

Jan. 12, 1971

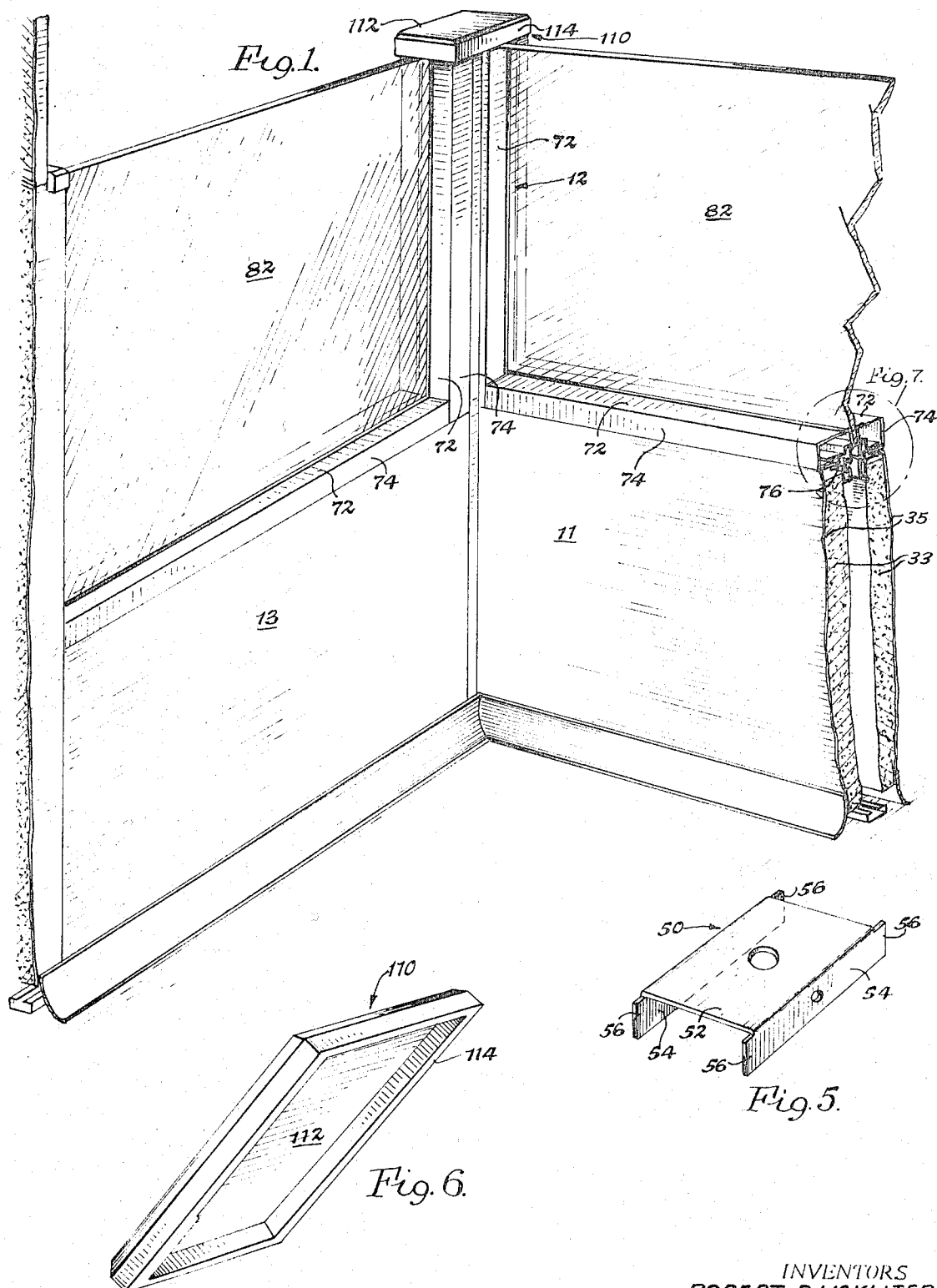
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3,553,916

WALL STRUCTURE

Filed Nov. 20, 1968

4 Sheets-Sheet 1



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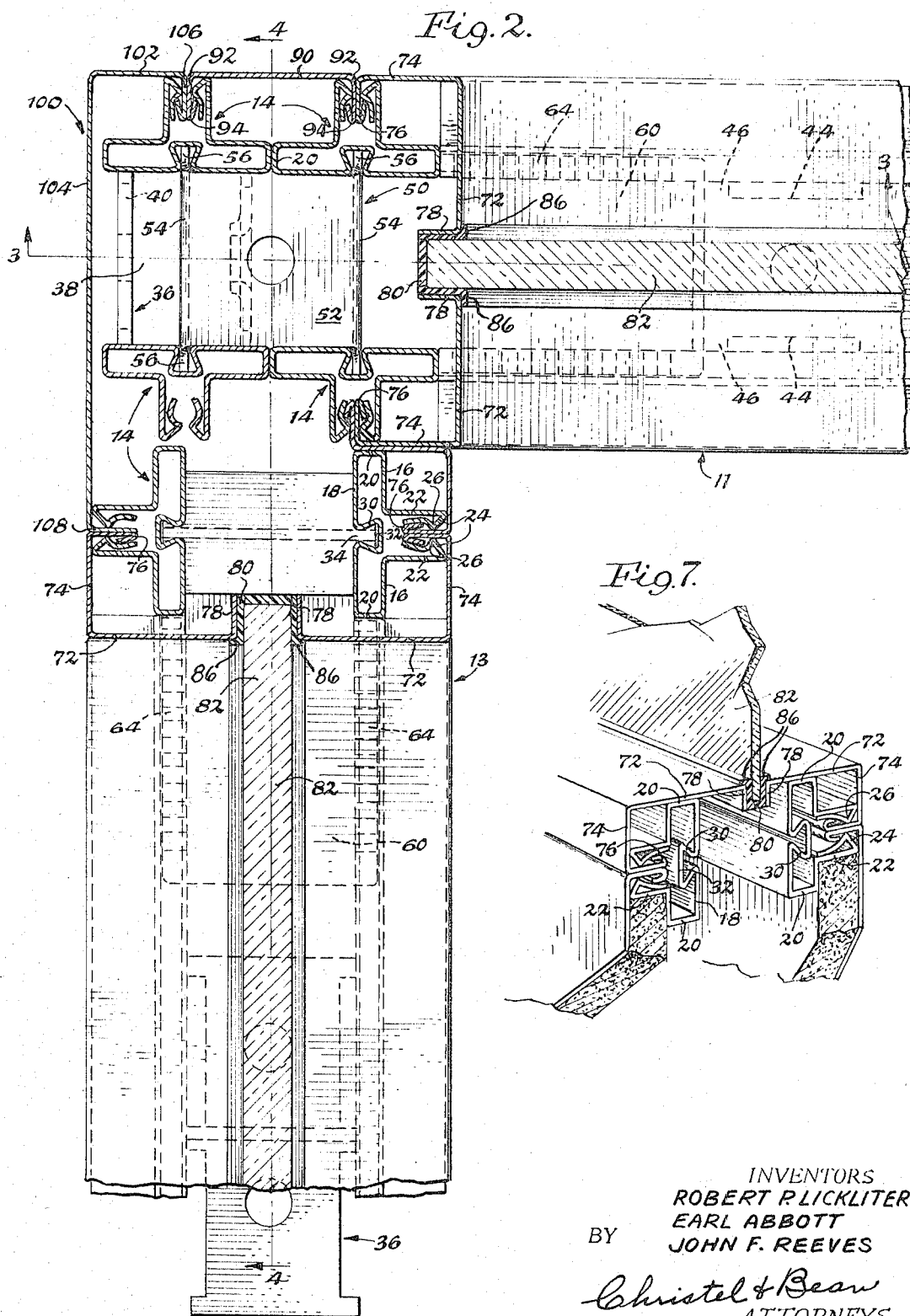
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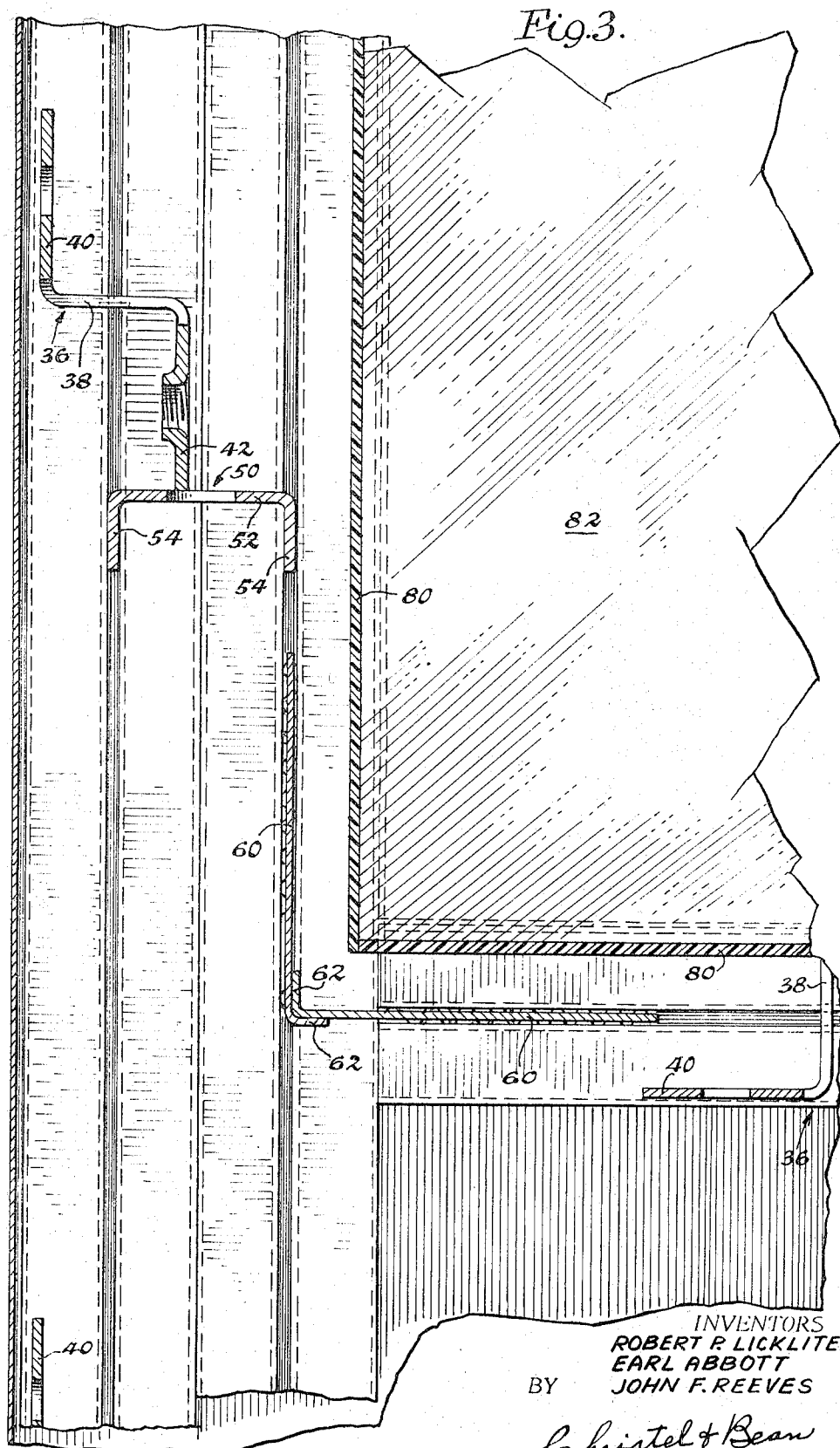
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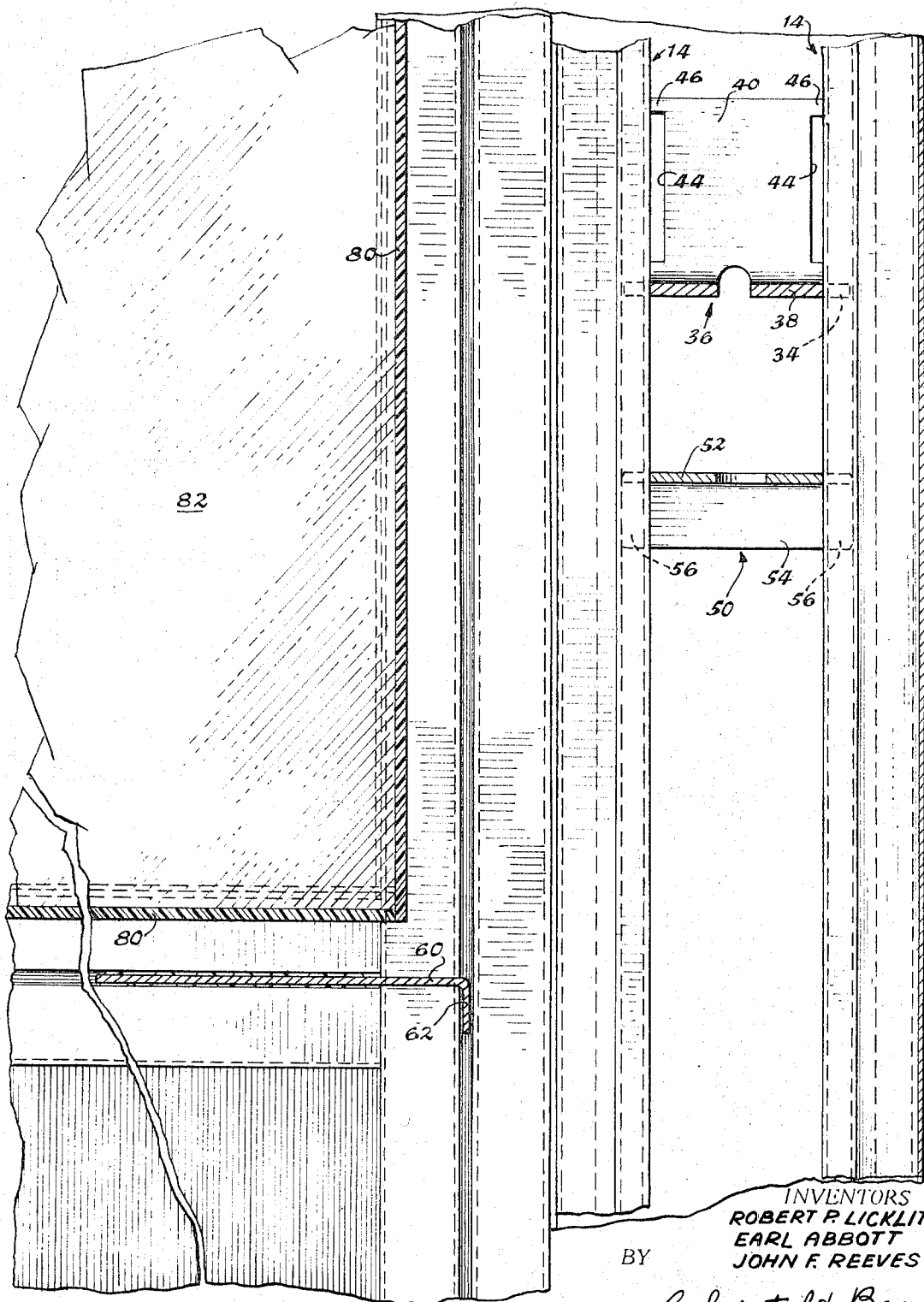
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4 Sheets-Sheet 4

Fig. 4.



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WALL STRUCTURE

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Continuation-in-part of application Ser. No. 703,955, Feb. 8, 1968. This application Nov. 20, 1968, Ser. No. 777,439

Int. Cl. E04b 2/78

U.S. Cl. 52—281

12 Claims

ABSTRACT OF THE DISCLOSURE

A pair of double wall rails for supporting window panes are angularly related and meet to form a corner. A pair of side-by-side panel connectors facing another pair of side-by-side panel connectors are interlocked together by means of a channel clip having extensions insertable into all four panel connectors to form a box-like rigid corner post supporting structure for the angularly related rails. A cover is provided for closing the top of the corner post construction and cover plates are used to enclose exposed portions of said corner post.

CROSS-REFERENCE TO A RELATED APPLICATION

This application is a continuation-in-part of application Ser. No. 703,955, filed Feb. 8, 1968 on a Wall Structure.

BACKGROUND OF THE INVENTION

This invention relates generally to the construction art, and more particularly to certain new and useful wall panel constructions having a novel corner post construction and interlocking means therefor.

Various pre-fabricated, modular arrangements for erecting partition and rail structures are known. Application Serial No. 703,955 discloses panel support structures in the form of panel connectors maintained in spaced relationship by detachable interlocking spacer elements interposed between the panel connectors. A problem is encountered in providing upstanding corner posts having the requisite stability and strength to support adjacent window units, as in bank rail constructions and the like.

SUMMARY OF THE INVENTION

It is an object of this invention to provide a corner post construction providing stability and strength at the corners of angularly related rail structures.

It is still another object of the present invention to provide an interlocking clip for such a corner post construction.

In carrying out this invention, two pairs of side-by-side panel connectors are disposed in opposed relationship and detachably interlocked by means of a channel clip having extensions insertable into all four panel connectors to form a rigid corner post construction for angularly related rail structures. The rail structures support upstanding window panes or other transparent or opaque barriers. A cover is provided for closing the exposed top end of the corner post. Cover plates are used to cover exposed portions of the side walls of the corner post.

The foregoing and other objects, advantages and characterizing features of the present invention will become clearly apparent from the ensuing detailed description of certain illustrative embodiments thereof, taken together with the accompanying drawings wherein like reference numerals denote like parts throughout the various views.

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BRIEF DESCRIPTION OF THE DRAWING FIGURES

FIG. 1 is a fragmentary perspective view of a double wall panel rail constructed in accord with the present invention;

FIG. 2 is a fragmentary, horizontal sectional view, on an enlarged scale, of the corner post construction of FIG. 1;

FIG. 3 is a fragmentary, vertical sectional view taken about on line 3—3 of FIG. 2;

FIG. 4 is a fragmentary, vertical sectional view taken about on line 4—4 of FIG. 2;

FIG. 5 is a perspective view of a channel interlocking clip used with the present invention;

FIG. 6 is a perspective view of a cover for the top end of the corner post of the present invention; and

FIG. 7 is a fragmentary detail view showing the rail structure of this invention incorporating a window pane.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings and particularly to FIG. 1, there is shown a wall structure in which an illustrative embodiment of the present invention is incorporated. The wall structure comprises a double wall panel construction in the form of a fence or rail having windows extending upwardly therefrom. The double wall panel rail construction comprises opposed panel members 10 defining opposite wall surfaces extending upwardly from the floor to the top of the rail and which meet to form a corner. For convenience of description, the angularly related rails will be indicated 11 and 13. In accordance with this invention, a corner post 12, hereinafter more fully explained, located at the juncture of rails 11 and 13 provides the requisite stability and strength for the corner rail structure.

Panels 10 are mounted and supported in properly spaced relation by means including panel connectors, generally designated 14, extending in both a vertical and horizontal direction and adapted to receive the side edge portions of the supported panels 10. Panel connectors 14 can comprise a sheet metal fabrication of unitary, one-piece construction formed to provide a rectangular body portion having front face portions 16 and a rear face 18 joined and spaced apart by opposite side faces 20. Face portions 16 and face 18 are generally parallel and a pair of flange portions 22 extend outwardly from face portions 16 in a direction generally normal thereto, away from face 18. Face portions 16 and flange portions 22 thereby define a pair of corners adapted to receive the edge portions of adjacent panel members 10, with panel members 10 resting against face portions 16. The metal or other sheet material of which connectors 14 are fabricated also is folded over at the outer end of flange portions 22 to provide cam surfaces 24 leading to opposed shoulder portions 26, the opposite edges of the sheet material terminating within the opening provided between flange portions 22, as clearly shown for example in FIG. 2.

Connector 14 also is formed to provide an internal channel having inwardly diverging side walls 30 leading to a rear wall 32 and providing a restricted inlet opening 34 through face 18. Channel 30—34 extends the full length of connector 14 in alignment with the opening between flange portions 22, the channel proper being entirely confined within the rectangular body portion 30—34 of the connector as shown. Panel connectors of this type are shown in application Serial No. 703,955.

Each panel member 10 (FIG. 1) includes a body 33 of gypsum, wallboard or any other suitable material, covered with a skin 35 of metal or other thin sheet material

which can be painted or decorated to provide any desired effect. Skin 35 extends beyond panel body 33 at its opposite side edge portions and is formed to provide an intumed skirt adapted to be inserted between the flange portions 22 of adjacent panel connectors 14. The skirts are formed to provide intumed shoulders engaging behind connector shoulders 26 with a snap fit thereby holding the panel bodies 33 against connector face portions 16 as shown in Serial No. 703,955.

Spacer clips 36 (FIGS. 3 and 4) of generally Z-shaped configuration are provided for maintaining panel connectors 18, whether horizontal or vertical, in properly spaced relation. Spacer clips 36 each comprise a web body 38 spanning the space between a pair of opposed panel connectors 14 as shown in FIG. 4 and having at opposite sides thereof locking heads which fit within channels 30-34 to interlockingly engage a pair of panel connectors 14 at opposite sides of spaced clip 36. Oppositely directed legs 40 and 42 are provided at opposite ends of body 38 and are recessed at the lateral edges thereof as at 44 defining ears 46 having bearing surfaces contacting the rear faces 18 of opposed panel connectors 18. This spacer clip is disclosed in detail in patent application Serial No. 777,438 filed simultaneously herewith and assigned to the same assignee as the instant application.

A significant feature of the present invention is the provision of corner post 12, which can be readily assembled and dismantled while possessing the requisite stability and strength to provide a firm, secure corner wall construction. As shown in FIG. 2, corner post 12 comprises a pair of vertical panel connectors 14 extending side-by-side and disposed in an opposed relationship with another pair of vertical panel connectors 14 also extending side-by-side. In accordance with the present invention, a clip 50 is provided for interlocking the four panel connectors together. Clip 50 comprises a body 52 spanning the space between the paired, oppositely facing panel connectors 14. Channel clip 50 is generally channel-shaped, being of inverted, generally U-shaped transverse configuration having opposite side walls 54 which are provided with extensions 56 at their respective opposite ends. Extensions 56 are adapted to be inserted within channels 30-34 with a friction fit to provide a snug-fitting interlocking engagement between channel clip 50 and panel connectors 14. If desired, more than one channel clip 50 can be provided and spaced longitudinally along the lengths of panel connectors 14 in the corner post construction.

Paneled rail 11 comprises a pair of opposed panel connectors 14 extending horizontally along the upper edge of rail 11 (see FIG. 1) for receiving the upper edges of panel members 10. The ends of horizontally extending connectors 14 abut the side walls of the vertically extending connectors 14 which form corner post 12. As shown in FIG. 3, a pair of panel connector clips 60 having right angled flanges 62 overlapping each other are provided for joining the vertical and horizontal panel connectors 14 together. Panel connector clips 60 have serrated edges 64 insertable in channels 30-34 of connectors 14 so as to secure the same with a friction fit. FIG. 4 shows a similar panel connector clip 60 joining the horizontal connectors 14 of the other right angularly related rail 13 with vertically extending connectors 14 which form a portion or extension of corner post 12.

In providing windows for rails 11 and 13, paired elongated cover plates 70 are used each having right angularly related faces 72 and 74, the latter being provided with a shouldered skirt 76 substantially parallel to face 72 for snap-fitted engagement with the horizontally extending panel connectors 14. Faces 72 have intumed flanges 78 extending in a direction normal thereto, the opposed flanges 78 defining a channel for receiving a resilient elastic seal 80 in which a window pane 82 is mounted. Seal 80 supports window pane 82 and is of a generally U-shaped configuration in transverse cross section, having opposite side walls 84 provided with lips 86 overlapping

a portion of faces 72 of cover plates 70 and adhesively bonded thereto. Similar cover plates 70 extend vertically along corner post 12 (FIG. 2) adjacent rail 11 and rail 13 to secure the vertical edges of window pane 82 and to close portions of corner post 12. With reference to FIGS. 2 and 4, it will be seen that rail 13 terminates at the paired panel connectors 14 which constitute an extension of corner post 12 and that identical means are employed for securing a window pane 82 thereto.

An elongated channel cover plate 90 (FIG. 2) having side walls 92 is provided for bridging the two outer exposed panel connectors 14 located at corner post 12 for closing a portion of the same and presenting a substantially continuous, attractive, outside wall surface. Walls 92 are formed to provide shouldered skirts 94 for snap-fitted engagement behind the shouldered panel connector flange portions 22.

To complete the outside enclosure for corner post 12, an elongated cover 100 having right angularly related faces 102 and 104 is provided as shown in FIG. 2. Faces 102 and 104 have flanges 106 and 108 extending in a direction normal to their respective faces and received between shouldered flange portions 22 of two angularly related panel connectors 14 to close corner post 12, flange 106 being shouldered for snap-fit engagement with the associated panel connector.

A feature of the present invention is the provision of a cover 110 for closing the top ends of corner post 12. Cover 110 is of a substantially rectangular shape in plan and has a body 112 adapted to rest on the exposed top end of corner post 12 and a peripheral depending flange 114 encompassing the end portions of corner post 12 with a friction fit and abutting the top edges of angularly related window panes 82.

From the foregoing it is seen that the present invention fully accomplishes its intended objects and provides an improved double walled rail construction provided with strong, durable window mounting and sealing means. The angularly related rails are joined at a corner post construction formed of panel connectors oriented in a reinforced, box-like structure for added strength and rigidity and detachably interlocked by means of a channel clip. Covers are placed on the top end and the exposed portions of the panel connectors to provide an attractive corner post having smooth, substantially continuous wall surfaces.

Illustrative embodiments of this invention having been disclosed, it is to be understood that numerous modifications thereof can be made without departing from the spirit and scope of this invention as defined in the appended claims.

What is claimed is:

1. A corner post construction comprising: a first pair of opposed panel connectors each having a front face provided with panel connecting means and a rear face provided with a channel extending lengthwise thereof; first spacer clip means extending between said first pair of panel connectors and having locking heads engaged in said channels for maintaining said first pair of panel connectors in spaced-apart relation; a second pair of opposed panel connectors each having a front face provided with panel connecting means and a rear face provided with a channel extending lengthwise thereof; second spacer clip means extending between said second pair of panel connectors and having locking heads engaged in said channels thereof for maintaining said second pair of panel connectors in spaced-apart relation; and channel clip means comprising a body spanning the space between said panel connectors of said first and second pairs thereof and having opposite side walls each provided at opposite ends thereof with extensions projecting beyond said body; said extensions of one of said side walls being engaged in said channels of said first pair of panel connectors and said extensions of said other side wall being engaged in said channels of said second pair of panel

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connectors, thereby to hold said first and second pairs of panel connectors in side-by-side relation.

2. A vertical corner post construction as set forth in claim 1, together with a horizontally extending third pair of opposed panel connectors each having a front face provided with panel connecting means and a rear face provided with a channel extending lengthwise thereof; third spacer clip means extending between said third pair of panel connectors and having locking heads engaged in said channels thereof for maintaining said third pair of panel connectors in spaced-apart relation; and means joining said second and third pairs of panel connectors.

3. A corner post construction according to claim 2 together with a pair of cover plates having means interlocking with said opposed horizontally extending panel connectors, said cover plates having opposed faces defining a horizontally extending groove, and means disposed in said groove for receiving an edge of a window pane.

4. Supporting means according to claim 3 wherein said receiving means comprises an elastic, yieldable gasket of a generally U-shaped configuration in transverse section having opposite walls provided with lips extending in opposite directions normal to said opposite walls, said opposite walls abutting said opposed faces and said lips partially overlying said cover plates.

5. A vertical corner post construction as set forth in claim 2, wherein said joining means comprise panel connector clips having right angled flanges arranged in overlapping relation; said panel connector clips each having serrated edges, the serrated edges of one of said panel connector clips being engaged in the channels of said third pair of panel connectors and the serrated edges of the other of said panel connector clips being engaged in the channels of said second pair of panel connectors.

6. A corner post construction according to claim 1 together with a pair of cover plates having means interlocking with certain of said opposed panel connectors, said cover plates having opposed faces defining a vertically extending groove and means disposed in said groove for receiving an end of a window pane.

7. A corner post construction according to claim 6 wherein said receiving means comprises an elastic gasket of a generally U-shaped configuration in transverse section.

8. A corner post construction according to claim 1 including plates covering exposed portions of said corner post construction to form a corner post having substantially continuous side walls.

9. A corner post construction according to claim 1 including a cover for enclosing the exposed ends of said panel connectors.

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10. A corner post construction as set forth in claim 1, each of said panel connectors comprising an elongated body member of generally rectangular configuration providing a pair of generally parallel spaced-apart front and rear faces and a pair of side faces extending therebetween, said panel connecting means comprising a pair of generally parallel flanges extending from each of said front faces in a direction generally normal thereto and away from said rear face of the associated panel connector, and means providing shoulders on said flanges for interlocking with shouldered attaching means, each of said channels being disposed within the generally rectangular configuration of the associated body member and opening through said rear face thereof.

11. A corner post construction as set forth in claim 10, each of said panel connectors comprising a one-piece unitary construction of sheet material, the opposite edges of said material forming said shoulders and terminating within the opening between said flanges.

12. A corner post construction as set forth in claim 1, wherein said first and second spacer clip means comprise spacer clips of generally Z-shaped configuration each comprising a web body spanning the space between one of said pairs of opposed panel connectors and being provided with said locking heads at opposite sides thereof, each of said spacer clips further comprising oppositely directed legs at opposite ends of said web body thereof and having bearing surfaces contacting the rear faces of the pair of panel connectors held together by said spacer clips.

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U.S. Cl. X.R.

52—212, 239, 400, 493, 731