

[54] PANEL ASSEMBLY

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[51] Int. Cl..... **E04b 1/40, E04b 2/82**

[58] Field of Search ..... 52/36, 122, 238, 241, 281, 52/282, 300, 584, 582; 108/60, 48, 152; 211/90, 148

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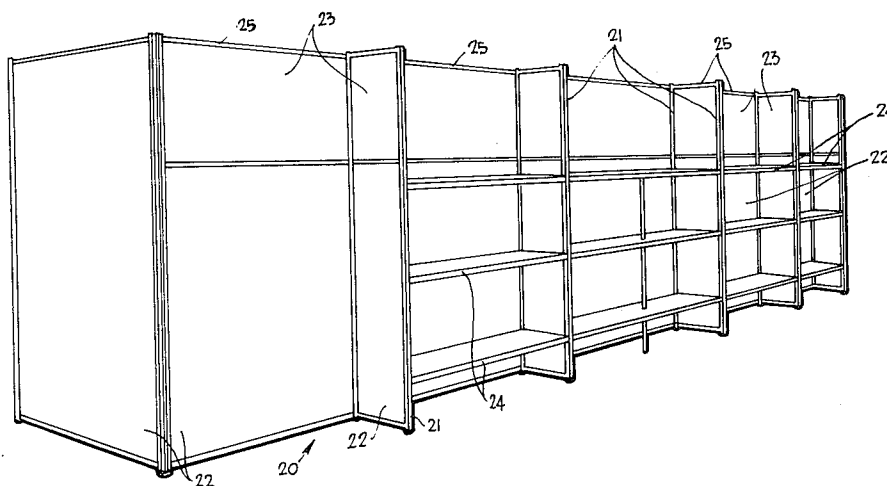
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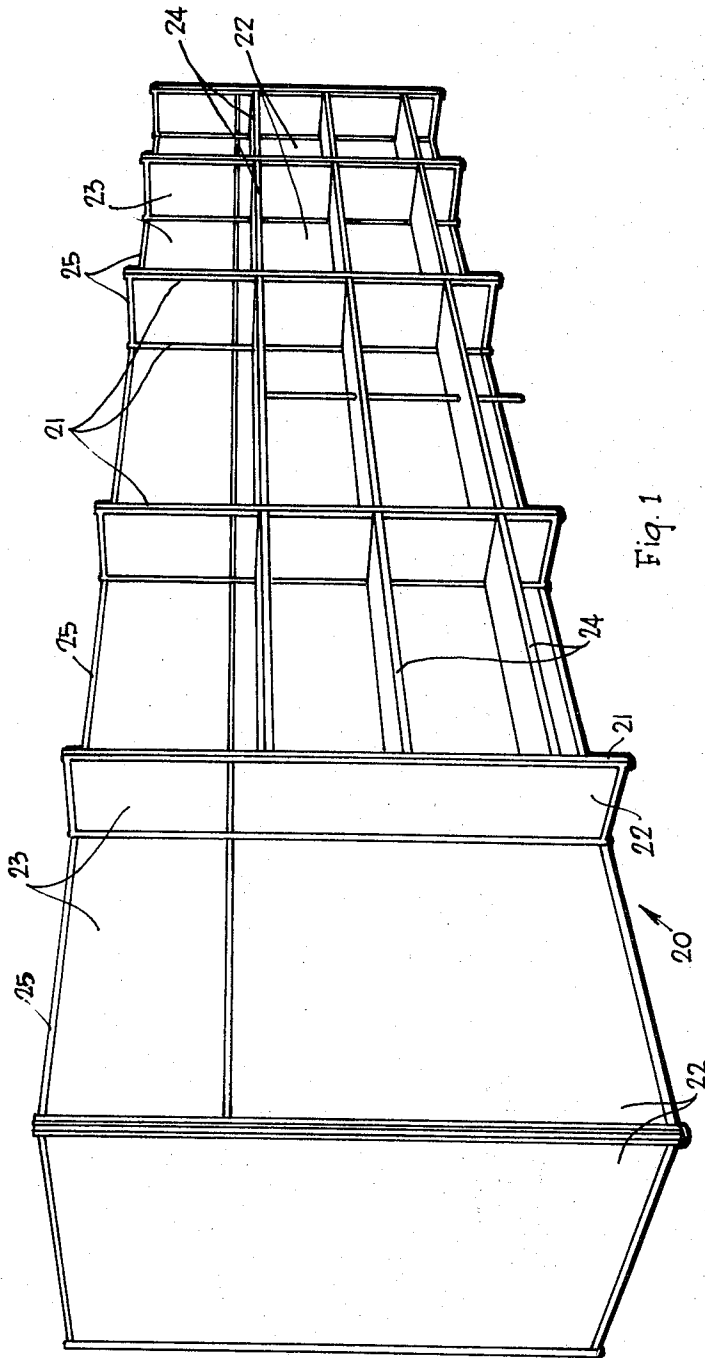
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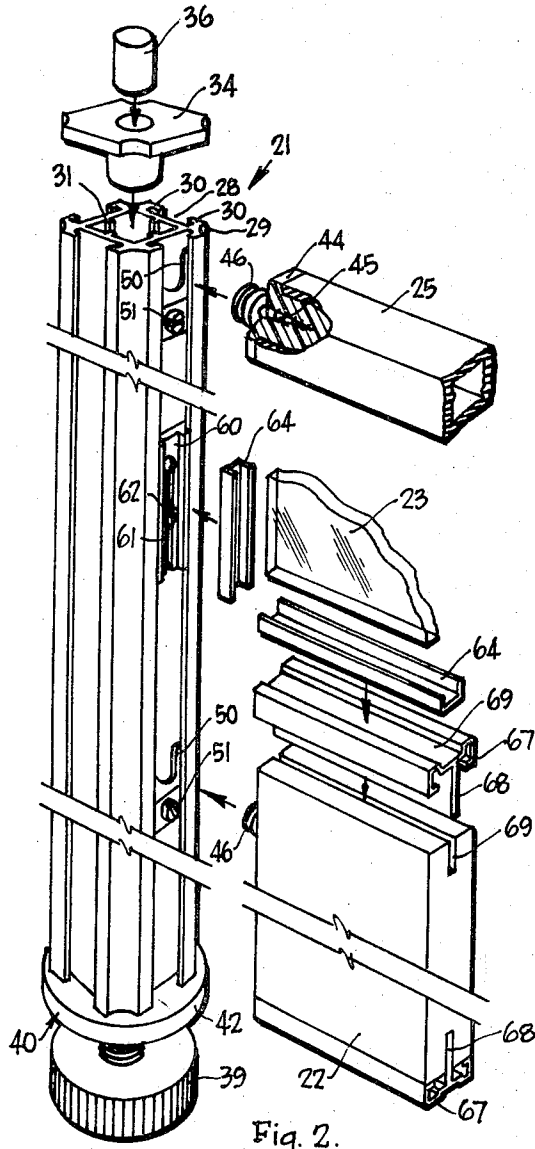
[57] **ABSTRACT**

A panel assembly comprising a plurality of posts, a plurality of panels, and interconnecting means releasably securing the panels to the posts, the posts each having a cross-sectional shape wherein each of the outer surfaces includes outstanding flanges with intumed lips which form narrow mouth channels, and the interconnecting means comprise retention clips contained within respective narrow mouth channels and having tongues which engage against the inner surfaces of the intumed lips so that loading applied to the clips is transferred to the lips. The panels are provided with complementary buttons having grooves which engage the tongues, and the edges of the panels abut the outer surfaces of the flanges. The invention avoids the need for special machining of the edges for attachment to the posts, and avoids the need for the use of attachment screws, the posts and panels being arranged in a simple snap together configuration.

**10 Claims, 12 Drawing Figures**







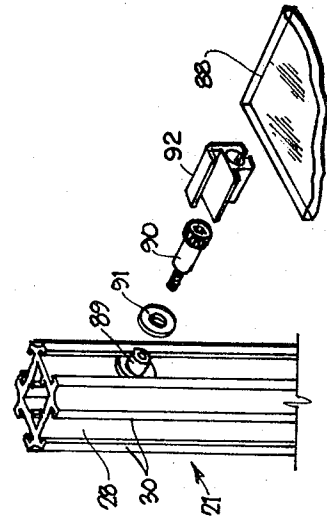
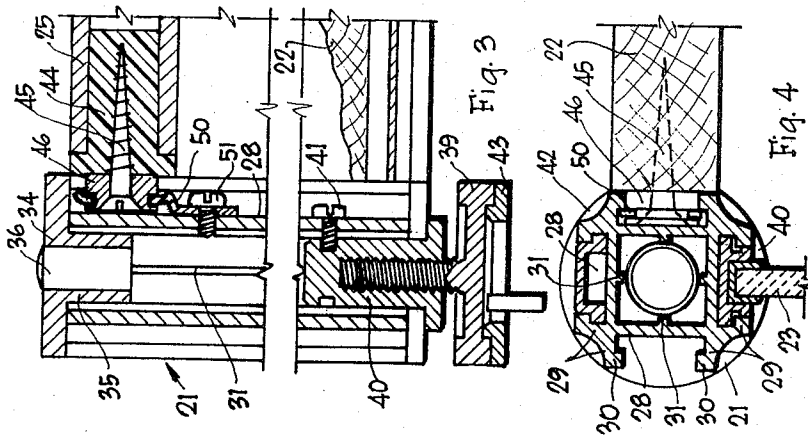


Fig. 11

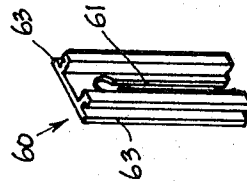


Fig. 12

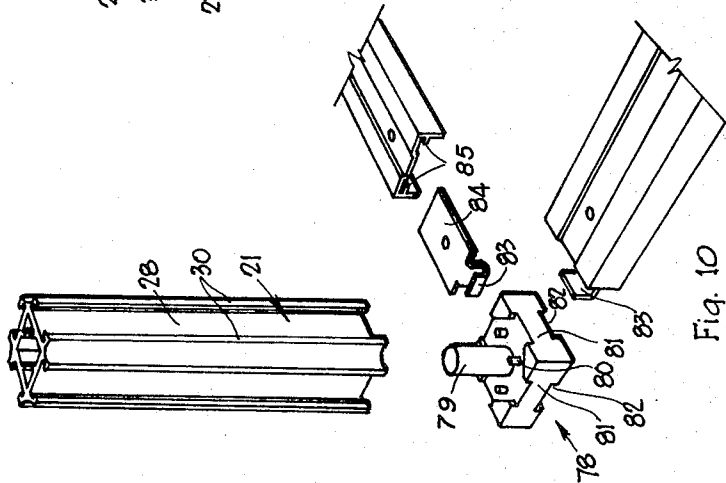
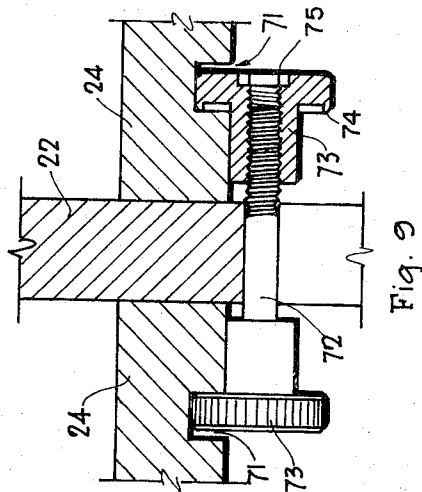
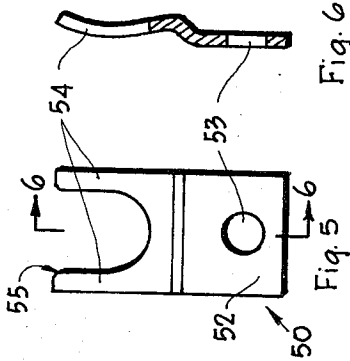
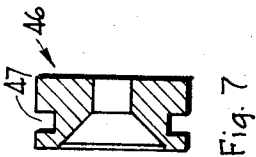
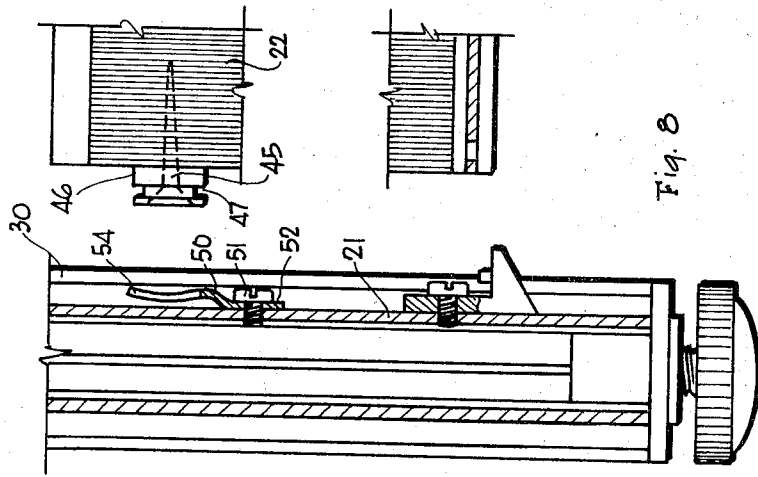


Fig. 10



## PANEL ASSEMBLY

This invention relates to a panel assembly of the type utilising a plurality of posts and vertical or horizontal panels supported thereby.

### CROSS REFERENCES OF THE INVENTION

In the Australian Specifications Pat. Nos. 247,743 and 228,259 both in the name of N.V. Appleton Pty. Ltd. there are described partition wall panels wherein posts are provided with tongues and the panels are provided with sheet metal members having outstanding eyes which engage over the tongues and firmly lock the partitions to the posts. In order to avoid the possibility of "sight" between the panel edges and the posts, the posts are provided with channels extending along their faces and outstanding projections on the panels are positioned within the channels. This invention is distinguished from the above invention in that the posts of this invention are provided with inturned lips on flanges to form narrow mouth channels, and clips are utilised which bear against the inner surfaces of the lips so that the load is transferred onto the lips, and under these circumstances it is possible to apply a considerable force between the panel edges and the abutting surfaces of the posts, thereby avoiding the need for special machining or cladding of the edges of the panels.

In my co-pending U.S. Pat. Application No. 339,908, filed Mar. 9, 1973 entitled "FABRICATED PARTITIONS" based on Australian Pat. Application No. P.A. 8248 there was described a partition system wherein panel members were provided with edge portions extending along them, and these edge portions were arranged to engage against the inner surfaces of lips of channel shaped members, and thus firmly engage the channel shape members which formed posts or edging members, but this invention is distinguished from the said arrangement in that this invention does not require the use of edge members secured to the edges of the panels.

### BACKGROUND OF THE INVENTION

Demountable partitioning is in wide and varied use, but in general the cost has been relatively high and the high cost is the commercially limiting factor which prohibits even more widespread use of this partitioning. The component parts of the partitioning however are not usually of high cost in themselves, but the fastening means for joining the partitioning to the posts and rails which support it usually constitute the high costs. For example it is frequently necessary to position mouldings along the edges of panels which interengage with the posts, or alternatively to machine the edges of the panels so that they interengage with recesses in the posts.

The main object of this invention is to provide a partitioning system of such simplicity that the costs of the elements of the partitioning system can be kept to a very low level and the need to provide special machining operations or the need to provide expensive fastening means is kept to a minimum.

A further object of the invention is to provide means whereby a single system utilising standard interchangeable parts may be employed for a wide range of uses.

One of the further objects of this invention is to provide means whereby partition panels with "square"

edges may be joined in a face to face abutment with posts but so firmly engaged to the posts that it is not possible to "sight" between the panel edge and the post.

A further problem which is encountered in the demountable partitions is the means for supporting a shelf, and at the same time avoid the need for screw fastening means passing through the post into the shelf or vice versa. A still further object of the invention is to provide means whereby shelf supports may be secured to a post in a rigid manner and with simple standardised fastening means.

### BRIEF SUMMARY OF THE INVENTION

In order to meet the aforesaid objects of the invention of providing a partition system of low cost wherein square edge panels are retained firmly against posts in a face to face abutment relationship, the posts in this invention have a cross-sectional shape which is generally rectangular, but each outer surface of the post is flanked on its side edges by a pair of outstanding flanges with inturned lips which form a narrow mouth channel, and the edge surface of the contiguous panel is in abutment with a pair of the outstanding flanges, and is retained in firm engagement with the flanges by means of the retention clips which are within the narrow mouth channel and which bear against the inner faces of the inturned lips, the retention clips being engaged by complementary buttons secured to the edge of the panel.

More specifically, according to the invention a panel assembly comprises a plurality of posts, a plurality of panels, and interconnecting means releasably securing the panels to the posts; each post having a cross-sectional shape of generally rectangular shape, each outer surface of the post being flanked along its side edges by a pair of outstanding flanges with inturned lips forming a narrow mouth channel; each panel having a vertical edge surface in abutment with a said pair of outstanding flanges; said interconnecting means comprising a plurality of retention clips engaged by a corresponding plurality of buttons; each retention clip having a securing portion and a pair of tongues defining a bifurcate portion, an aperture in the securing portion, a screw fastener extending through the aperture and retaining the securing portion in firm abutment against a said outer surface and between the flanges flanking that outer surface, the tongue standing away from said outer surface and abutting the inner surfaces of the inturned lips; each button having an aperture there-through, a screw fastener extending through the aperture and retaining the button to a said edge of the panel, and a groove in the button engaging the tongue.

With this invention the clips may conveniently be formed to provide a spring pressure drawing the edge of the panel into firm abutment with the edge of the post, and this firm abutment will result in a very simple and rigid securing means for interconnecting the panel with the post, which however can be arranged to be of standard form so that the panels can be demounted and replaced with other panels of varying size or shape.

### BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings;

FIG. 1 is a perspective view of a typical assembly of demountable panels having posts, panels, and shelves,

FIG. 2 is a fragmentary "exploded" view illustrating an arrangement of a post, a closure cap for the post, a foot support for the post, a spacer rail, a glass support channel and a panel,

FIG. 3 is a section through portion of a post and panel assembly,

FIG. 4 is a sectional plan illustrating the interconnection between a glass support channel and a post and further illustrating the interconnection between a panel and a post,

FIG. 5 is an elevational view of a retention clip,

FIG. 6 is a central section of the clip of FIG. 5 on a line 6-6 of FIG. 5,

FIG. 7 is a section through a button,

FIG. 8 is an "exploded" elevational view showing a bracket for supporting a panel,

FIG. 9 is a section through a vertical panel and two shelves showing the manner in which shelves are supported,

FIG. 10 is an "exploded" view of an alternative form of support block and rail support means for the partitioning required to extend down to the floor,

FIG. 11 is an "exploded" view showing one manner of supporting a glass shelf, and

FIG. 12 is a fragmentary view of a glazing extrusion.

Referring first to FIGS. 1, 2, 3, 4, 5, 6 and 7, a panel assembly 20 comprises a plurality of posts 21, a plurality of vertical panels 22, a plurality of vertical glass panels 23, a plurality of shelves 24, and spacer rails 25.

As shown in the drawings but in clearest detail in FIG. 4, each post 21 is of generally rectangular shape in cross-section, and each outer surface 28 is flanked along its side edges by a pair of outstanding flanges 29, each outstanding flange 29 having inturned lips 30 so as to form a narrow mouth channel. Each post 21 is also provided with centrally positioned inwardly directed ribs 31.

The upper end of the post 21 is closed by a closure member 34 which has a depending hollow tapered spigot 35 which is spread by a spreader plug 36 to firmly engage the ribs 31.

Each lower end of a post 21 (in all the embodiments except FIG. 10) is provided with a foot member 39 which threadably engages a retainer 40, which itself is retained in the post 21 by means of a screw 41 (FIG. 3). This provides means for adjusting the partitioning (which is inherently very rigid) with respect to uneven floors. The retainer 40 itself has a circular flange 42 which supports the lower edges of the vertical panels 22 as shown in FIG. 3. The foot member 39 is arranged to engage over, and be supported by, a circular button 43. The button 43 contains a slot positioned over a pin upstanding from the floor as shown in FIG. 3, and rotation of the button 43 permits final accurate alignment of a post 21.

Two types of vertical panels are used, the first type being formed from an opaque and substantially rigid member and designated as a vertical panel 22. A typical vertical panel 22 would consist of a ligno-cellulose chipboard having facing members of P.V.C. cemented thereto. The second type of vertical panel is a glass panel 23. FIGS. 2, 3 and 4 illustrate the manner in which these panels are secured.

Both the spacer rails 25 and the vertical panels 22 are secured to the posts in a releasable manner as shown in FIGS. 2, 3 and 4. The spacer rails 25 are provided with end plugs 44, and a screw fastener 45 secures a circular button 46 which is provided with an annular recess 47 to the end of the rail 25. As shown in FIG. 8, a button 46 is also similarly secured by a screw fastener 45 into a panel 22. The precise configuration of the button is illustrated in FIG. 7.

Within a narrow mouth channel formed by the inturned lips 30 there is disposed a number of retention clips 50, the precise configuration of which is illustrated in FIGS. 5 and 6. These are secured by means of screw fasteners 51 in positions which may be standard, thus providing interchangeability facilities for the system. As shown more particularly in FIGS. 5 and 6, each retention clip 50 is provided with a securing portion 52 containing an aperture 53 for the screw fastener 51, and the retention clip also has a pair of tongues 54 defining a bifurcate portion 55. The tongues 54 however stand away from the securing portion 52, and by a distance such that when a securing portion 52 is secured by a screw fastener 51 into firm abutment against an outer surface 28, the tongues 54 bear against the inner faces of the inturned lips 30. This can be seen in FIG. 8. In addition to this bearing against the inner surfaces of the inturned lips 30 (which transfers load from the clip 50 to the lips 30) the tongues 54 are themselves of curved shape as shown in FIG. 6, and the retention clip 50 is formed of resilient material, and the dimensions of the interengaging portions are such that the engagement of the tongue 54 in the recess 47 of the circular button 46 deflects the shape of the tongues 54 to a flatter shape, so that even if there is a variation in manufacturing tolerance a spring pressure is still effective in drawing the vertical edge of the vertical panel 22 into firm abutment engagement with the outermost surfaces of the inturned lips 30. This results in a very firm engagement under all conditions. It is this feature which greatly facilitates the construction of an inexpensive yet effective partitioning system.

The above described method for securing the vertical panels 22 is clearly unsuited for securing the glass panels 23. The glass panels 23 are retained along their vertical edges by means of an extrusion of aluminium designated 60 which is itself provided with "keyhole" slots 61, and retained by screw fasteners 62 the heads of which can pass through respective enlarged ends of the keyhole slots but not through the slot portions thereof. The glazing extrusion 60 are positioned upon assembly after the vertical panels 22 have been positioned, and are moved downwardly to engage against respective buttons 46 secured to the edges of the panels 22 to prevent possible dislodgement of these panels. Each extrusion 60 is provided with outstanding flanges 63 which engage against the inner surfaces of the lips 30. The configuration of an extrusion 60 is illustrated in FIG. 12. Since it is undesirable for the edges of a glass panel to be supported by metal, a small plastics or other elastomeric channel 64 is interposed between the vertical edges of the glass panel 23 and the extrusion 60.

This invention is useful for supporting vertical panels 22 of considerable length. However long panels will tend to bow in a lateral direction, and to avoid this the invention further includes edge extrusions 67, each edge extrusion 67 having a central tongue 68 which engages in a slot 69 in the upper or lower edge of the

panel 22. Each edge extrusion 67 is provided with an outwardly facing channel 69 of such dimension as to receive and firmly support a glazing channel 64.

In FIG. 9 there is illustrated an arrangement which is used to support the shelves 24 from a vertical panel 22. Each shelf 24 is provided with a routed slot 71 in its lower surface, and an aperture is formed through the panel 22 to contain a threaded screw 72. The ends of the threaded screw 72 are threadably engaged by nuts 73, each nut 73 having a recess on its underface terminating in an annular ridge 74, and its outer end is provided with a hexagon recess 75 arranged to receive the end of a hexagon male spanner. By tightening the threaded members 73, the edges of the shelves 24 are urged into firm engagement with the side faces of the vertical panel 22.

FIG. 10 illustrates an alternative embodiment to that shown in FIGS. 2, 3 and 4, wherein a post support block 78 performs the same function as the foot member 39 except that it is not adjustable for height. The post support block 78 is provided with a central upstanding spigot 79 which engages within a post 21, and this is surrounded with a plurality of small spigots 80 which prevent rotational movement of the post on the post support block 78. The post support block 78 is provided with downturned flanges 81 along its sides, and these are themselves provided with notches 82 which receive the upturned ends 83 of joining members 84, the joining members 84 themselves being retained by edge extrusions 85.

FIG. 11 illustrates a method which may be employed for supporting a glass shelf 88 from a post 21. A nut 89 is threadably engaged by a knurled headed screw 90 which passes through a washer 91 to clamp over the intumed lips 30, and a support block 92 engages over the head 90, the support block 92 being of elastomeric material which is resilient for supporting a face of the glass shelf 88 near its corner.

It will be understood that the foregoing disclosure of preferred embodiments of the present invention is for purposes of illustration only, and that various structural and operational features disclosed may be modified and changed in a number of ways none of which involves any departure from the spirit and scope of the invention as defined in the hereto appended claims.

I claim:

1. A panel assembly comprising a plurality of posts, a plurality of panels, and interconnecting means releasably securing the panels to the posts,

each post having a cross-sectional shape which is generally rectangular, each outer surface of the post being flanked along its side edges by a pair of outstanding flanges with intumed lips forming a narrow mouth channel,

each panel having a vertical edge surface in abutment with a said pair of outstanding flanges,

said interconnecting means comprising a plurality of retention clips engaged by a corresponding plurality of buttons; each retention clip having a securing portion and a pair of tongues defining a bifurcate portion, an aperture in the securing portion, a screw fastener extending through the aperture and

retaining the securing portion in firm abutment against a said outer surface and between the flanges flanking that outer surface, the tongues standing away from said outer surface and abutting the inner surfaces of the intumed lips; each button having an aperture therethrough, a fastener extending through the aperture and retaining the button to a said edge of a panel, and a groove in the button engaging the tongues.

2. A panel assembly according to claim 1 further comprising spacer rails extending between adjacent posts, and said interconnecting means between the spacer rails and the posts.

3. A panel assembly according to claim 1 wherein each button of said interconnecting means is a circular shape and has an annular recess, and a screw threaded faster extends through each button.

4. A panel assembly according to claim 1 wherein said tongues of each retention clip are of curved shape such that upon engagement with a recess in a said button the tongues are deflected by said button to a flatter shape.

5. A panel assembly according to claim 1 further comprising a closure member on the upper end of each post, each closure member having a depending hollow spigot containing a spreader block into the hollow of the spigot spreading the spigot and urging it into firm engagement with inner walls within the post.

6. A panel assembly according to claim 1 further comprising screw threaded foot members supporting each post, each foot member comprising a circular floor engaging button, a diametrically extending slot engageable over a pin member when upstanding from a floor so that rotation of the circular button provides position adjustment means for the post, each screw threaded foot member threadably engaging a retainer in the lower end of the post, said retainer comprising a circular flange which extends radially downwardly beyond the outer walls on the post.

7. A panel assembly according to claim 1 further comprising a constant section member engaging both the outer surfaces and the facing surfaces of said intumed lips of a said post and retaining an edge of a glass panel.

8. A panel assembly according to claim 7 further comprising a channel shaped member of polymeric material interposed between said glass panel edge and said constant section member.

9. A panel assembly according to claim 1 further comprising a shelf, a slot in the end side of the shelf near an edge thereof, a threaded retaining screw supported by said panel assembly, and a nut threadably engaging said screw and also engaging a side edge of said slot.

10. A panel assembly according to claim 1 further comprising a shelf supported by a support block, an aperture in the support block a headed threaded member and nut arranged to clamp between them said intumed lips on a said post, the head of said member being engaged in said support block aperture to thereby support said block.

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