Oct. 1, 1968 E. V. EICHMAN 3,403,491

FRAMING STRUCTURE FOR GLAZED WALLS AND PARTITIONS

Filed July 27, 1966 4 Sheets-Sheet 1

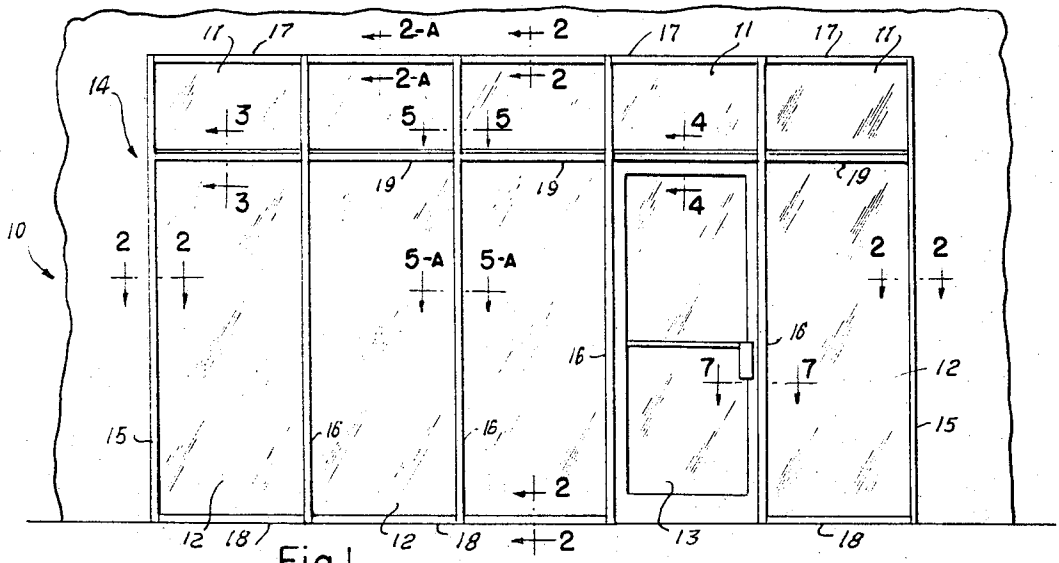


Fig.1

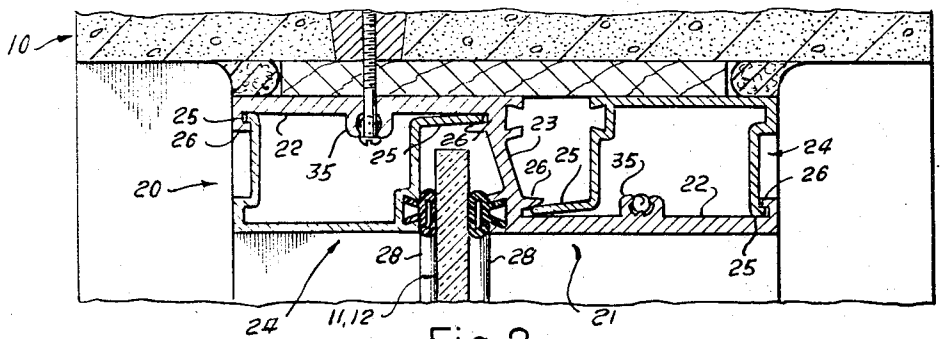


Fig.2

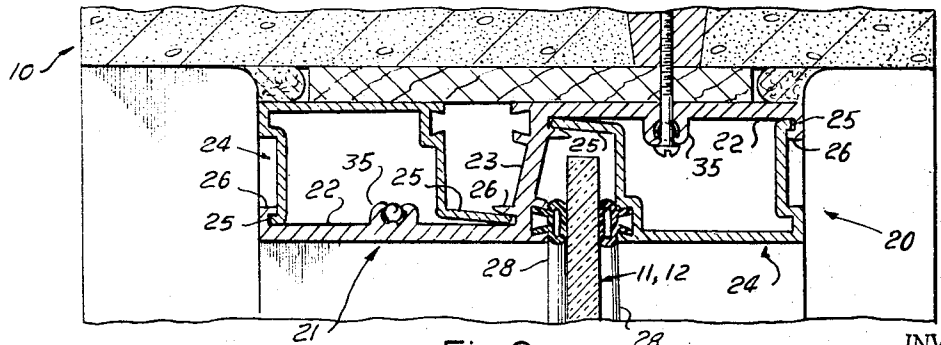


Fig.2-A

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FRAMING STRUCTURE FOR GLAZED WALLS AND PARTITIONS

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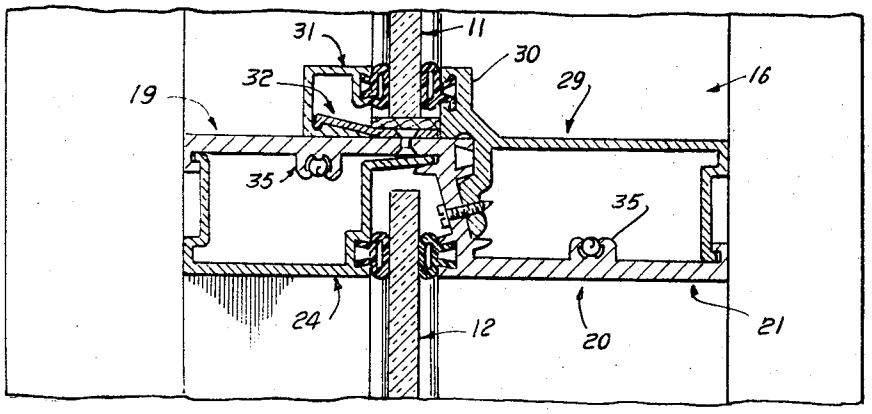


Fig. 3

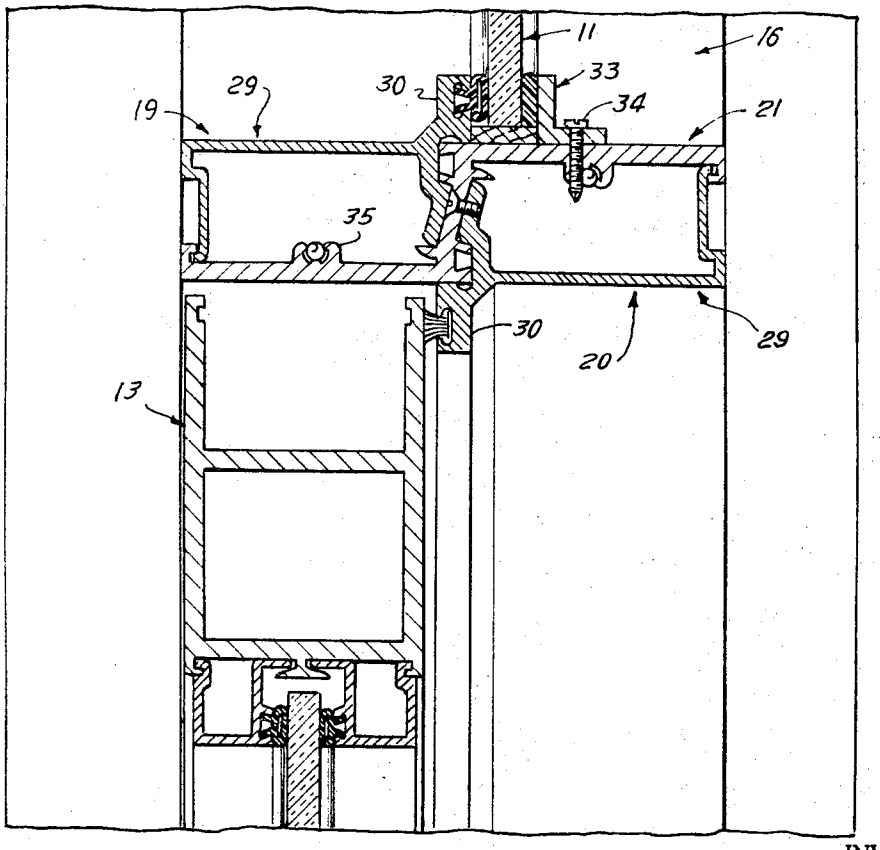


Fig. 4

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FRAMING STRUCTURE FOR GLAZED WALLS AND PARTITIONS

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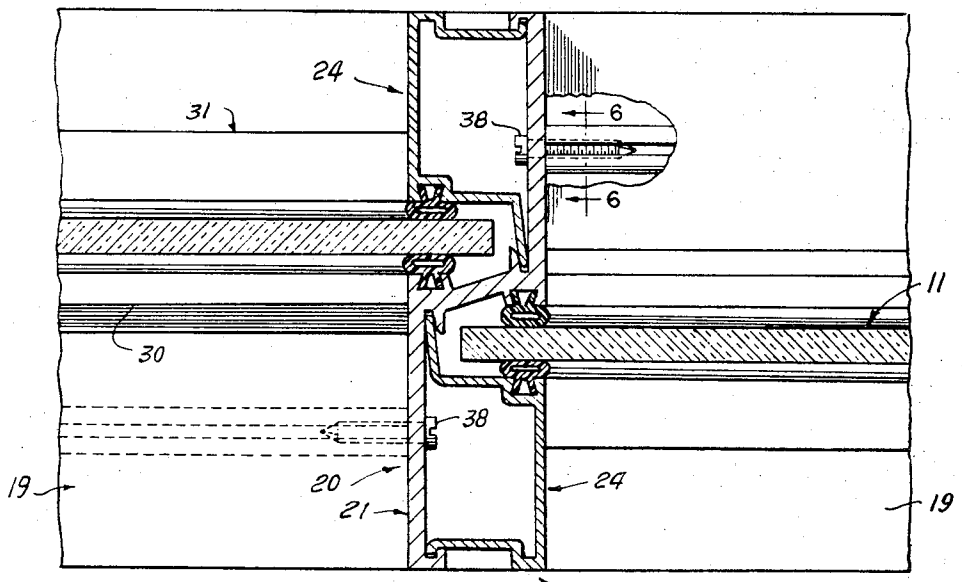


Fig.5

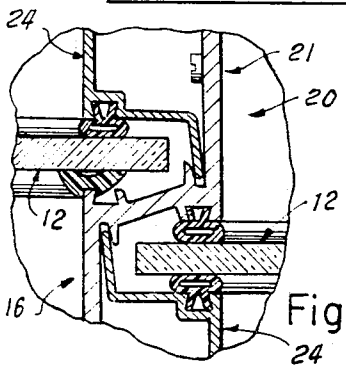


Fig.5-A

Fig.7

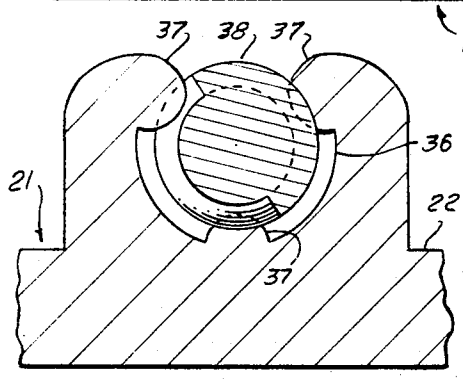


Fig.6

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FRAMING STRUCTURE FOR GLAZED WALLS AND PARTITIONS

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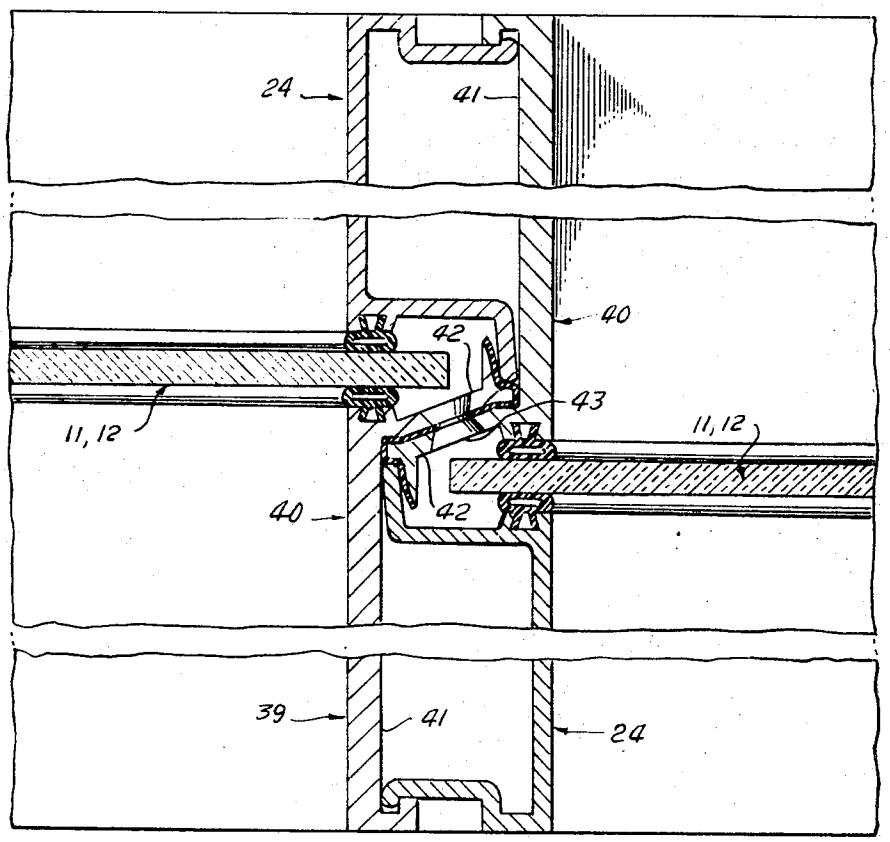


Fig. 8

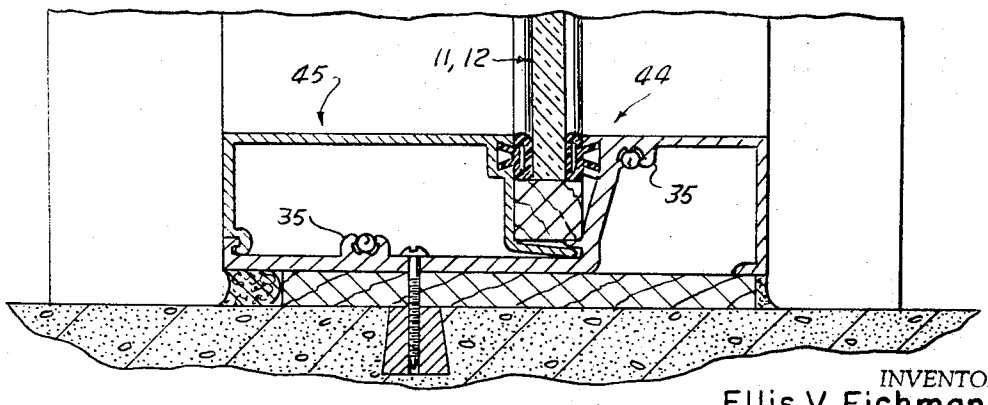


Fig. 9

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United States Patent Office 3,403,491 Patented Oct. 1, 1968

3,403,491

FRAMING STRUCTURE FOR GLAZED WALLS AND PARTITIONS

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Filed July 27, 1966, Ser. No. 568,239
6 Claims. (Cl. 52—397)

ABSTRACT OF THE DISCLOSURE

A wall structure comprising a plurality of panels of glass, or other suitable materials, and a framing structure to provide means for arranging the panels in offset planes, or in such manner that their adjacent edges are offset with respect to each other, whereby to present a relatively narrow profile materially reducing the lateral dimensions of the vertical and horizontal mullions supporting the panels.

This invention relates to a building wall or partition structure, and it has particular reference to a glazed wall having a plurality of panels in juxtaposed association, and having a novel arrangement of extruded metal parts which together provide a framing for the panels.

A prime object of the invention is that of arranging the individual panes of glass, or panels of other suitable materials, which form adjoining panels, so as to overlap slightly in their erected positions, and the extruded or formed parts which comprise the framing members including a mullion structure connecting the adjacent edges of adjoining panels in substantially side by side and mutually overlapping relation to each other.

Another feature of the invention is that the vertically and horizontally extending framing members which are engageable with corresponding edge portions of the respective panels, to secure them in place in the wall, each comprise a rigid, fixed portion yieldably engageable with one side of a panel and a separable portion, characterized by its inherent spring tension, removably connected to said first mentioned portion and which is yieldably engageable with the opposite side of the glass panel.

One of the primary objects of the invention is that of providing a frame structure by which the panels can be offset in their adjacency so as to permit the use of mullions and stiles having a minimum of inner and outer surface dimensions, thus reducing the cost of fabrication while yet presenting a more attractive appearance than is afforded by conventional framing members where the panels must be arranged in abutting edge to edge relation.

The mullion structure connecting the adjacent edges of adjoining panels includes a rigid, fixed portion which consists of an elongated strip, angular in transverse section, having marginal portions thereof adjacent to its lonigtudinal edges arranged in parallel, mutually offset relation to each other and connected by an inclined middle section.

The mullion structure further includes a pair of separable portions, each of which consists of an elongated strip, generally channel shaped in transverse section, which is flexible and has an inherent spring tension, and hook means on opposite sides of the rigid fixed portion, near its longitudinal edges and adjacent its inclined middle section, engageable with the longitudinal edges of the separable portions whereby the separable portions are removably connected to the rigid fixed portion.

In use the rigid fixed portion of the mullion is arranged transversely of and between the adjacent edges of adjoining panels, with its inclined middle section arranged diagonally between the panels and with the marginal portions adjacent its longitudinal edges extending laterally

outwardly beyond the sides of the panels opposite their opposing sides.

The inclined middle section of the rigid fixed portion of the mullions, and the adjacent sides of the respective separable portions, form between them a pair of oppositely facing channels each adapted to embrace an edge portion of one of the panels. Gaskets are attached to opposing faces of the fixed and separable portions of the mullion for yieldable and frictional engagement with opposite sides of a panel received therebetween, or the panel may be set in a sealing compound.

The mullion above described is representative of all of the extruded metal parts which together provide the framing for the panels, the parts being similar in many respects and being to some extent interchangeable.

Other objects of the invention will become apparent as the description proceeds, when considered in connection with the appended drawings wherein:

FIGURE 1 is a fragmentary front elevational view showing a wall structure, or partition, such as a store front, having incorporated therein an arrangement of panels, and framing therefor, embodying the invention.

FIGURE 2 is a transverse sectional view on an enlarged scale, taken on the lines 2—2 of FIGURE 1, showing one of the several outside frame members, which extend vertically and horizontally, respectively, about the periphery of the glazed area of the wall shown in FIGURE 1, in which an adjoining panel is mounted forwardly of the central axis of the frame members.

FIGURE 2A is a transverse sectional view, taken on the line 2A—2A of FIGURE 1, showing a horizontally extending outside frame member in which an adjoining panel is mounted rearwardly of the central axis of the frame member.

FIGURE 3 is a transverse sectional view, taken on the line 3—3 of FIGURE 1, showing a horizontally extending inside frame member which is positioned between two adjoining panels, above and below the frame member, both of which are mounted forwardly of the central axis of the frame member.

FIGURE 4 is a transverse sectional view taken on the line 4—4 of FIGURE 1, showing a horizontally extending inside frame member which is positioned above a door panel, between the door panel and an adjoining panel above the frame member, the door panel being mounted forwardly of the central axis of the frame member and the adjoining panel above the frame member being mounted rearwardly of the central axis of the frame member.

FIGURES 5 and 5A are transverse sectional views, taken on the lines 5—5 and 5A—5A of FIGURE 1, showing sections of a vertically extending inside frame member, above and below a pair of adjoining inside frame members, two of which are shown in FIGURES 3 and 4, which is positioned between two adjoining panels, on opposite sides of the frame member, which are mounted rearwardly and forwardly of the central axis of the frame member, respectively.

FIGURE 6 is a fragmentary sectional view on an enlarged scale, taken on the line 6—6 of FIGURE 5, showing a screw connection between one side of a vertically extending frame member and an adjacent end of an adjoining horizontally extending frame member in abutting engagement therewith.

FIGURE 7 is a transverse sectional view, taken on the line 7—7 of FIGURE 1, showing a vertically extending inside frame member which is positioned adjacent one side of a door panel, between the door panel and an adjoining glass panel, both the door panel and the adjoining glass panel being mounted forwardly of the central axis of the frame member.

FIGURE 8 is a transverse sectional view similar to FIGURES 5 and 5A showing a different form of the invention in which the fixed, rigid portion of a frame member is formed initially in two pieces which are thereafter connected, as by rivets, and separated by a gasket therebetween to prevent thermal transmission from inside to outside.

FIGURE 9 is a transverse sectional view similar to FIGURE 2A showing another form of the invention in which a frame member, suitable for use as a sill, is modified to provide more space on the front side of an adjoining glass panel, accessible upon removal of a separable portion of said frame member, for insertion of screws in the rigid, fixed portion of the frame member for attachment of the frame member to an adjoining wall section, for use in locations where the back side of the panels may be relatively inaccessible.

Referring primarily to FIGURE 1 of the drawing, the numeral **10** designates generally a building wall, or partition, shown fragmentarily, having a glazed area including a plurality of panels **11** and **12** arranged substantially edge to edge, and having a novel arrangement of extruded or formed parts, as hereinafter described, which together provide a framing for the panels **11** and **12**.

The panels **11** and **12** are arranged in two tiers, one above the other, in each of which a plurality of the panels **11** and **12** are arranged in a horizontally extending row, in parallel, substantially side by side relation to each other.

As shown in FIGURES 5 and 5A, the adjoining panels **11** and **12** of the respective rows are offset relative to each other, and adjacent marginal portions thereof mutually overlap. The uppermost panels **11** are each aligned vertically with one of the lowermost panels **12**.

The numeral **13** indicates a door panel, which is aligned vertically relative to two of the panels **12** which are positioned on opposite sides thereof, and which are mounted forwardly of their frame members, hereinafter referred to, as shown in FIGURE 7, and is offset relative to one of the panels **11** which is positioned above it, as shown in FIGURE 4.

This invention concerns a novel arrangement of extruded or formed parts, as hereinafter described, which together provide a framing, indicated generally by the numeral **14**, for the panels **11** and **12**.

The metal framing **14** includes a pair of vertically extending outside frame members **15**, a plurality of vertically extending inside frame members **16** which are positioned between the adjoining panels **11** and **12**, a plurality of horizontally extending outside frame members **17** and **18** which extend between the vertically extending frame members **15** and **16** immediately adjacent their upper and lower ends, respectively, and a plurality of horizontally extending inside frame members **19** which are positioned between the adjoining panels **11** and **12**.

The individual frame members **15**, **16**, **17**, **18** and **19**, as illustrated in FIGURE 1, are identical except as hereinafter described, and are substantially interchangeable, and are designated herein by the common numeral **20**.

Referring now to FIGURES 5 and 5A, the numeral **20** designates generally a frame member which as illustrated comprises a mullion structure whereby the adjacent edges of the adjoining panels **11** and **12**, as the case may be, are connected in side by side, mutually overlapping relation to each other.

The frame member **20** includes a rigid, fixed portion **21** which consists of an elongated strip, angular in transverse section, having marginal portions **22** thereof adjacent its longitudinal edges arranged in parallel, mutually offset relation to each other and connected by an inclined middle section **23**.

The frame member **20** further includes a pair of separable portions **24**, each of which consists of an elongated strip, generally channel shaped in transverse section, characterized by its flexibility and its inherent spring tension, and having outwardly flanged marginal portions **25**.

The rigid, fixed portion **21** of the frame member **20** has two pairs of continuous, longitudinally extending inwardly turned integral hooks **26** for overlying engagement with the outwardly flanged marginal portions **25** of the separable portions **24**, whereby the separable portions are adapted to be removably connected to the rigid, fixed portion **21**, on opposite sides thereof, in opposing relation to the respective marginal portions **22**. The separable portions **24** are adapted to be snapped in place by their inherent spring action.

In use the rigid, fixed portion **21** of the frame member **20** is arranged transversely of and between the adjacent edges of adjoining panels **11** and **12**, with its inclined middle section **23** arranged diagonally between the panels **11** and **12** and with the marginal portions **22** extending laterally outwardly beyond the sides of the panels **11** and **12** opposite their opposing sides.

The inclined middle section **23** of the rigid, fixed portion **21** of the frame member **20**, and the adjacent sides of the respective separable portions **24**, form between them a pair of oppositely facing channels, indicated by the numerals **27**, each adapted to embrace an edge portion of one of the glass panels **11** and **12**. Gaskets **28** are attached to opposing faces of the fixed and separable portions **21** and **24** of the frame member **20** for yieldable and frictional engagement with opposite sides of panels **11** and **12** received between them, or the panels may be glazed with a sealing compound.

As shown in FIGURES 3 and 4, a separable portion **29**, which is interchangeable with one of the separable portions **24** of the frame member **20**, has an extension **30** for abutting engagement with one of the uppermost panels **11** adjacent its lower edge. The separable portion **29** is connected to the middle section **23** of the rigid, fixed portion **21**.

FIGURE 3 shows an angular strip **31** removably connected to the rigid, fixed portion **21**, in opposing relation to the side of the panel **11** opposite the extension **30**, by means of a spring clip **32** which is connected to the rigid, fixed portion **21** by means of rivets or screws.

FIGURE 4 shows a right angular strip **33** of different design from the strip **31**, which is connected directly to the rigid, fixed portion of **21** by screws such as the screw **34**, or other securing device.

As shown in FIGURE 4, a separable portion **29** has been substituted for each of the separable portions **24**, and the extension **30** of one of the separable portions **29** depends therefrom for abutting engagement with the adjacent side of the door panel **13** in its closed position, for use as a stop.

As shown in FIGURE 6, the fixed rigid portion **21** of the frame member **20** has a continuous, longitudinally extending bead **35** on each side thereof. The beads **35** have arcuate grooves **36** therein, and have circumferentially spaced, radially inwardly extending protuberances **37** coextensive with the grooves **36**, which are step milled for engagement by the insertion of screws such as the screw **38** whereby an end portion of one frame member is adapted to be connected to an adjacent side of an adjoining frame member **20**.

FIGURE 7 shows an arrangement similar to that of FIGURE 4 in which the extension **30** on the separable member **29** depends therefrom for abutting engagement with the door **13**.

FIGURE 8 shows a modified form of the invention in which a rigid, fixed portion **39**, which corresponds to the rigid, fixed portion **21** of the frame member **20**, is formed in two pieces **40** each having portions **41** and **42** corresponding to one of the marginal portions **22** and the middle section, respectively, and thereafter the pieces **40** are connected at their middle sections **42** by rivets such as the rivet **43**. The two sections may be separated by a non-metallic gasket, to prevent thermal transmission.

FIGURE 9 shows another form of the invention in which a rigid, fixed portion **44**, which corresponds to the

rigid, fixed portion **21** of the frame member **20**, has incorporated therein features of one of the separable portions **24**, which has been omitted, and a separable portion **45**, which corresponds to the other of the separable portions **24**, is relatively wider.

The invention may be modified within certain limitations by persons skilled in the art without departing from the spirit and intent thereof or the scope of the appended claims.

What is claimed is:

1. In a panelled wall structure having vertical and horizontal frame members for supporting a plurality of panels, each of said frame members having a pair of laterally offset opposingly arranged bearing surfaces for said panels along one side of each of the adjacent edges thereof, a separable flexible portion detachably secured longitudinally of each of said frame members providing an opposing bearing surface for the opposite side of each of the adjacent edges of said panels, the said bearing surfaces of the frame members and the bearing surfaces of the separable portions together forming channels in separate planes whereby said panels, in their erected positions, have their surfaces in offset planes.

2. The structure of claim **1**, said separable portion being characterized by its inherent spring tension and said fixed and separable portions having mutually engaging means whereby said separable portion is adapted to be snapped in place.

3. The structure of claim **1**, the arrangement being such that the panel may be secured in place relative to the frame member by advancing it straight on relative thereto, the separable portion of the frame member first having been removed.

4. In a mullion structure connecting the adjacent edges of a pair of adjoining panels arranged substantially

side by side, in mutually overlapping relation to each other, the combination of a rigid, fixed portion consisting of an elongated strip, angular in transverse section, having marginal portions thereof adjacent its longitudinal edges arranged in parallel, mutually offset relation to each other and connected by an inclined middle section, a pair of separable portions each consisting of an elongated strip, generally channel shaped in transverse section, characterized by its flexibility and its inherent spring tension, mutually engaging means on opposite sides of the rigid, fixed portion and extending along the longitudinal edges of the separable portions whereby the separable portions are removably connected to opposite sides of the rigid, fixed portion, in opposing relation to the marginal portions thereof, by snapping them in place.

5. The structure of claim **4**, the inclined middle section of the rigid, fixed portion of the mullion, and the adjacent sides of the respective separable portions, forming between them a pair of oppositely facing channels each adapted to embrace an edge portion of one of the panels.

6. The structure of claim **5**, and cushion means attached to opposing faces of the fixed and separable portions of the mullion for yieldable and frictional engagement with opposite sides of panels received between them.

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