

July 5, 1960

G. J. POLLOCK

2,943,718

MOVABLE PANEL ASSEMBLY

Filed May 27, 1957

3 Sheets-Sheet 1

FIG. 1

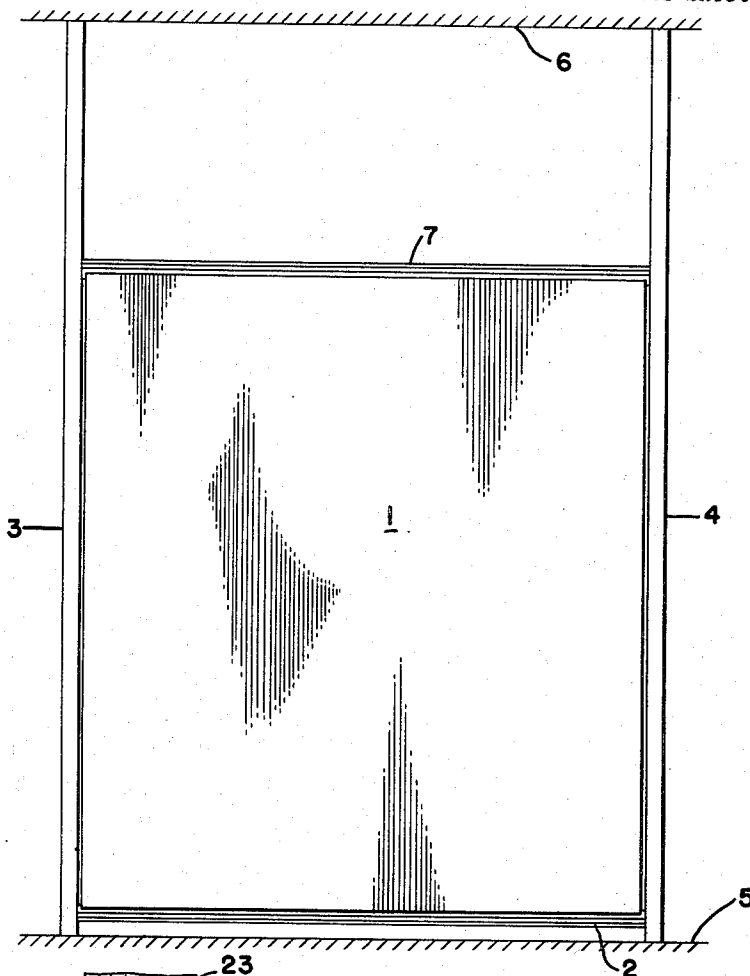
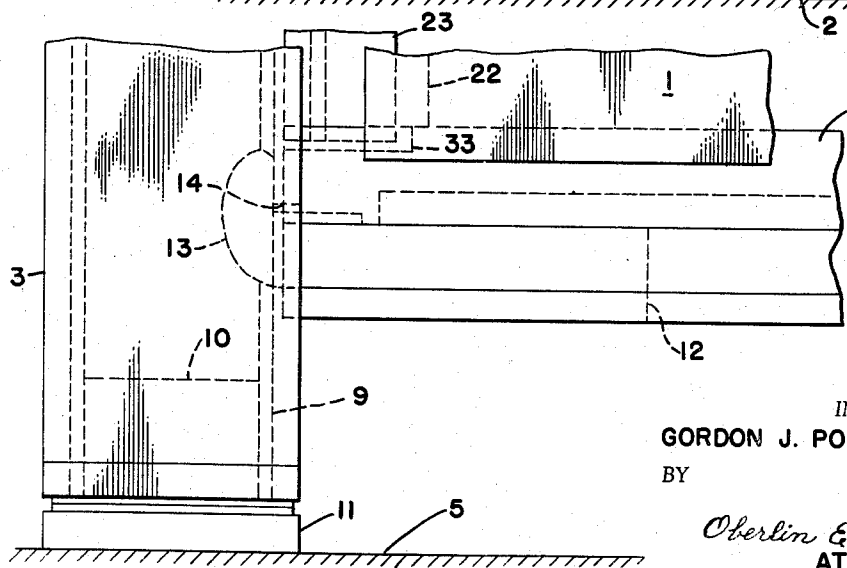


FIG. 2



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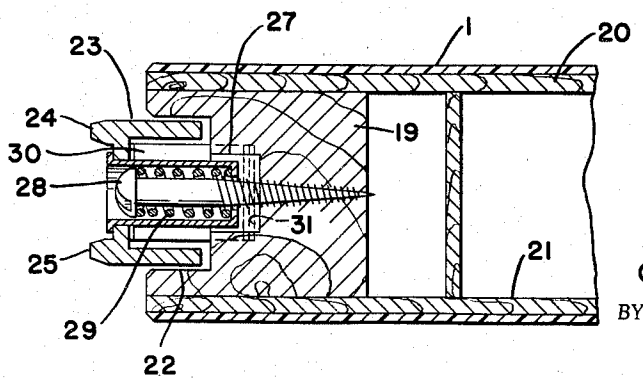
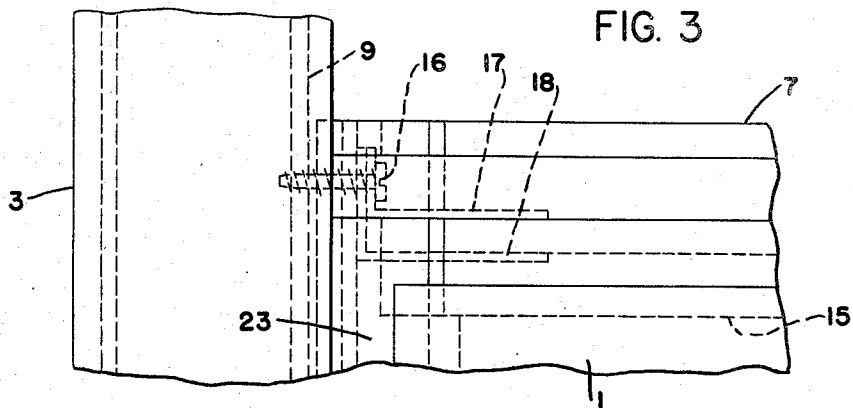
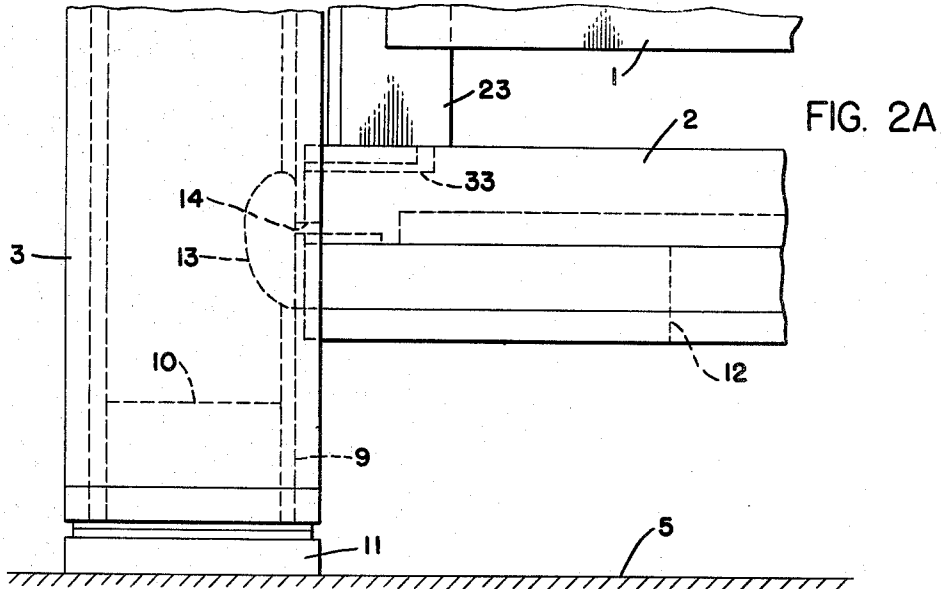
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FIG. 4

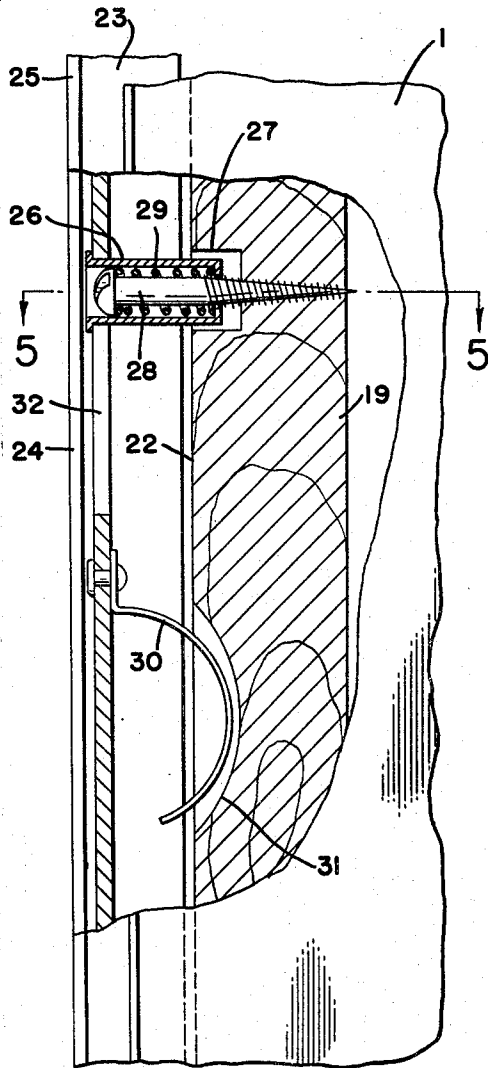


FIG. 6

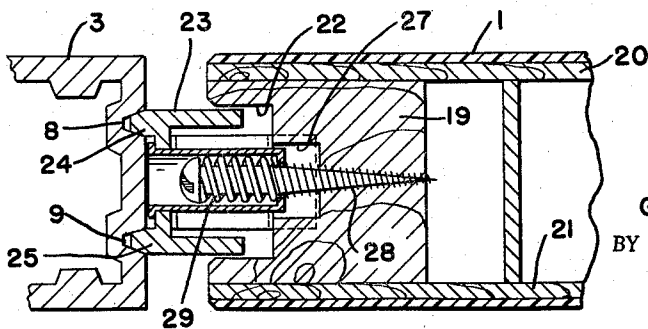
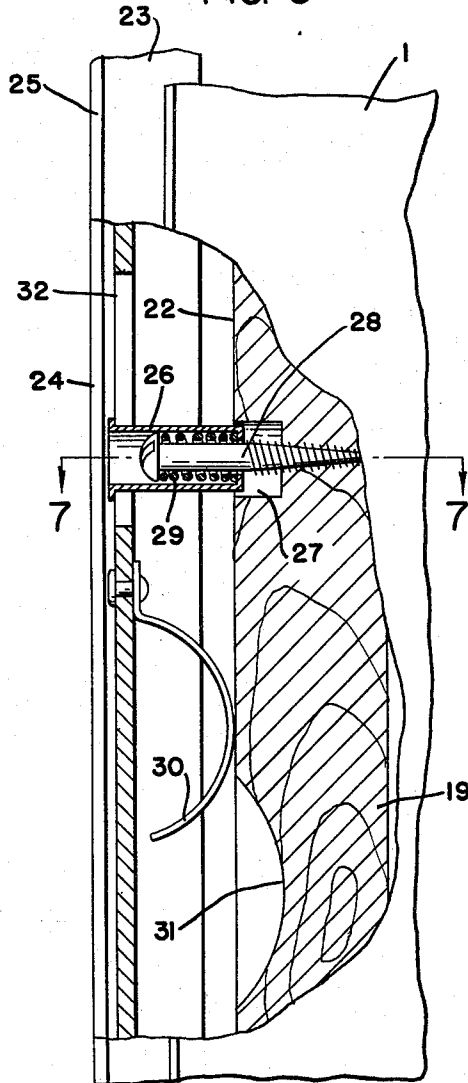


FIG. 7

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**MOVABLE PANEL ASSEMBLY**

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Filed May 27, 1957, Ser. No. 661,669

5 Claims. (Cl. 189-34)

This invention relates as indicated to a novel movable 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 my 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.

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 hereinafter 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 simple elevation showing a single panel installed between two spaced vertical posts;

Fig. 2 is an enlarged detail view of the lower left-hand corner of Fig. 1 showing the manner of mounting the panel;

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Fig. 2A is similar to Fig. 2 but illustrates the relative positions of certain elements at one stage during installation or, alternatively, during removal of the panel;

Fig. 3 is an enlarged detail view of the upper left-hand corner of the panel and post assembly of Fig. 1;

Fig. 4 is an enlarged view of a portion of the panel side edge partly broken away better to disclose the internal construction of the same;

Fig. 5 is a horizontal section taken on the line 5-5 on Fig. 4;

Fig. 6 is a view corresponding to Fig. 4 but showing the parts in relative shifted positions; and

Fig. 7 is a horizontal section taken on the line 7-7 on Fig. 6.

Referring now more particularly to said drawing and especially Figs. 1-3 thereof, it will be seen that in the embodiment of my invention there illustrated the wall panel or partition 1 may be supported on a bottom rail 2 extending between two vertical posts 3 and 4 and spaced a short distance above the floor 5. Posts 3 and 4 are properly spaced and rigidly mounted extending from floor 5 to ceiling 6 of the room. An upper rail 7 may be provided spanning the space between posts 3 and 4 and fitting the upper edge portion of panel 1. The open spaces between top rail 7 and ceiling 6 and between lower rail 2 and floor 5 may be closed by means of supplemental panels and baseboards in well-known manner if desired, or may be left open, depending upon the application.

Each post may be in the form of a generally square tubular aluminum extrusion with parallel spaced vertically extending grooves such as 8 and 9 in its side toward the opposed edge of panel 1, for a purpose to be explained herebelow. Similar grooves or recesses will ordinarily be provided in one or more of the other sides of the post to interengage with adjoining panels. The lower ends of the posts may fit over upstanding portions 10 of pedestals 11 previously located on the floor. The lower rail 2 rests upon bracket members 12 having upturned ends 13 received through apertures such as 14 in the walls of the posts. The lower edge of panel 1 may be grooved to fit over the upper edge of rail 2 and rest thereon as shown in Fig. 2. The upper rail 7 may likewise have its lower edge 15 received in a groove in the upper edge of panel 1 and may be firmly secured in place by means of screws such as 16 passing through bracket members 17 and 18 and threaded into the adjoining post. A variety of different devices may be employed thus to mount the top and bottom rails or indeed, on some occasions, such rails may be dispensed with entirely.

Referring now more particularly to Figs. 4-7 inclusive of the drawing, the form of movable panel there illustrated comprises elongated edge members such as 19 (which may be of wood) serving to space the outer side surface sheet portions 20 and 21 which may be of any desired material such as plywood or sheet metal. The region between such sheets may ordinarily be filled with a rigidifying sound deadening honeycomb structure (not shown) in well-known manner.

Side edge members 19 are provided with vertically extending grooves 22 adapted to receive a vertically extending latch member 23 which may be an aluminum extrusion of general H-shape cross-section, as shown. The longer legs of the H extend into groove 22 and the shorter bevelled legs 24 and 25 are adapted to enter the correspondingly bevelled or tapered vertically extending grooves 8 and 9 in post 3 (Fig. 7).

At intervals along latch member 23, tubular sheet metal plungers such as 26 are mounted therein with their inner ends projecting into wells 27 in the bottom of groove 22. A screw 28 extends through the bottom of each plunger and is secured in edge member 19, a compression spring 29 encircling screw 28 being interposed

between the head of the screw and the bottom of the plunger and thereby tending to hold elongated latch member 23 retracted within groove 22 in Fig. 5 position.

At spaced intervals along the vertical extent of latch member 23 are mounted curved leaf springs 30 adapted normally to be received in corresponding recesses 31 in the bottom of groove 22. Such leaf springs, while resilient, are nevertheless relatively stiff and powerful in comparison to the compression springs 29 tending to hold latch member 23 retracted within groove 22. The outer flange ends of the plungers 26 pass through vertically extending slots 32 in latch member 23, and accordingly it is possible to reciprocate such latch member from the Fig. 4 position to the Fig. 6 position, and when this is done it will be seen that the leaf springs 30 act as somewhat yielding cam members, riding out of their recesses 31 and bearing against the bottom of groove 22 to shift latch member 23 outwardly of such groove, the inner edge of such latch member, however, still being retained within the groove as shown in Figs. 6 and 7 by means of the plunger assemblies. Due to the resilient nature of the cam members 30, such latch member 23 is adapted readily to accommodate itself to slight degrees of misalignment between the panel edge and the adjoining post. The bevelled ridges 24 and 25 are self-centering in the corresponding grooves 8 and 9, and the provision of a plurality of such ridges is of considerable importance in enhancing the rigidity of the assembled structure.

In the light of the foregoing, the manner of erecting my new panel assembly will readily be understood. After the two vertical posts 3 and 4 have been properly spaced and permanently or semi-permanently secured in position, the bottom rail 2 is mounted thereon spanning or bridging the distance between such posts a short distance above the floor. This is a generally conventional arrangement but as will readily be appreciated, the provision of such lower rail is not absolutely essential for the practicing of my invention. The panel 1 may be lifted into place by means of workmen using suction cups having handles thereon, the width of the panel being slightly less than the space between the two posts and the retracted latch members 23 (in Figs. 4 and 5 position) just clearing such posts (Fig. 2A). When the latch member is in such retracted position, its lower end will project downwardly below the lower edge of panel 1 so as preliminarily to engage lower rail 2. When panel 1 is thereupon lowered, its weight is sufficient to ensure relative vertical shifting of latch members 23, forcing the latter outwardly to interengage with the corresponding posts. The lower ends of such latch members may then fit into corresponding wells 33 in the upper surface of rail 2. The upper rail may then be placed in position and secured. Disassembly is the simple reverse of the above-described steps, the panel 1 being lifted from rail 2, whereupon latch members 23 will be shifted to the Fig. 4 position (the frictional engagement of such latch members with the posts holding such latch members down when the panel is thus lifted) and the panel may then be removed directly outwardly.

As shown and described, a single wall panel forms both sides of the partition, and it is even possible to remove such panel and to reverse the same so that the surface formerly presented on one side of the partition now faces in the opposite direction. Such panels may be relatively light and are easily handled, particularly as no separate attaching means or tools are required. There are no clips, bolts or screws required to retain the panel in place. The longitudinally extending latch members are only partially exposed to view when the panel has been installed and do not in any way detract from the ornamental appearance of the same. It is, however, obviously feasible to insert trim strips in well-known manner in the recesses where such latch members are exposed, if this should be desired. Despite the

simple and substantially automatic manner in which the panels are thus interengaged with the adjoining posts, a strong rigid structure is produced with the parts interfitting neatly despite any slight misalignment, the springs 29 and 30 yielding to the extent necessary to accommodate any such slight misalignment. An incidental advantage of my new structure is that the posts are ornamental even when a panel has been detached and removed, only the two parallel grooves appearing in the exposed side of the post instead of the unsightly attaching means frequently employed in posts in the past.

The panel side margin portions are reciprocated longitudinally in the grooves 22 as well as cammed in and out toward and away from the posts. If desired, trim strips may be inserted to cover such movable margin portions (the latch members) where these are exposed. While it is possible to provide such movable margin portion at but one side edge of the panel body, it is nevertheless very much preferred that such retractable margin portions be provided at each vertical side edge, particularly when employing the pairs of parallel ribs 24, 25. When the panels are released from the posts, they may be lifted out and removed laterally, using suction cup handles applied to the sides thereof.

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.

I therefore particularly point out and distinctly claim as my invention:

1. A movable panel assembly adapted for quick assembly and disassembly including in combination: vertically-disposed spaced-apart posts, a panel comprising a rectangular body portion having vertically extending grooves in the respective side edges thereof, separate elongated vertically extending side edge margin portions fitting in said grooves and protruding laterally therefrom into engagement with said posts, retainer means securing said margin portions in said grooves for reciprocation longitudinally thereof and also for limited movement laterally outwardly of said body portion, said retainer means comprising plungers passing through vertically elongated slots in said margin portions and extending normal to the bottoms of said grooves, said plungers having outwardly flanged lip portions engaging said margin portions, compression coil springs secured within said plungers, screws extending through said plungers and secured in the bottoms of said grooves, said compression springs being held between the heads of said screws and the inner ends of said plungers, the overall horizontal dimension of said body portion and said margin portions in retracted lateral position being less than the distance between the spaced-apart posts permitting insertion of said body and margin portions therebetween, the overall horizontal dimension of said body and margin portions in lateral outward position being somewhat greater than said distance between the posts, yielding cam means secured to said margin portions and urging the latter laterally outwardly by engagement with the bottoms of said grooves during said longitudinal reciprocation of said margin portions and panel, said cam means being less yielding than said compression springs.

2. A movable panel assembly adapted for quick assembly and disassembly including in combination: vertically-disposed spaced-apart posts, a panel comprising a rectangular body portion having vertically extending grooves in the respective side edges thereof, separate elongated vertically extending side edge margin portions fitting in said grooves and protruding laterally therefrom into engagement with said posts, retainer means securing said margin portions in said grooves for reciprocation longitudinally thereof and also for limited movement laterally outwardly of said body portion, said retaining means comprising hollow plunger means carried by said

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body portion, mounting means within the plunger means to attach said plunger means to the bottoms of said grooves while permitting relative outward movement of the plunger means in a direction normal to such groove bottoms, said marginal portions having vertically elongated slots to receive therethrough said plunger means, means preventing retraction of the plunger means from such slots toward the body portion, and resilient means within the plunger means cooperating with said mounting means to oppose such outward movement of the plunger means, the overall horizontal dimension of said body portion and said margin portions in retracted lateral position being less than the distance between the spaced-apart posts permitting insertion of said body and margin portions therebetween, the overall horizontal dimension of said body and margin portions in lateral outward position being somewhat greater than said distance between the posts, and yielding cam means secured to said margin portions and urging the latter laterally outwardly by engagement with the bottoms of said grooves during said longitudinal reciprocation of said margin portions and panel, said cam means being less yielding than said resilient means.

3. A movable panel assembly adapted for quick assembly and disassembly including in combination: vertically-disposed spaced-apart posts, a panel comprising a relatively large flat rectangular body portion having vertically extending grooves in the respective side edges thereof, separate elongated vertically extending side edge margin portions fitting in said grooves and protruding laterally therefrom into engagement with said posts, retainer means securing said margin portions in said grooves for reciprocation longitudinally thereof and also for limited movement laterally outwardly of said body portion, said retainer means comprising plungers passing through vertically elongated slots in said margin portions and extending normal to the bottoms of said grooves, said plungers having outwardly flanged lip portions engaging said margin portions, compression coil springs secured within said plungers, screws extending through said plungers and secured in the bottoms of said grooves, said compression springs being held between the heads of said screws and the inner ends of said plungers, the overall horizontal dimension of said body portion and said margin portions in retracted lateral position being less than the distance

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between the spaced-apart posts permitting insertion of said body and margin portions therebetween, the overall horizontal dimension of said body and margin portions in lateral outward position being somewhat greater than said distance between the posts, leaf spring cam means secured to the inner sides of said margin portions and urging the latter laterally outwardly by engagement with the bottoms of said grooves during said longitudinal reciprocation of said margin portions and panel, and recesses in the bottoms of said grooves adapted to receive said cam means to render them inoperative in a selected longitudinally reciprocated position of said margin portions, said leaf spring cam members being less yielding than said compression springs.

4. The panel of claim 3, wherein said side edge portions are provided with pairs of spaced parallel narrow vertically extending ribs on their sides opposite to their sides received in said grooves in said body portion, said ribs fitting in corresponding grooves in said posts.

5. The panel of claim 3, wherein said side edge portions are provided with pairs of spaced parallel narrow vertically extending ribs on their sides opposite to their sides received in said grooves in said body portion, said ribs fitting in corresponding grooves in said posts, said leaf spring cam means are of generally arcuate conformation, and said recesses in said grooves are located to receive said leaf spring cam means when said margin portions have been longitudinally reciprocated to extend their end portions a substantial distance beyond said body portion.

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