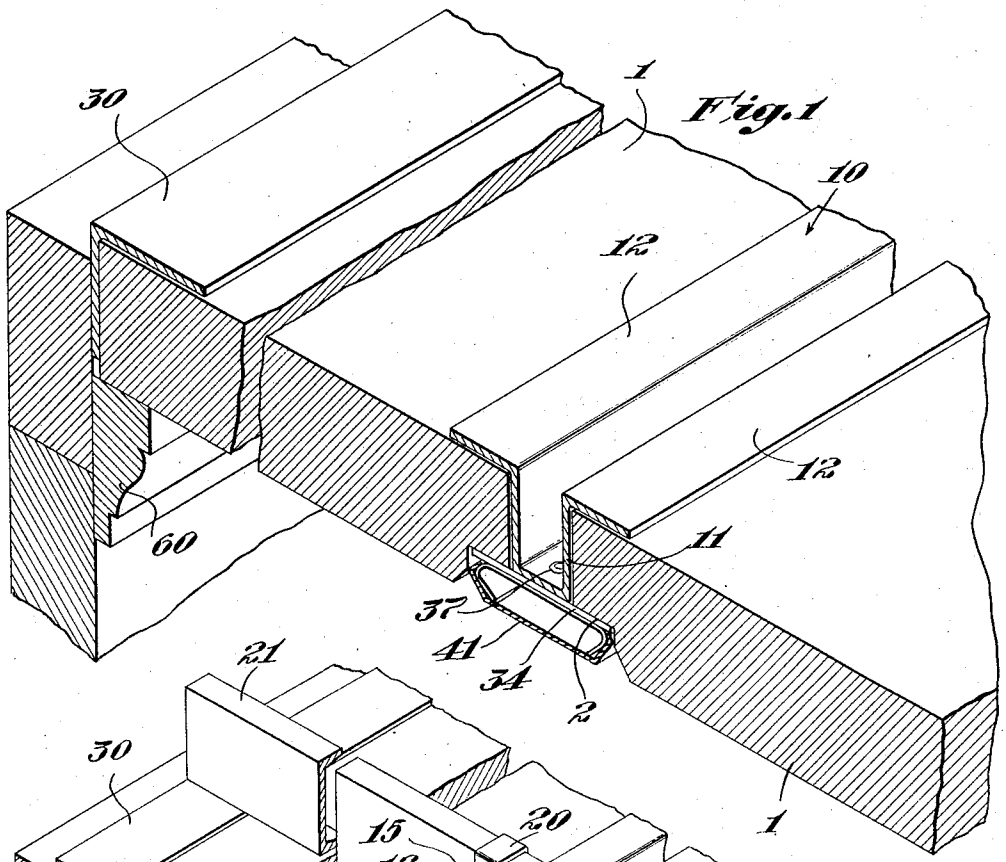


Fig. 1

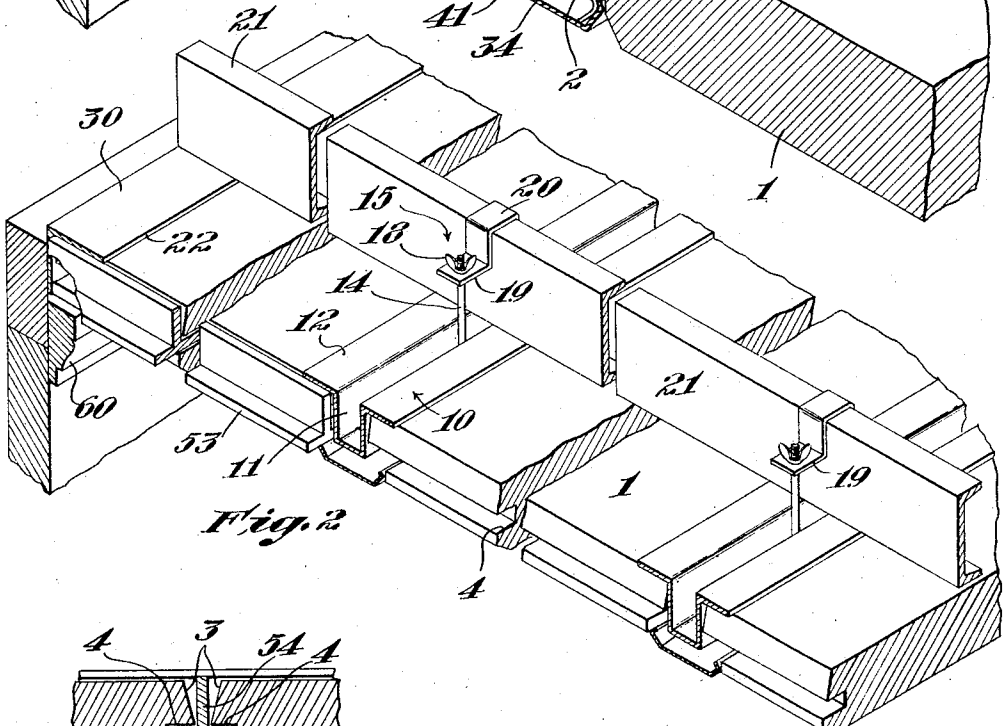


Fig. 2

Fig. 3

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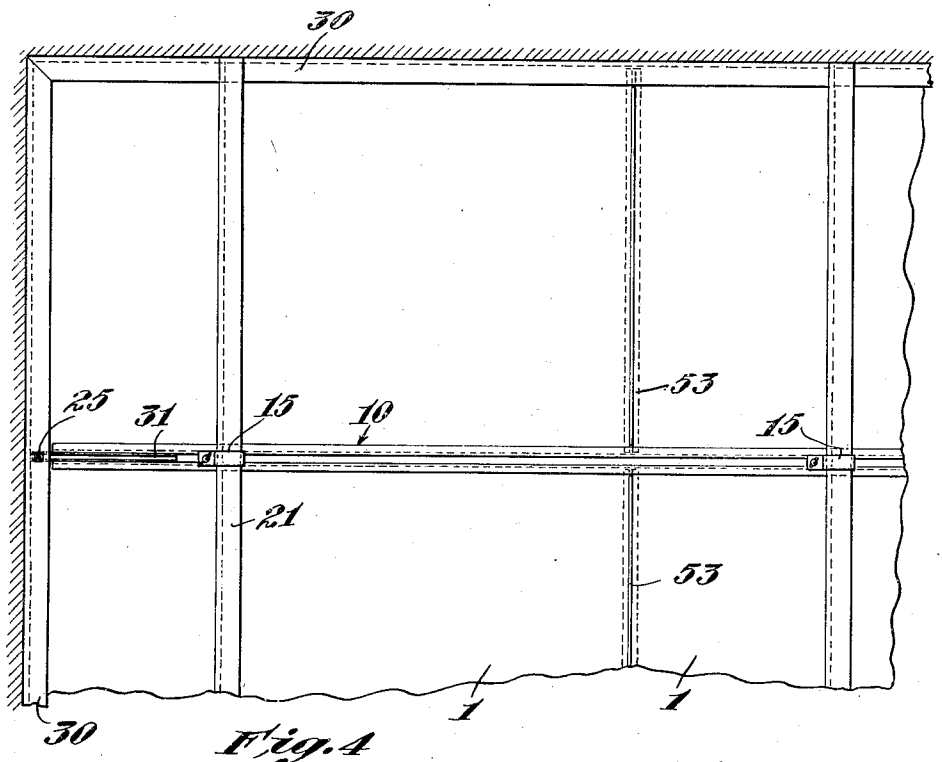


Fig. 4

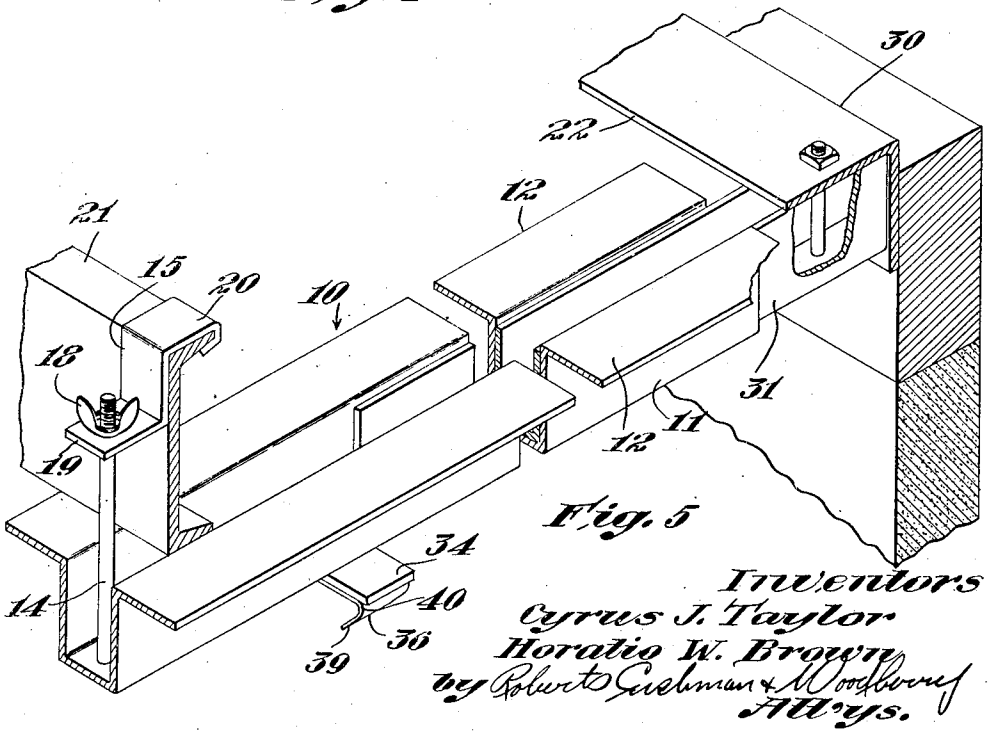


Fig. 5

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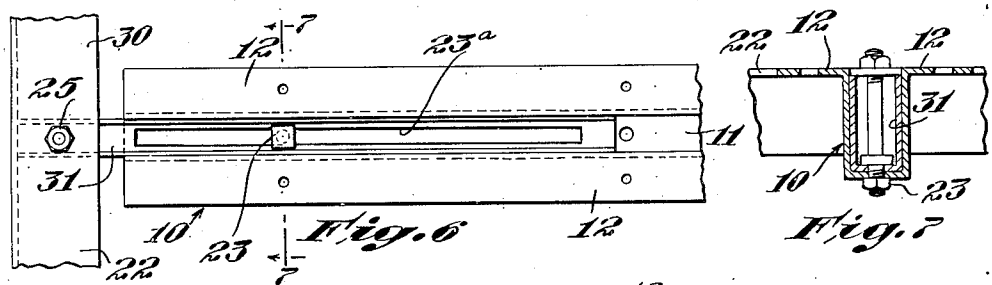


Fig. 6 Fig. 7

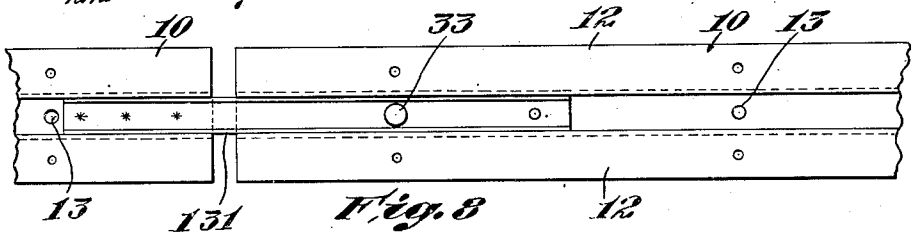


Fig. 8

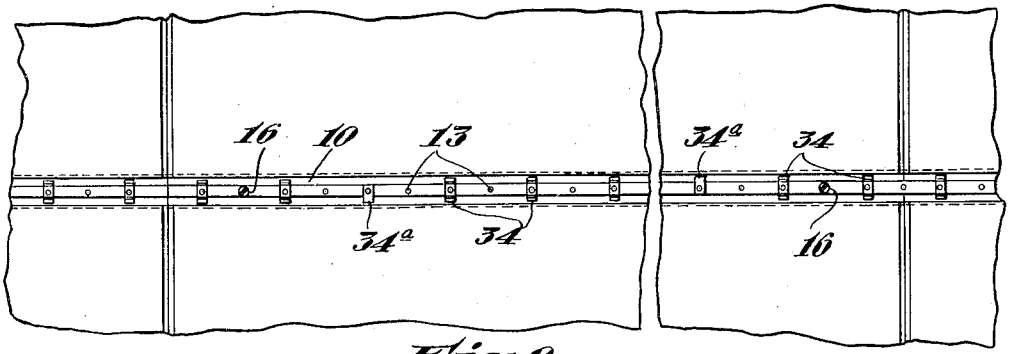


Fig. 9

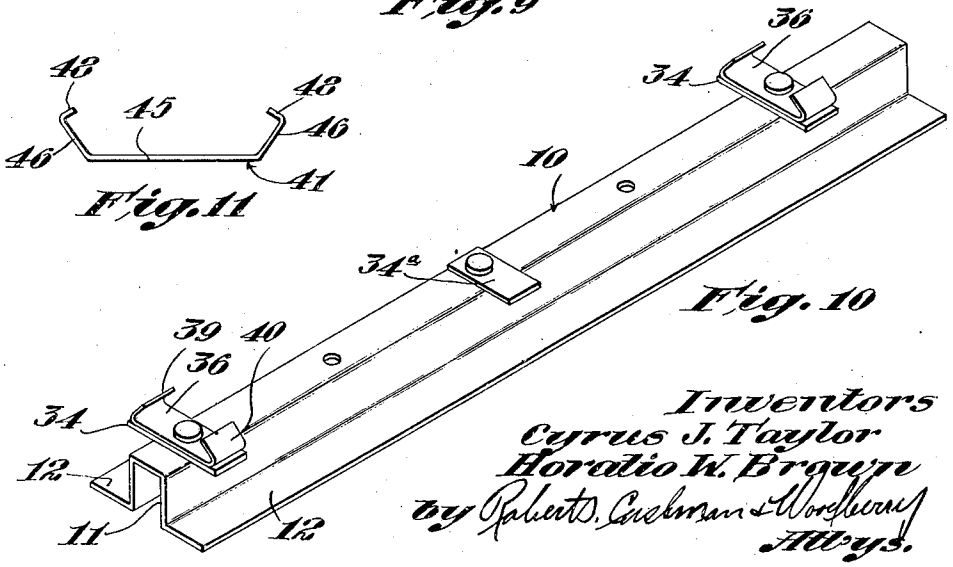


Fig. 11 Fig. 10

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UNITED STATES PATENT OFFICE

1,992,054

PANELING ARRANGEMENT

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Application November 22, 1932, Serial No. 643,808

8 Claims. (Cl. 72—118)

This invention relates to an improved paneling arrangement, and more particularly to an arrangement which permits the ready assembly of preformed panels to define an interior wall surface such as that of a ceiling.

This invention affords supporting strips which may be secured to elements in the wall, such as studs and joists, or secondary panel supporting elements. Ordinarily when ceiling panels are being applied to the interiors of rooms, such as those in office buildings, secondary supporting elements in the form, for example, of small channels, may be secured to the main joists to receive the ceiling finish members. In accordance with this invention the supporting strips ordinarily may be connected to such secondary frame elements by suitable connections such as hangers. The supporting strips preferably are provided with fastening means in the form of turn-buttons to engage marginal portions, such as rabbeted edges of the preformed panel.

In addition to these fastening elements, we preferably provide resilient means in the form of clips for engagement with finishing strips which cover and conceal the fastening elements and the clips and afford surfaces substantially in the plane of the exposed surface of the panels. Jointing arrangements are provided to connect sections of the supporting strips to each other, and to permit these strips readily to accommodate themselves to rooms of different sizes, while jointing strips extending transversely of the supporting strips may be received in interfitting engagement with the edges of adjoining panels, thereby to connect the panels to one another. This arrangement may permit the ready removal of panels as desired without the necessity for disturbing the adjoining panels.

One important aspect of the invention relates to the specific arrangement of the turn-buttons and clips upon common centers, so that they may be positioned in relation to the supporting strip in such a manner that panels may be readily located in engagement with the strip, and then be turned so that the buttons support the panels and the clip is in a position to receive the finishing channel or strip.

In the accompanying drawings

Fig. 1 is a broken isometric view of a portion of a wall assembly arranged in accordance with this invention;

Fig. 2 is a similar view on a somewhat smaller scale;

Fig. 3 is is a sectional detail showing the arrangement of a jointing member between the edges of the panels;

Fig. 4 is a plan view of a portion of a ceiling with paneling arranged in accordance with the present invention;

Fig. 5 is an isometric view showing the arrangement of a supporting strip and related parts;

Fig. 6 is a top view of a supporting strip and wall angle connection;

Fig. 7 is a section indicated by line 7—7 of Fig. 6;

Fig. 8 is a top view of a jointing arrangement between supporting strips;

Fig. 9 is a broken bottom view of a portion of a panel assembly with the finishing strips removed;

Fig. 10 is an isometric view of a supporting strip; and

Fig. 11 is a sectional detail of a finishing strip.

Referring to the accompanying drawings, and first more particularly to Figs. 1, 2 and 3, the panels 1 may be formed of any suitable material and may be provided with any exterior decorative finish, as desired. These panels preferably have planar outer or lower faces and opposite rabbeted edge portions 2, the edges of the panels between the rabbeted edges 2 being somewhat undercut, as designated by numeral 3 (Fig. 3), and being provided with grooves 4. These panels may be primarily supported by strips, designated in general by numeral 10, in a manner which will be more fully described.

Each of the supporting strips 10 preferably has a channel-like intermediate portion or rib 11 disposed between rabbeted edges of panels 1 and has oppositely projecting flanges 12 adapted to overlap the inner or upper faces of the panels. The strips 10 preferably are formed of sheet metal and may be provided with openings 13 which receive the shank portions of bolts 14 forming parts of hanger assemblies 15. These bolts may have tapered slotted heads 16, similar to those afforded by conventional wood screws and may have threaded upper portions receiving wing nuts 18 that engage outstanding flanges 19 upon hooked brackets 20. These brackets are connected to frame elements 21 which may be the frame elements of the wall, such as joists, but which ordinarily are secondary frame elements secured to the main frame members and arranged primarily to support the ceiling assembly. Such members 21 are more commonly employed in the form of metal channels and accordingly are shown in this form in the accompanying drawings. It is evident that the bolts 14 and

brackets 15 cooperate in providing hanger assemblies supporting the strips 10 beneath the frame elements 21. The hooked members 20 may readily be engaged over the upper flange of a channel member 21, as shown, and a bolt 14 may then be arranged with its threaded end projecting through the flange 19 of a hooked bracket 20 and a wing nut 18 applied and adjusted until the supporting member is brought into the desired horizontal plane. If the elements 21 accurately define a plane surface, the nuts 18 may be tightened until the flanges 12 of strips 10 engage the lower faces of the frame elements, but if the frame elements are not accurately arranged, the bolts 14 and nuts 18 may be employed to permit the spacing of the members 10 and 21 at certain points, so that the members 10 are in fact located in the same general horizontal plane.

Along the side walls of the room, angles 30 preferably are secured with depending legs engaging the interior wall faces and with horizontal legs 22 substantially in the plane of the flanges 12 of members 10. Jointing members 31 in the form of small channels preferably are provided so that they fit within the channel-like portions 11 of the strips 10, being secured in place by one or more fastening elements 23 received in longitudinal slots 23^a (Fig. 6) and projecting adjoining the vertical walls of the room to provide extensions of the strips 10 which may be secured to the legs 22 of angles 30 by bolts 25.

The strips 10 may be provided in standardized or modular lengths, in the general manner disclosed in Patent No. 1,878,367 granted September 20, 1932 with their openings to receive the fastening bolts 14 and the fastening means supported thereby modularly spaced, and the slotted elements 31 may project to provide odd lengths as is necessary to permit the employment of modularly dimensioned supporting strips in a room of any particular size.

The strips 10 which are thus provided in modular sections may be spliced together when a comparatively large room is to have paneling applied to its ceiling, and for this purpose splicing strips 131, similar to members 31, are employed, as shown in Fig. 8, with portions arranged in interfitting engagement with the channel portions at the adjoining ends of supporting strip sections, and with suitable fastening means 33 extending through registering openings in the jointing member and the strips.

Pivotally mounted at modular intervals upon the bight sections of the channel portions 11 of the strips 10 are metal turn-buttons 34 which may swing from a position wherein their edges lie within the edges of the bight portions to a position wherein their edges project beyond these portions, as shown in Figs. 1 and 10. In this position of the parts the turn-buttons engage the rabbeted portions of the panels 1 and thus are effective in holding the rabbeted edges of the panels between the flanges 12 and the outstanding portions of the turn-buttons.

Preferably spring clips 36 are mounted upon the pivot elements 37 which support the turn-buttons 34 and are adapted to turn with the turn-buttons, although these parts may be turned separately, if desired. The clips 36 preferably are formed of resilient strap metal. The plane intermediate portions of these clips are continued in curved portions 40 which merge into inwardly and downwardly inclined extremities 39. Finish strips 41 formed of sheet metal are of generally channel-like form, each having a plane central section 45 (Fig. 11) and inclined side portions 46 which merge into inwardly curved extremities 48. These finish strips are so proportioned that their flanged edge portions 48 may snap over the curved portions 40 of the clips 36 with a cam-like action, so that the finish strips may be held in place to conceal the turn-buttons 34 and the bight portions of the strips 10. Preferably the parts are so proportioned that the plane portions 45 of the finish strips lie substantially in the plane of the exposed surfaces of panels 1.

It is evident that the strips 10 may thus be effective in supporting the edges of the panels 1 which extend in one direction but that the transverse edges which are provided with the grooves 4 are connected by other means, which may be in the form of inverted T-shaped members 53 having flanges 54 (Fig. 3) lying between the edges of the channels and engaging beneath the flanges 12 of strips 10. The opposite flanges of the T-members 53 are disposed in interfitting engagement with the grooves 4 of adjoining panels, as shown. The T-shaped members 53 preferably are formed in short lengths conforming to the dimensions of the panels and the spacing of the supporting strips 10. In fact, the members 53 need not necessarily extend beneath the flanges 12 of strips 10 and may if desired have their vertical flanges extending above these flanges 12.

Upon the vertical walls beneath the panels we may provide molding 60 of any conventional type which may engage and support the edges of the panels 1 which are disposed adjoining the vertical walls.

Upon the strips 10 and between each of the rows of connecting members 53, we may provide half turn-buttons 34^a respectively adapted to project in either direction, so that two panels adjoining a common intermediate panel may have their edges supported by one of these half turn-buttons. Where such a half button is employed the corresponding resilient clip may be omitted. This arrangement permits the turning of the buttons 34 so that the intermediate panel may be removed from its normal engagement with the strip 10 and that panel then detached from the assembly while the edges of the panels upon either side may remain supported by the half turn-buttons 34^a.

In the assembly of paneling in accordance with this invention, the angles 30 may be secured to the vertical walls at the desired height, the brackets 15 being connected to the frame elements 21, strips 10 being connected to the brackets by the bolts 14, the strip sections being joined to each other if necessary by jointing members 131 and being connected to the angles 30 at their ends by members 31, as shown in Fig. 5.

When the supporting strips are thus properly located, the panels may be inserted by engaging the edges of the panels of the first course with the horizontal flange of the angle 30 and by then locating the molding 60 in place while turning the turn-buttons 34 to support the opposite edges of the panels. As succeeding panels of the course are fastened in place in this manner, the T-elements 53 are located therebetween. The panels of the second course are then placed with their edges in engagement with the outstanding ends of the turn-buttons upon the first strip 10 and the turn-buttons of the second strip are then turned to lock them in place. The same method

may be employed for succeeding courses or rows of panels until the opposite wall is reached, whereupon the last course of panels is located with their edges engaging over the turn-buttons 34 that are mounted upon the last strip 10, and the molding 60 is then secured to the vertical wall to support the opposite edges of these panels.

In the application of successive courses of slabs or panels in this manner, it is evident that the half turn-buttons 34a are particularly advantageous since they permit the retention of a course which has already been applied to the ceiling, while allowing the turning of the full length turn-buttons to facilitate the application of the panels on the succeeding course. In the turning of turn-buttons 34 and 34a as well as the clips 36, a tool may be employed to engage the opposite longitudinal edges of these elements and to permit their ready rotation by a workman.

At the beginning of each course a panel may be slid longitudinally in relation to the strips 10 so that its end engages over molding at the end of the room while at the opposite end of the room, i. e., at the end of each course, the members may be assembled in the normal manner but the molding need not be secured to the wall until the final panel is located.

The horizontal flanges of members 53 preferably engage the grooves 4 with a slight clearance. Accordingly, when a panel is to be removed, that panel and one or more adjoining panels in the row may have their opposite edges disconnected from the supporting strips 10 by manipulation of the turn-buttons 34, the half-buttons 34a remaining in place properly to hold the panels of adjoining rows or courses in place. Thereupon the panels which have had their sides disconnected from the strips may in fact afford a sagging assembly which permits their transverse edges to drop to a level below the strips 10 and the surfaces of adjoining panel rows so that one of the key members 53 may be removed by a transverse sliding movement. Thereupon the panel which is to remain in place may be pushed back into engagement with the strips 10 and held in place by half-buttons 34a and the panel which is to be removed may be slid out of engagement with the member 53 at its opposite end.

It is evident that this invention affords an arrangement permitting the quick, accurate and positive mounting of panels upon a wall and particularly the mounting of ceiling panels so that a minimum of labor is required, while avoiding necessity for frequent cutting or similar operations that result in objectionable débris as the paneling is applied; the finished wall may have an attractive appearance due to the effective concealment of the fastening and connecting means, and yet panels may readily be removed and replaced, if desired, or to afford access to electric wiring, piping or the like, which may be concealed behind the panels.

It should be understood that the present disclosure is for the purpose of illustration only and that this invention includes all modifications and equivalents which fall within the scope of the appended claims.

We claim:

1. Building construction comprising frame elements defining a wall, supporting strips connected to said elements, each of said strips having a rib projecting at right angles to the plane of the wall, and abutment portions extending at either side of said rib, turn-buttons mounted on the lower parts of said strips, and panels having their margins engaged by the turn-buttons and held between the same and said abutment portions, the ribs being disposed between the edges of the panels.

2. Building construction comprising frame elements in a wall, supporting strips connected to said elements, turn-buttons pivotally connected to said strips, panels having edges engaged by the ends of the turn-buttons, resilient clips pivotally connected to said strips and movable into overlapping relationship to the panel edges, a finish strip having a snap-on engagement with said clips when thus located in overlapping relationship.

3. Building construction comprising frame elements in a wall, supporting strips connected to said elements, turn-buttons pivotally connected to said strips, panels having edges engaged by the ends of the turn-buttons, resilient clips pivotally connected to said strips and movable into overlapping relationship to the panel edges, a finish strip having a snap-on engagement with said clips when thus located in overlapping relationship, said clips and certain of said turn-buttons being mounted on common centers whereby they may be moved simultaneously by a common tool.

4. Building construction comprising frame elements in a wall, supporting strips having channel-like central portions and outstanding flanges projecting from the legs of said portions, pivot elements mounted on the bight sections of the channel-like portions, turn-buttons and resilient clips secured to the strips by the pivot elements, said buttons and clips being swingable from a position wherein they extend in the direction of extent of the strips to a position wherein they project at either side of the corresponding channel-like portion, panels engaged by said turn-buttons, and finish strips concealing the clips and turn-buttons, said finish strips being held in place by the clips projecting at either side of the corresponding channel-like portion of the strip.

5. Building construction comprising frame elements within a wall, supporting strips connected to said elements and each having a rib, turn-buttons pivotally mounted on the ribs and swingable from a position wherein they extend in the direction of the ribs to a position wherein they lie at right angles thereto, certain of said turn-buttons in said last-named position projecting at opposite sides of the corresponding rib and other of said turn-buttons projecting only at one side of the corresponding rib.

6. Building construction comprising frame elements in a wall, supporting strips having channel-like central portions and outstanding flanges projecting from the legs of said portions, pivot elements mounted on the bight sections of the channel-like portions, turn-buttons and resilient clips secured to the strips by the pivot elements, said buttons and clips being swingable from a position wherein they extend in the direction of extent of the strips to a position wherein they project at either side of the corresponding channel-like portion, panels engaged by said turn-buttons, finish strips concealing the clips and turn-buttons, said finish strips being held in place by the clips projecting at either side of the corresponding channel-like portion of the strip, and half turn-buttons pivotally mounted between certain of the aforesaid turn-buttons, each of said half turn-buttons being capable of projecting at only one side of the corresponding

channel-like portion of its supporting strip, whereby the turn-buttons and clips may be moved out of their supporting position to leave a panel at one side of the supporting strip held in place by a half turn-button, thus to permit the removal of a panel at the other side of said strip.

7. Building construction comprising frame elements in a wall, supporting strips connected to the frame elements, said supporting strips having channel-like central portions and outstanding flanges projecting from the legs of said portions, relatively short channel-like elements in interfitting engagement with the adjoining ends of channel-like portions of strips disposed in end to end relation, fastening means securing the channel members to said strips thereby affording a splice joint, pivot elements mounted on the bight sections of the channel-like portions, turn-buttons secured to the strips by the pivot elements, and panels engaged by said turn-buttons and held against the outstanding flanges upon the strips.

8. Building construction comprising frame elements in a wall, parallel supporting strips connected to the frame elements, fastening elements mounted on the supporting strips, panels having their opposite sides juxtaposed to the supporting strips and normally held in place by the fastening elements, and keying members extending between the opposite edges of the panels and disposed in interfitting engagement with adjoining panel edges, said keying members and panels being arranged so that a slight relative movement of the panels may take place when their opposite sides are disconnected from the supporting strips by manipulation of the fastening elements to permit the longitudinal movement of a keying member out of engagement with the panels, whereby one of the panels may be removed.

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