

March 27, 1962

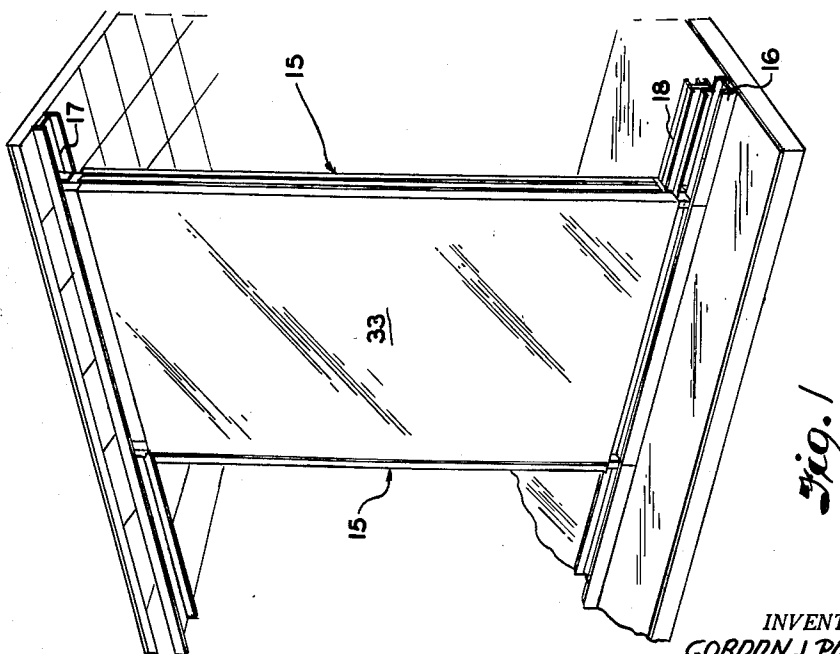
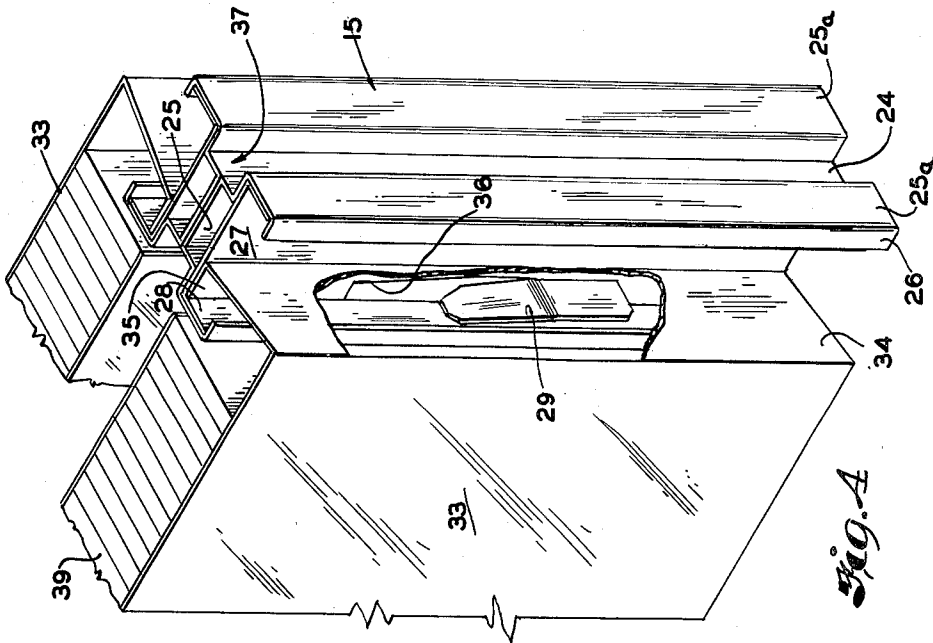
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PANEL ASSEMBLY

Filed March 13, 1958

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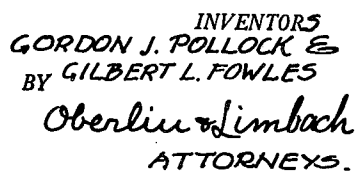


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PANEL ASSEMBLY

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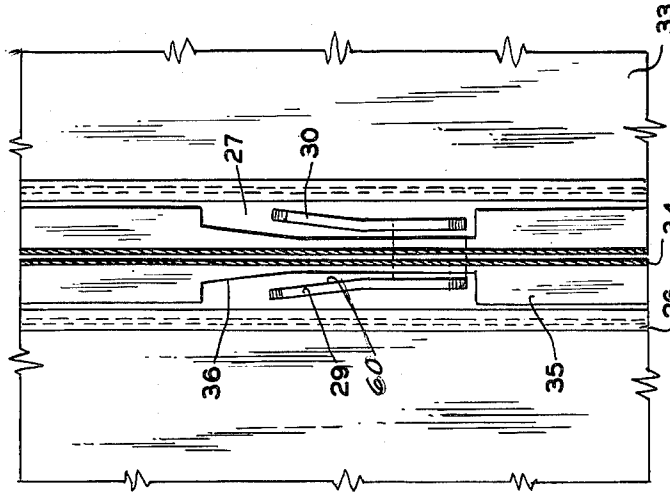


Fig. 6

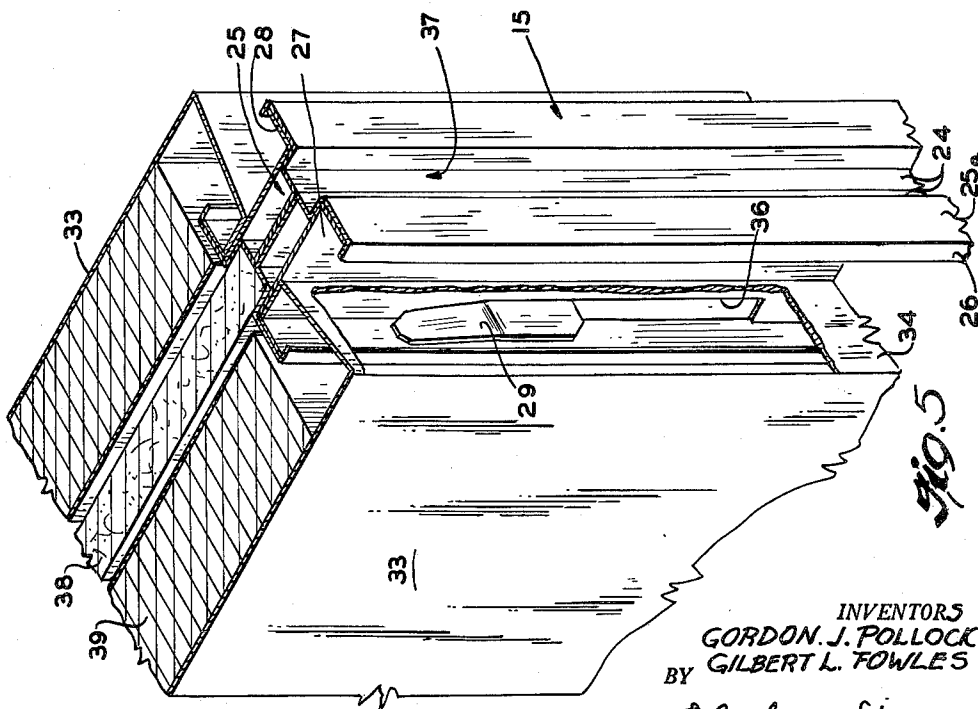


Fig. 5

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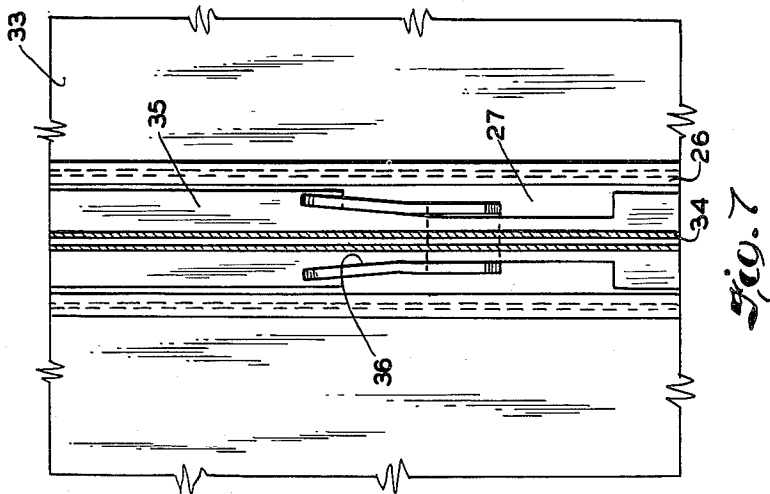
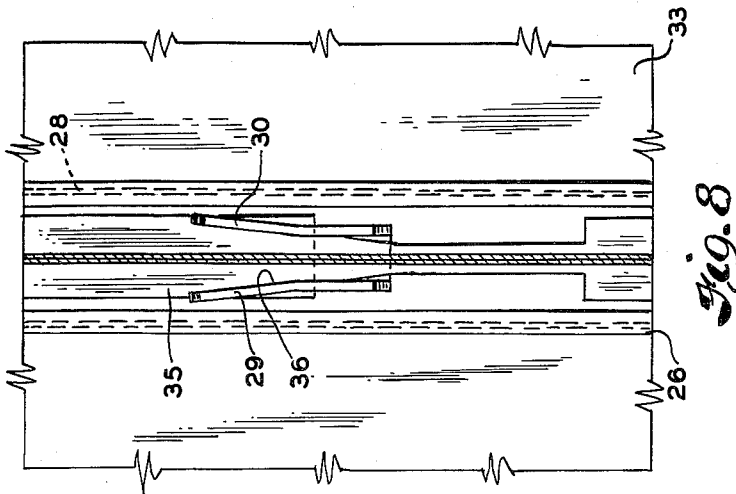
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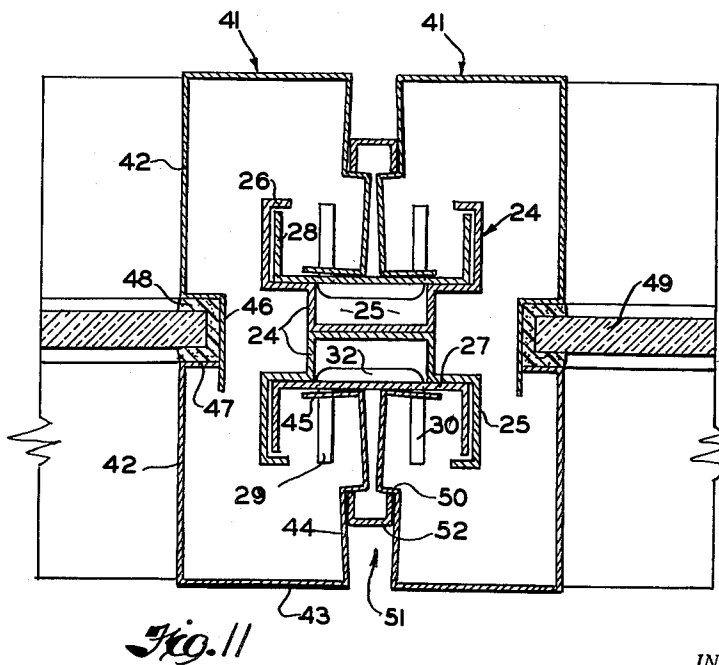
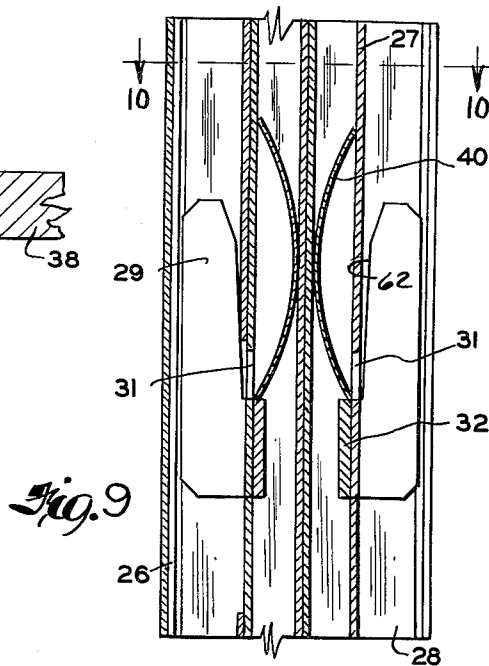
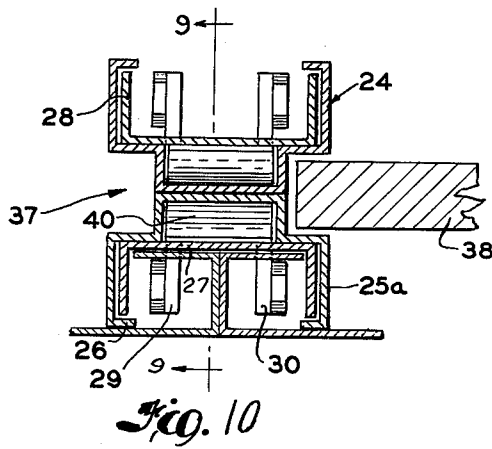
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3,026,977

PANEL ASSEMBLY

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Filed Mar. 13, 1958, Ser. No. 721,226
10 Claims. (Cl. 189—34)

This invention relates as indicated to a novel panel assembly, and more particularly to a new and improved construction and method of assembly whereby movable partitions may be very quickly assembled and disassembled.

The use of movable partitions and wall panels, more especially steel panels, has become increasingly general not only in large commercial establishments and institutions such as manufacturing plants, laboratories and hospitals, but also in many of the newer and more elaborate office buildings. There is, moreover, an increasing interest in the use of such movable partitions in homes.

In some cases, an installation is expected to remain unchanged for a number of years before shifting of the partitions may be desired. In other cases, partitions may be shifted rather frequently to meet changing conditions, or it may be desired to leave the supporting posts in place and merely change the type of partition to afford a different ornamental effect. In a word, there is considerable demand for a movable wall panel assembly which may be put up and taken down with greater ease and without necessarily employing skilled labor for the purpose.

In the light of the foregoing, it is accordingly an important object of our invention to provide a movable panel assembly which may be erected quickly and with ease and which may likewise readily be dismantled or replaced.

Another object is to provide means for interengaging spaced posts with interposed panels in a manner which is expeditious, yet affords a strong and reliable connection without detracting from the ornamental appearance of the assembly.

Still another object is to provide a mode of assembling the panels to the posts which will permit erection of the posts preliminarily (and, if desired, permanently), with the panels being subsequently removably interengaged therewith.

A further object is to provide means for thus interengaging panel side edge portions with the opposed sides of such posts in a manner tending to rigidify the entire assembly.

A still further object is to provide a post having camming means which simultaneously secures a panel with respect to the post and places the panel in a desired position transversely of the post.

Other objects of the invention will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, said invention then comprises the features herein-after fully described and particularly pointed out in the claims, the following description and the annexed drawing setting forth in detail certain illustrative embodiments of the invention, these being indicative, however, of but a few of the various ways in which the principle of the invention may be employed.

In said annexed drawing:

FIG. 1 is a general descriptive view of a panel assembly embodying the present invention;

FIGS. 2 and 3 are perspective views of bottom and top portions, respectively, of a post showing cam means used to position the panels of our assembly;

FIG. 4 is a perspective view similar to FIG. 3 illus-

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trating spaced insulated panels as initially engaging a post;

FIG. 5 is a perspective view similar to FIG. 4 showing the panels at an intermediate position of installation and illustrating the use of an inner insulating wall seated in the post;

FIGS. 6, 7, and 8 are vertical sections taken longitudinally of the post, illustrating three consecutive steps in the installation of our new panels;

FIG. 9 is a vertical section of a post taken on the line 9—9 of FIG. 10 showing provision of anti-rattling means;

FIG. 10 is a horizontal section of a post taken on the line 10—10 of FIG. 9, just the panels of one side being illustrated, the opposed side being similarly constructed; and

FIG. 11 is a horizontal section of a post with modified panel members which are adapted to receive a window, trim strip, and the like.

Referring now more particularly to the drawing and especially FIGS. 1 to 5 thereof, the embodiment shown includes horizontally spaced vertical posts generally indicated at 15 which are fixed to a floor channel member 16 and to a ceiling channel member 17. Preferably, the posts 15 are interconnected by a rail or beam 18 secured to a bracket 19 carried by each post in order to reinforce the panel structure. Since the types of channels and rails which may be used and the techniques of securing these parts together are well-known in the art and do not form a part of the present invention, such types and techniques are not herein described in detail. In general, in the embodiment disclosed, the floor channel member 16 may be fitted between adjacent base sockets B and held firmly in place by means of sheet metal spring clips 20 which are snapped into one of several slots 21 of the base socket B and bear down against the bottom 22 of the channel 16. In a similar fashion, the ceiling channel 17 may be fitted above ceiling sockets T and held in place by sheet metal spring clips 23, the ends of which are snapped into slots provided in the ceiling sockets T.

Each post 15 has a recess in which side edge portions of the panels are installed, and since ordinarily a continuous wall comprising a plurality of sets of opposed panels will be required, the posts are provided with two opposed recesses. As shown particularly to FIGS. 4 and 5, the posts 15 may take the form of two opposed channels 24 of like stepped U-shape cross-section which are secured back to back. The bight portion of each channel has an off-set portion or secondary groove 25, for reasons hereinafter noted, and the attachment of channel to channel may be made along these abutting off-set portions as by spot welding. The sides 25a of each channel 24 terminate in inturned flanges 26.

A U-shaped liner or slide 27 fits within each channel 24. The flanges 26 of each channel 24 abut against the edges of sides 28 of such liner to retain the latter while permitting relative longitudinal movement between a slide 27 and its channel 24. Each slide 27 carries retaining means for engaging and positioning panels. In one form, a pair of camming ears or fingers 29 and 30 are fixed relatively to each slide and, as indicated in FIGS. 2 and 3, a plurality of sets of such fingers will ordinarily be used, another set 29a and 30a being positioned adjacent the other end of slide 27. In the embodiment illustrated, each slide has spaced openings 31 (FIG. 9) for mounting each set of camming fingers, and such fingers are integral with a connecting or bight portion 32. The camming fingers such as 29 and 30 pass through the openings 31, and the bight portion 32 is then secured to the back of the slide 27 as by spot welding. The ends of the fingers of each pair project upwardly in slightly divergent directions as shown at 60

in FIG. 6. The inner side edges of the fingers are beveled as best shown by reference numeral 62 in FIG. 9 toward the bottoms of the channel shaped slides 27.

Panel members 33 have inturned side edge portions 34 for insertion within a slide 27, terminating in a flange 35. The latter has inclined slots or openings 36 in its edge to pass or avoid the camming fingers 29 and 29a in order to reach the back of a slide 27. Upon the initial insertion of a panel side 34 into a slide 27 in channel 24, the edges of the flanges 35 abut against the back and a side 23 of the slide 27 as shown in FIGS. 4 and 5, and this steadies the panel member 33 and facilitates its easy assembly with a post 15.

Various modifications are possible with the present panel assembly. For example, the off-set portion or secondary groove 25 of the channel 24 cooperates with the off-set portion of a companion channel to define a slot or groove 37 which extends longitudinally of the post 15. As shown in FIG. 5, a body of thermal and/or acoustical insulation 38 may be fitted in the groove 37 and disposed between opposed panels. Such a body 38 may comprise asbestos, mineral, or glass fibers or other like materials bonded into an integral batt or slab. In a like manner the panels 33 may be backed with thermal and/or acoustical insulation 39 in the form of honeycomb insulation and/or batts of the previously mentioned materials or the like.

Since the slides 27 are capable of longitudinal movement within a channel 24, there may be sufficient freedom of movement in some installations to result in rattling of the slide. When this is objectionable, anti-rattling means are inserted to hold the slides firmly in place. Such means may take the form of a resilient support inserted in the off-set portions or secondary grooves 25 to bear jointly against a slide 27 and the back of the off-set portion 25. Preferably an arcuate leaf spring 40 is used as shown in FIGS. 9 and 10. When the camming or retaining fingers 29 and 30 are integral with a bight portion 32 as previously mentioned, the lower end of the leaf spring 40 may be dropped against this bight portion (FIG. 9) and thereby retained in position. The spring 40 will be carried by the bight portion 32 during longitudinal movement of a slide 27 relatively to a channel 24.

The panels also may be variously shaped to permit certain auxiliary installations or to meet varying requirements. For instance, referring to FIG. 11, a pair of angled or bent sheet metal frame members may be installed as described within a post channel recess. In particular, panels generally indicated at 41 have sides 42 and 43 meeting substantially at right angles. Each side 43 has an inwardly directed end portion 44 terminating in a flange 45. These flanges have slots like the slots 36 of flanges 35 to avoid the camming fingers 29 and 30 and/or camming fingers 29a and 30a and abut against slides 27 held as before in the channels 24.

Sides 42 of the angled members 41 are directed toward a corresponding side 42 of a companion member and cooperate to form a seat or the like to receive a decorative planar member. As shown in FIG. 11, one of the sides 42 which so cooperates has a rebent edge portion 46 with sufficient overlap to abut against an inturned flange 47 of an adjacent side 42 and thereby define a groove. A sealing strip 48 fits within the groove to receive a planar member 49 such as a pane of glass, plastic sheet, or other decorative or utilitarian sheet material. The side of the planar member 49 opposite to that received by the sealing strip 48 is similarly mounted at an adjacent post.

The end portions 44 of adjacent panels 41 may also be off-set as at 50 to form a groove 51. A trim or decorative strip 52 of U-shaped cross-section having resilient sides is snapped within the groove 51. The strip 52 may be recessed in the groove as shown, or flush

with the sides 43, or project from the groove 51 past the sides 43.

The following is a description of installing the present assembly and is understood to be illustrative only and not to limit the invention as herein disclosed or set forth in the claims. The liners or slides 27 are first inserted in a channel 24. The liners are of shorter length than the channels and are preferably placed relatively near the bottom of the post formed by the channels with the fingers or ears 29 and 30 converging downwardly as shown. The posts 15 are assembled with the floor and ceiling channels 16 and 17, respectively, and with rails 18 as previously mentioned. If anti-rattling means such as the leaf spring 40 is to be used, they may be inserted in the off-set portions 25 at this time. Finally, the panels 33 or 41 are installed.

Considering the panel 33 for purposes of illustration, the inturned sides 34 are placed within the recess of a channel 24 with the slots 36 in the flange 35 passing the camming fingers 29 and 29a until the flange 35 strikes the back of liner 27 and preferably also bears against a leg 28 of the liner. The parts are now in the position shown in FIGS. 4 and 6. The panel 33 is allowed to drop by its own weight and rest on the rail 18. This movement places the upper edges of the slots 36 behind the upper ends of the fingers 29 and 29a in the position shown by FIGS. 5 and 7. At this time, the flange 35 may have left its contact with a corner of slide 27 as indicated by FIG. 7, or the flange 35 may still abut against such corner, depending on the taper or slope of the camming fingers 29 and 29a or that of the slots 36 which preferably also are beveled or tapered as shown in FIGS. 6, 7, and 8 to aid the positioning of the panels 33 during the relative movement between the camming fingers 29 and 29a and the flange 35. In any event, the flange 35 of panel 33 is not yet desirably positioned transversely of channel 24, and there still is "play" or freedom of movement between panel 33 and slide 27. The slide 27 is now forced upwardly, as by a suitable tool, further to interengage the camming fingers 29 and 29a with the slots 36. This results in a dual camming action in which the inner edges of a camming finger and the edges of a mating slot mutually ride on each other. First, due to the convergence of the strips 29 and 29a toward slide 27, the flange 35 and accompanying panel 33 are cammed tightly against the back of slide 27; second and simultaneously, due to the convergence or flaring of the camming fingers 29 and 29a toward strips 30 and 30a, that is, toward the center of the liner 27, the flange 35 and accompanying panel 33 are cammed transversely of the slide 27 to a desired predetermined position. In short, the flange 35 and panel 33 travel in angularly related directions both toward and across a post 15. When the installation of a panel follows the prior installation of another adjacent panel or when companion panels are simultaneously installed, the slides 34 thereof are drawn together in abutting relation as shown in FIG. 8. The posts 15 and panels 33 are disassembled in an order reversed to that described.

It will be apparent that the movement of slide 27 relatively to channel 24 is not necessary to an installation. The camming strips or lugs such as 29 and 30 can if desired be made integral with a post 15 and the panels dropped in position, so that the resulting movement of the panel relatively to the post can be relied on to provide the camming action as described. Any lateral opening in such panel assembly as along the floor or ceiling can be closed off, if desired, by conventional flexible closure strips.

As used herein and in the claims, "abutting relation" or forms thereof do not necessarily mean a contacting relation but include as well a bordering or close contiguous relation.

It will be seen from the foregoing that we have provided a panel assembly which can be quickly erected or dismantled or parts thereof replaced. Our panel assembly

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has means for interengaging spaced apart posts with panels which affords a strong and reliable connection without detracting from the appearance of the assembly. These and other advantages are realized by camming means which simultaneously secure a panel with respect to a post and with respect to other panels mounted in the same post.

A partition system somewhat similar in certain respects to the present panel assembly is described and claimed in the copending application, Serial No. 663,643.

Other modes of applying the principle of the invention may be employed, change being made as regards the details described, provided the features stated in any of the following claims or the equivalent of such be employed.

We therefore particularly point out and distinctly claim as our invention:

1. A panel assembly including a post of substantially channel cross-section, a channel-shaped slide substantially conforming to such cross-section and retained therein for movement relative to the post, a pair of camming strips fixed relatively to the slide and having panel-engaging edges, said edges converging in one direction toward the slide and in another angularly related direction toward each other, a pair of generally U-shaped panels, each panel having a flange for simultaneous disposition in the channel cross-section, each flange having a slot to pass a camming strip therethrough and become disposed between the camming strip and the channel-shaped slide, said camming strips engaging the sides of the slots upon relative movement between the slide and the flanges to urge said flanges in one direction toward the slide by means of the convergence of the strips toward said slide and concomitantly forcing the panels together in another direction into a substantially abutting relation by means of the convergence of said strips toward each other.

2. A panel assembly including a post of substantially U-shaped cross-section with the sides thereof having inwardly turned flanges, U-shaped liner member substantially conforming to and nesting within the post, the legs of the U-shaped liner abutting against such flanges of the post and being thereby retained for longitudinal movement relative to the post, a pair of retaining strips fixed with respect to the liner member and having panel-engaging edges, said edges converging in one direction toward the liner member and in another angularly related direction toward each other, a pair of generally U-shaped panel members having the sides thereof terminating in flanges, at least one flange of each panel member having a camming slot to pass a retaining strip and abut against the bight portion of the U-shaped liner member and in a side by side relation with a corresponding flange of the other panel member, said panel-engaging edges of the retaining strips engaging the sides of said camming slots upon relative movement between said liner member and panel flanges to cam said panel flanges in one direction toward the liner member by means of the convergence of the edges of the retaining strips toward the liner member and concomitantly to cam the panel members in another direction into a substantially abutting relationship by means of the convergence of said edges of the strips toward each other.

3. The assembly of claim 2 wherein the adjacent sides of said pair of generally U-shaped panel members have opposed off-set portions to define a groove adapted to receive therein a trim strip and the like.

4. A panel assembly including a post of substantially U-shaped cross-section with the bight section thereof having a rearwardly off-set portion, a liner member of U-shaped cross-section substantially conforming to and nesting with the post, means to retain the liner member within the post and adapt said liner member for relative longitudinal movement therewith, resilient means disposed within the off-set portion of the post to eliminate rattling of the liner member, a pair of retaining strips fixed with respect to the liner member and having panel-engaging edges, said edges converging in one direction

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toward the liner member and in another angularly related direction toward each other, a pair of generally U-shaped panel members having the sides thereof terminating in flanges, at least one flange of each panel member having a slot to pass a retaining strip and abut against the bight portion of the U-shaped liner member and in a side by side relation with a corresponding flange of the other panel member, said panel-engaging edges of the retaining strips engaging the sides of said slots upon relative movement between said liner member and panel flanges to cam said panel flanges in one direction toward the liner member by means of the convergence of the edges of the retaining strips toward the liner member and concomitantly to cam the panel members in another direction into a substantially abutting relationship by means of the convergence of said edges of the strips toward each other.

5. The panel assembly of claim 4 wherein said retaining strips are formed integrally into a U-shaped member with the legs thereof defining the strips and extending through the liner member into the position stated, and the bight portion of said integrally U-shaped member is carried behind the liner member and within the rearwardly off-set portion of the post.

6. The panel assembly of claim 5 wherein said resilient means disposed in the off-set portion of the post is a leaf spring which bears against said off-set portion and the liner member, and one end of the leaf spring rests on the bight portion of the integrally U-shaped member disposed within the rearwardly off-set portion of the post.

7. A panel assembly including a post comprising a pair of channel members of substantially U-shaped cross-section with the bight sections thereof having a rearwardly off-set portion, said off-set portions being stationed back to back and cooperating to define a longitudinal recess along the post, a body of insulating material stationed in said recess and extending away from the post, a liner member of substantially U-shaped cross-section conforming to and nesting within each channel member, means to retain each liner member within its respective channel member and adapt the liner member for relative longitudinal movement therewith, a pair of retaining clips fixed with respect to each liner member and having panel-engaging edges, said edges being shaped to converge in one direction toward the liner member and in another angularly related direction toward each other, a pair of generally U-shaped panels having side flanges for mutual insertion in each channel member to form a duplicate set of panels extending from the post and substantially parallel to said insulating body, said flanges of the panels having longitudinally disposed slots to pass the retaining clips and abut against the back of the liner member substantially in a side by side relation with a flange of a companion panel, said edges of the retaining clips engaging the sides of the slots upon relative movement between said liner members and panel flanges to cam the panel flanges in one direction toward their respective channel members by means of the convergence of said edges of the retaining clips toward said liner members and concomitantly to cam the panels in another direction toward one another substantially parallel to said insulating body and into substantially abutting relation by means of the convergence of the edges of the retaining clips toward each other.

8. A panel assembly adapted to receive a planar member including a post having opposed channel sections, a pair of angled panel members for attachment to the post, one side of each panel member being disposed within one of the opposed channel sections and there terminating in a flange, the other sides of the panel members being angled toward each other and adapted to receive therebetween said planar member, a camming strip carried by the post in each of said channel sections having a panel-engaging edge which converges toward the post and has a lateral bend, the flange of said one side of each panel-member having a slot to pass by said camming strip and

abut against a back of a channel section, said panel-engaging edge of the strip urging said flange in one direction toward said channel back upon relative movement between said strip and the panel flange and such lateral bend of the camming strip simultaneously forcing said flange in a second angularly related direction to a predetermined position transversely of its respective channel section.

9. A panel assembly adapted to receive a planar member including a post having opposed recesses therein, a liner member substantially conforming to each recess and retained therein for movement relative to the post, a pair of camming strips fixed relatively to each liner member and having panel-engaging edges, said edges converging in one direction toward such liner member and in another angularly related direction toward each other, a pair of bent panel attachments for each recess, one side of each bent panel attachment having a flange for mutual seating in a recess with a flange of a companion panel attachment, each flange having a slot to pass a camming strip therethrough and become disposed between the camming strip and the liner member, said panel-engaging edges of the camming strips engaging the sides of such slots upon relative movement between the liner member and panel flanges to urge such flanges in one direction toward the liner member by means of the convergence of said edges of the camming strips toward the liner member and concomitantly forcing said one side of each companion panel attachment in another direction into a substantially abutting relation with respect to the companion panel by means of the convergence of said edges of the strips toward each other, the

remaining sides of each panel attachment being bent toward a corresponding remaining side of a panel attachment similarly secured in an opposed recess of the post and defining therebetween a groove to receive therein said planar member.

10. A wall panel assembly including a post having a vertically extending channel, a pair of panels each having vertical inturned margin portions disposed in such channel in loosely abutting relationship, a slide retained in said post channel for vertical reciprocation therein, upstanding camming figures on said slide for reciprocation therewith, said camming fingers having panel-engaging edges converging in one direction toward the slide and in another angularly related direction toward each other, said panel margin portions having slots through which said fingers pass, the engaging edges of said slots and finger edges being relatively contoured to draw said panels inwardly toward said post and simultaneously to draw said margin portions toward each other into tightly abutting relationship upon reciprocation of said slide.

References Cited in the file of this patent

UNITED STATES PATENTS

1,094,278	Van den Plas	Apr. 21, 1914
1,231,289	Otte	June 26, 1917
1,716,624	Dawson	June 11, 1929
1,726,595	Swanson	Sept. 3, 1929
2,128,797	Bohnsack	Aug. 30, 1938
2,435,286	Manhard	Feb. 3, 1948
2,673,775	Silverman	Mar. 30, 1954
2,914,147	Millard	Nov. 24, 1959