April 21, 1959 W. E. SHRODE 2,882,561

WINDOW WALL SECTION

Filed Dec. 16, 1955 4 Sheets-Sheet 1

Fig. 1.

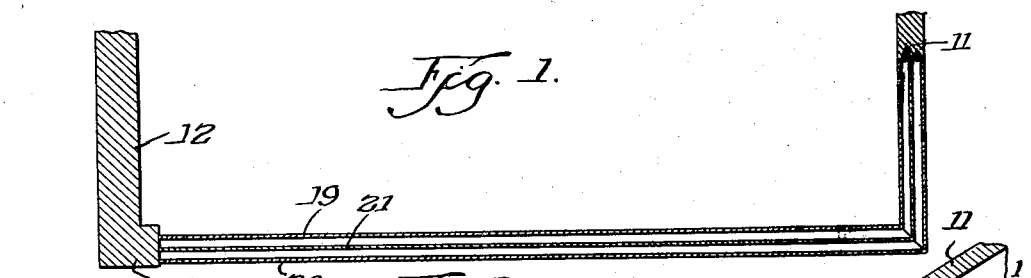


Fig. 2.

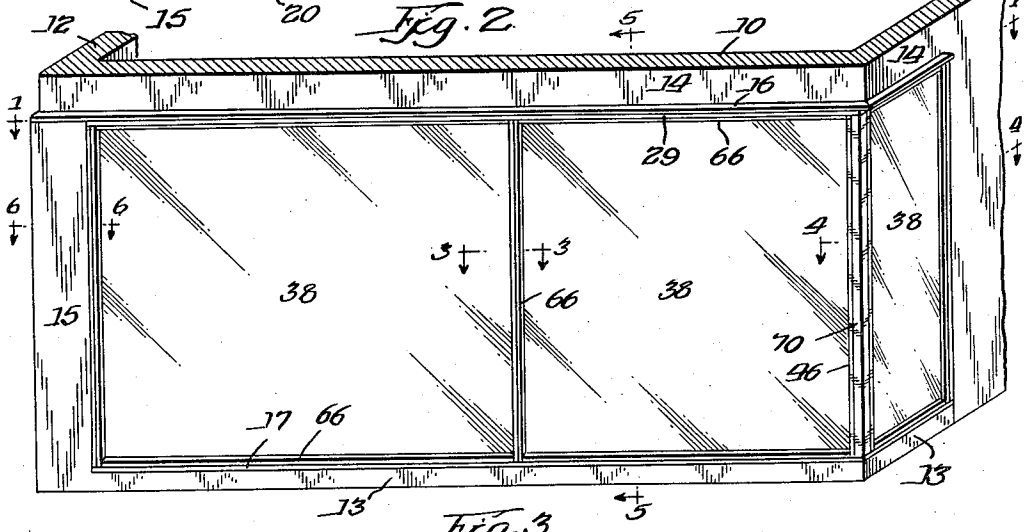
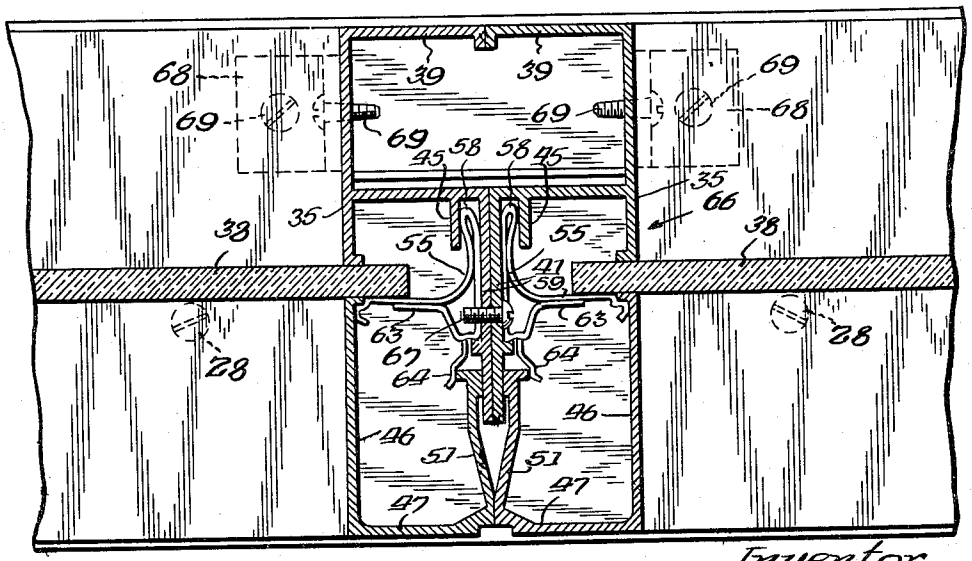


Fig. 3.



Inventor
Wilford E. Shrode.
By Wilkinson Huxley Byron & Hume
Attys.

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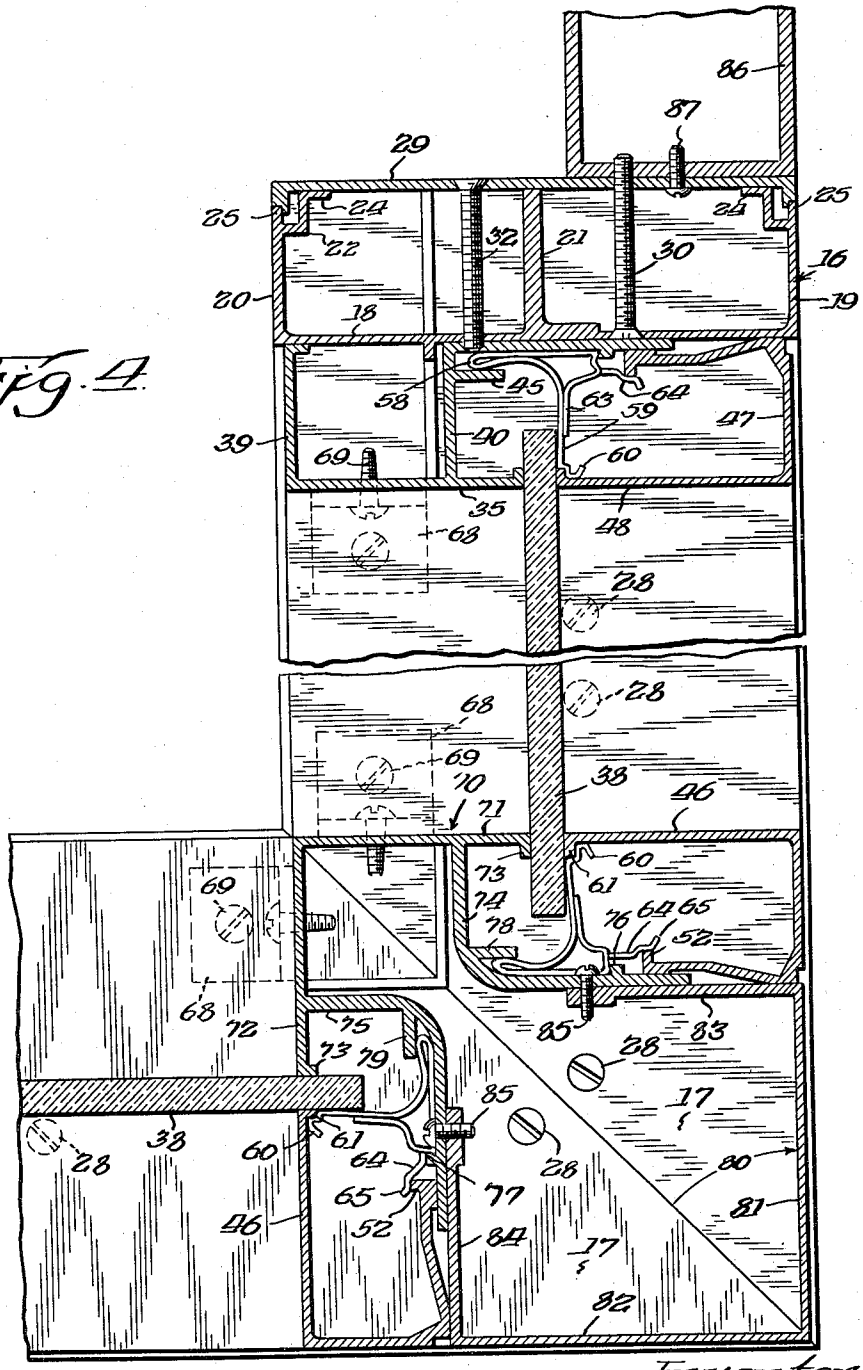
WINDOW WALL SECTION

Filed Dec. 16, 1955 4 Sheets-Sheet 2

Fig. 4.



Inventor:
Wilford E. Shrode.
By Wilkinson Huxley Byron & Hume
Attys

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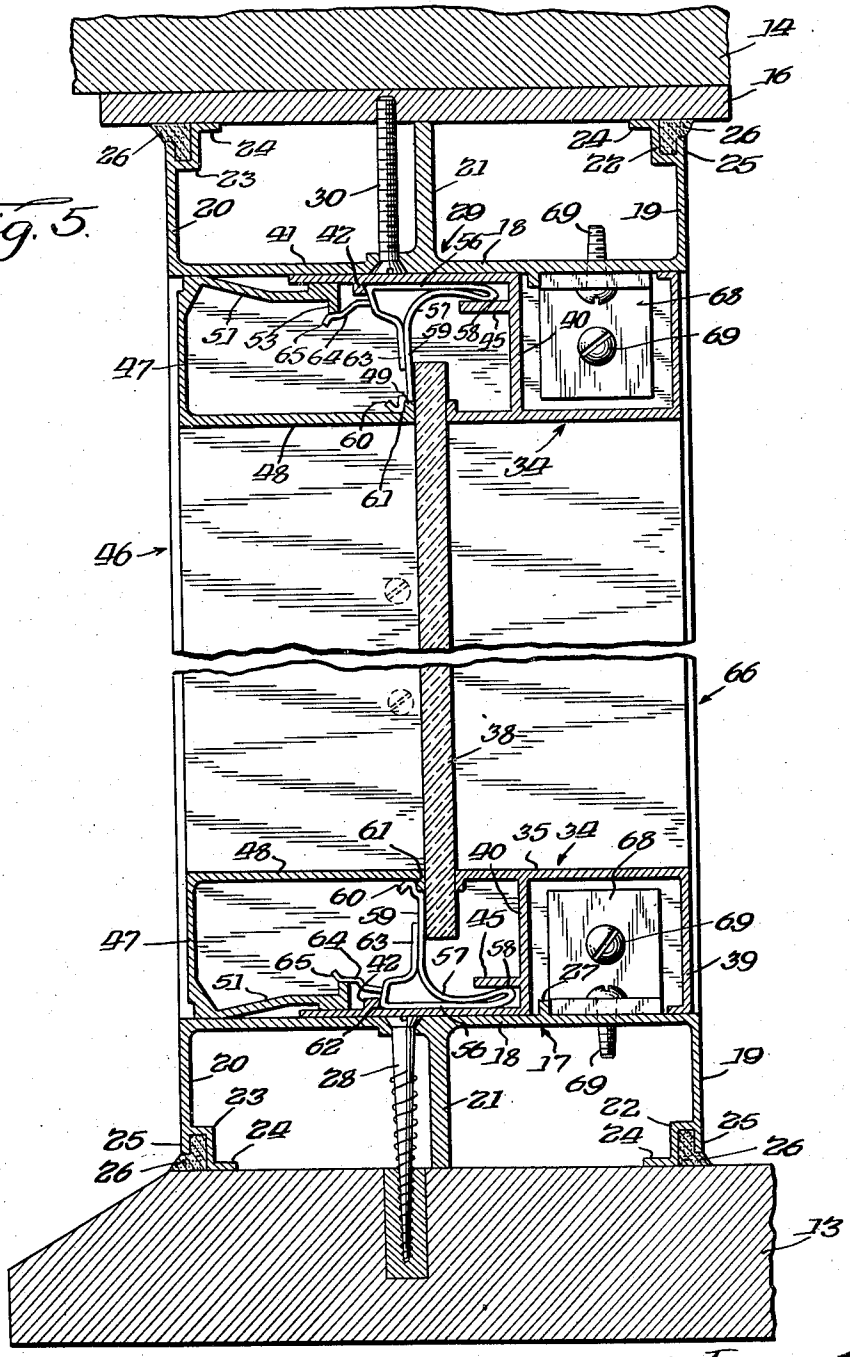
WINDOW WALL SECTION

Filed Dec. 16, 1955 4 Sheets-Sheet 3

Fig. 5.



Inventor.
Wilford E. Shrode
By Wilkinson Huxley Byron & Hume
Attys.

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WINDOW WALL SECTION

Filed Dec. 16, 1955 4 Sheets-Sheet 4

Fig. 6.

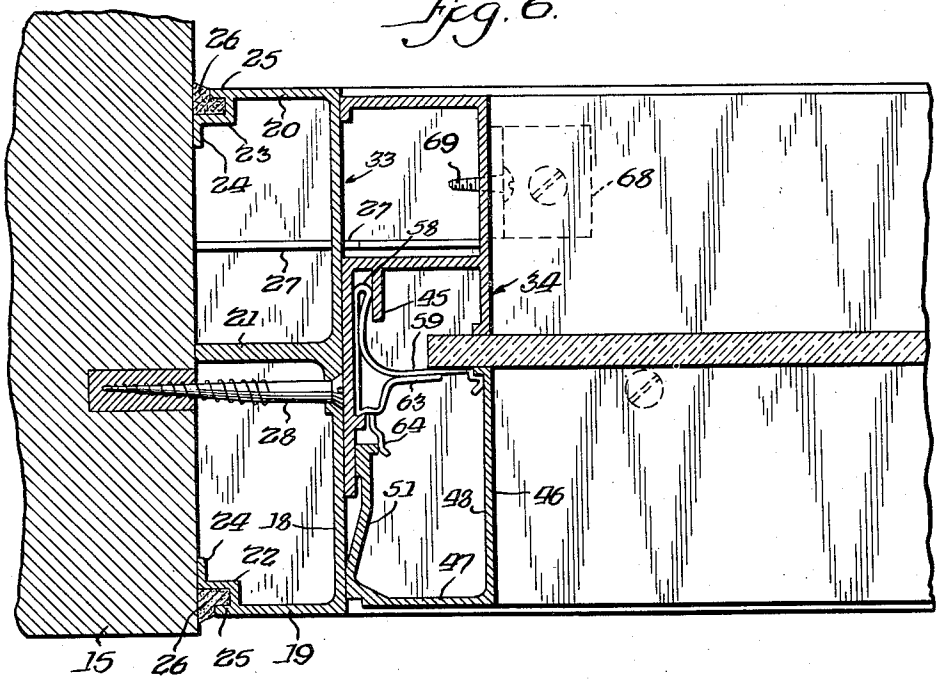


Fig. 7.

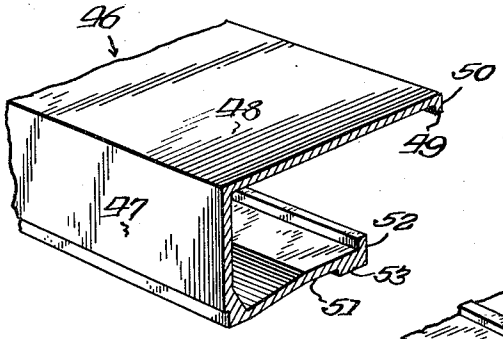
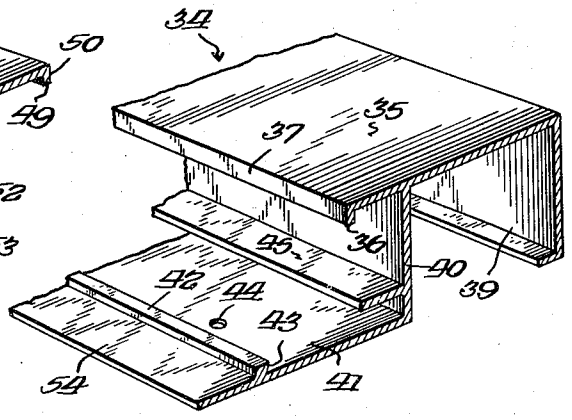


Fig. 8.



Inventor.
Wilford E. Shrode.
By Wilkinson, Huxley, Byron & Hume
Attys.

United States Patent Office 2,882,561 Patented Apr. 21, 1959

2,882,561

WINDOW WALL SECTION

Wilford E. Shrode, Blue Island, Ill., assignor to Brasco Manufacturing Company, Harvey, Ill., a corporation of Delaware

Application December 16, 1955, Serial No. 553,478

7 Claims. (Cl. 20—56.4)

My invention relates to window wall construction and has for its primary object the provision of a wall section made primarily of glass and mounting means therefor, so as to provide a wall section of fairly large area which is primarily adapted for use in store fronts, office buildings, school buildings and also, for homes, particularly where thermo-pane glass is used, forming a wall section similar to the large picture windows now in common use.

Another object of my invention is the provision of a glass wall section which can be fitted into old buildings of various types and kinds of wall construction as well as new buildings which may be made of brick, concrete, frame structure, or the like, and which are made of preformed members which may be cut to length in a shop and the entire wall assembled and installed on location and large glass panes of plate variety installed to close the wall section which glass panes can be set into place from the outside after the frames and inner size members are in position in the window opening and in case of breakage the outer size members and the glass pane holding means can be removed as well as the broken glass pane and replaced with a new glass pane without disturbing the major portion of the frame and the inside sash member.

Another and further object of my invention is a provision of a glass wall section which can be fitted into various sized wall openings and through the addition of corner members two glass wall sections can be provided which are at right angles to each other to form a wall section at the front of the building and a side section leading to a doorway or such wall section may be a complete side wall if desired, depending upon the type and character of the building.

Another and further object of my invention is the provision of a window wall section which primarily can be completed ready to receive a glass pane and in which the glass pane can be very quickly and easily inserted without the necessity of disturbing or altering the main frame in which the glass pane is mounted, thereby materially reducing the costs in the erection of glass wall sections in buildings. These and other objects of my invention will be more fully and better understood by reference to the accompanying drawings and in which

Fig. 1 is a cross-sectional view of a wall section comprising a front and side section at right angles to each other,

Fig. 2 is a diagrammatic perspective view of the wall section shown in Fig. 1,

Fig. 3 is a sectional view on lines 3, 3 of Fig. 2,

Fig. 4 is a cross-sectional view showing the corner and end wall construction on lines 4, 4 of Fig. 2,

Fig. 5 is a vertical sectional view through the main wall section taken on lines 5, 5 of Fig. 2,

Fig. 6 is a horizontal end view of the main wall sections taken on lines 6, 6 of Fig. 2,

Fig. 7 is a perspective view of a section of the outer sash member used as a part of my construction; and,

Fig. 8 is a perspective view of a section of the inner

fixed sash against which the glass pane engages at each of its ends and also at the top and bottom.

Referring now specifically to the drawings and in which like reference characters refer to like parts throughout, a building side wall 10 with end walls 11 and 12 joined thereto and having base sections 13, 13 supported upon any suitable foundation such as concrete, or the like, and having top portions 14, 14, is shown, all of which may be made of brick, cinder block, wood construction or the like, with a corner portion 15 being provided which connects the walls 10 and 12. The walls 10 and 11 have window openings therein which are defined by the corner portion 15, the base 13, top portion 14 of the wall 10, and by the corner formed by the walls 10 and 11, the solid portion of the wall 11, and by the top portion 14 and base section 13 of the wall 11. The top portions 14, 14 of the walls 10 and 11 are supported by plates 16, 16 which span the window openings in the walls 10 and 11 and are supported by the corner portions 15, 15 of the walls 10 and 12 (not shown) at one of its ends and by a pillar formed by the junction of the walls 10 and 11, and also by the wall 11, and is of sufficient strength to support the weight of a building extending above the walls 10 and 11.

A sill 17 is provided comprising a web portion 18 and outer flanges 19 and 20 and an intermediate flange 21 with the outer flanges 19 and 20 having Z-shaped portions 22 and 23 thereon which have foot portions 24 thereon which rest upon the base 13 with the outer edges 25, 25 of each of the flanges 19 and 20 being spaced upward from the base 13 and a plastic filling 26 being placed at the channel formed in the Z-shaped members 22 and 23 to provide a seal around the outer edges 25, 25 of the flanges 19 and 20 to prevent water, moisture and the like, from entering the space between the sill 17 and the base 13 of the wall. A longitudinal rib 27 is integrally formed in the web 18 for purposes hereinafter described. Screws such as 28 having flat heads pass through the web 18 of the sill 17 and into the base portion 13 so that the sill 17 is securely anchored on the base portion 13 of the walls 10 and 11.

A head jamb designated as a whole as 29 is provided which is a duplicate in cross-section of the sill 17 but is placed in an inverted position relative to the sill 17 and comprises a web portion 18, side flanges 19 and 20, the Z-shaped portions 22, and 23 having foot portions 24, 24 thereon which are fitted against the surface of the plate 16 and secured thereto by a plurality of flat head screws 30, 30 with the plastic filling 26, 26 being provided between the plate 16 and the edges 25, 25 of the flanges 19 and 20 thereby sealing the edges of the head jamb 29 firmly in position against the plate 16. If desired a cap 31 can be fitted over the open side of the head jamb 29 so that this channel section is closed as shown particularly in Fig. 4 of the drawings and the cap 31 secured in position by means of screws 32, 32 spaced along the length of the head jamb 29.

A side jamb, designated as a whole as 33, as provided, which is of the same dimensions and the same cross-sectional form as is the sill 17 and the head jamb 29, and is positioned against the corner section 15 with its open side against the said corner section 15 with the foot portions 24 of the flanges 19 and 20 and the edge of the intermediate flange 21 resting against the corner section 15 of the wall, and is secured thereto by a plurality of screws 28, 28 spaced from each other which securely anchors the side jamb 33 to the side wall 15 with its lower end of the jamb 33 preferably resting upon the sill 17 and its upper end in engagement with the head jamb 29, and which together with the sill 17 and head jamb 29 forms a mounting frame extending around three

sides of the window opening in the wall 10 for the window sash mounted therein as hereinafter described.

Inner sash members 34, 34 are provided one of which is mounted upon and extends parallel with the sill 17, in a horizontal position as a lower inside sash member; another is mounted against the under side of the top jamb 29, in a horizontal position as an upper inside sash member, while a third is mounted against the side jamb 33 and extends vertically at one side of the glass pane; a fourth inside sash member extends vertically on the opposite side of the glass pane and may form part of a mullion, a corner, or it may be secured to a side jamb such as 33 mounted on the wall of the building, all of which members will be hereinafter described. The lower ends of each of the vertical side sash members rest upon the sill 17 with the top ends in abutting engagement with the head jamb 29 while the horizontal inside sash members of each of their ends in abutting engagement with the faces of the vertical sash members thereby forming a rectangular frame within which the glass pane is mounted. A section of one of these inside sash members 34 is shown in perspective in Fig. 8 of the drawings. The inner sash members 34, 34 consist of a channel section having a web portion 35 which has a rib 36 thereon providing a flat surface 37 which engages against the inner face of a glass pane 38, and has a flange portion 39 integrally formed therewith and a flange portion 40 which has a plate portion 42 depending from the edge of the flange 40 and extending in an outer direction, and which has a rib 42 thereon which has an undercut side 43 along its edge facing the flange 40 and has openings 44 therein for purposes hereinafter described. A rib 45 integrally formed with the flange 40 is provided which extends parallel with and spaced from the plate portion 41 extending outwardly from the flange 40.

A plurality of outer sash members designated as a whole as 46 are provided, which sash members are generally in the form of channel sections having a web portion 47, a widened flange portion 48 which has an inturned edge 49 thereon providing a flat surface 50 which is fitted against the inner face of the glass pane 38, and serves to assist in holding the glass pane 38 in position and as a protective covering for the internal portion of the mechanism mounted in the inner sash member 34. The web 47 has a flange portion 51 integrally formed therewith which has a rib portion 52 formed thereon with the flange 51 being slightly angularly disposed and increased in thickness at 53 which, when the sections 34 and 46 are placed in operative relation with each other, bears upon the outer edge portion 54 of the plate portion 41 extending outward from the flange portion 40 of the inner sash member 34.

A plurality of spring clips 55, 55 are provided which are described in detail in my co-pending application Serial No. 545,599, filed November 8, 1955, now Patent No. 2,813,313, issued November 19, 1957. The spring clips 55, 55 consist of thin, flat, spring sections of metal folded intermediate their ends into two leg portions, the lower leg portion providing a base 56 for the spring clip which rests upon the top surface of the extension plate 41 of the inside sash member 34 with the base portion 56 being slightly arcuate in shape and with a second leg portion 57 being folded over the base portion 56 with a curved end 58 which is anchored under the rib 45 with a leg portion 57 being extended to form a glass pane engaging portion 59 which terminates into a curved end portion 60 with a recess 61 formed therein, into which the flange 49 on the outer sash member 46 extends when the device is in assembled relation. The lower leg portion 56 is bent at a sharp angle forming an edge portion 62 which engages in the undercut edge 43 of the rib 42 on the extension 41 of the inner sash member 34 and is bent inward with a vertical portion 63 being provided which is in face-to-face engagement with the portion 59 of the leg portion 57 and serves as a reinforcing spring tension member for the clip when it is placed under tension in assembled relation with the window sash. A struck out portion 64 is provided from the leg portion extending from the base 56 and terminates in an upturned end 65 which is fitted over the edge of the rib 52 on the flange portion 51 of the outer sash engaging member and exerts a considerable amount of tension upon this rib 52 when the outer sash member 46 is placed in position in the assembling operation of the sash.

As shown in Fig. 2 of the drawings where the span of a window is too great to be filled in with a single pane of glass a mullion, designated as a whole as 66, is provided, the said mullion being composed of two inside sash members 34, 34 being placed in base-to-base relation with each other with the extension plates 41, 41 of each sash member being placed in back-to-back relation with each other and the rear edges of the flange 39 also being placed in edge-to-edge relation to each other and are secured together by means of a plurality of spaced screws 67, 67 which are threaded through the openings 44 into the plates 41 and which have the spring clips 55, 55 mounted therein as hereinabove described. The vertical members 34, 34 comprising the mullion 66 are placed in end-to-top side relation with the sill 17 and in top end and lower side relation with the top jamb 29, and are secured to these members, respectively by angles 68, 68 having screws 69, 69 extending therethrough and into openings formed in the webs 35, 35 of the inner sash members 34, 34 and through the webs 18, 18 of the sill 17 and top jamb 29.

A corner construction is provided by the use of an inside angle designated as a whole as 70 which at its lower end rests upon diagonally disposed abutting end portions of the sills 17, 17 through which the screws 28, 28 extend into the wall portion 13 of the building and at its upper end abuts against portions of the top jambs 29, 29 which have diagonally abutting edges and are secured to the plate 16 supporting the wall section 14. The angle 70 comprises flanges 71 and 72 which have ribs 73, 73 along their marginal edges providing flat surfaces for engagement with the glass panes 38, 38. Each of said flanges 71 and 72 have depending portions 74 and 75 integrally formed therewith and which are curved outward at a right angle to each other and extend outward under the edges of the glass panes 38, 38 in a plane parallel with the flanges 71 and 72. These depending portions 74 and 75 have ribs 76 and 77 thereon with undercut sides into which the angular portions of the lower leg 62 of the spring clips are fitted with the folded ends 58, 58 of the spring clips being fitted under ribs 78 and 79 formed on the depending portions 74 and 75 with the spring clips being placed under tension when in assembled relation with the corner construction, with the upper leg portions 59, 59 of the clips being in engagement with the outer faces of the glass panes 38, 38 so as to hold the said panes in position against the flanges 71 and 72 of the corner angle 70. The inside corner angle 70 is secured to the sills 17, 17 by means of angles 68, 68 which have screws 69, 69 extending therethrough and into the webs 18, 18 of the sills 17, 17 and through the angles 68, 68 and the flanges 71, and 72. The upper end of the corner angle 70 is secured to the abutting mitered ends of the top jamb 29, 29 forming a part of the front wall section 10 and the side wall section 11 by means of angles and screws positioned similarly to these same parts at the opposite end of the angle 70 and the horizontal inner sash members are secured to the sill 17 and the header 19 by means of screws such as 85, 85, which pass through the openings 44 in the plate portion 41 of the flange portion 40 of the outer sash member and into the sill and header in the same fashion as the plate portions 41 of the inner sash members and secured together to form the mullion 66.

An integrally formed corner post designated as a whole as 80 is provided which comprises side portions 81 and

82 of equal width at right angles to each other and shorter side sections 83 and 84, respectively, with the section 84 being placed in face-to-face relation with the portion 75 on the angle 74 and secured thereto by a plurality of screws 85, 85 while the opposite angle 83 is positioned in face-to-face relation with the depending portions 74 of the flange 71 and secured thereto by means of a plurality of screws 85, 85 so that a firm corner structure for the window wall is provided with the portions 73 and 74 providing bases upon which the portions 53 of the outer sash 46, 46 are placed, with the outer edge of the wall section of the flange 51 of each of the sash members 46 bearing upon the short side sections 83 and 84, respectively. The struck out portions 64, 64 of the spring clips engage the ribs 52 which passing under the upturned ends 65, 65 of these springs and with the ribs 61 on the sash members 46 passing over the angularly disposed ends 60 of the spring clips so that after the sash 38, 38 have been mounted in position in the inside sash members 34, 34 the outer sash members 46, 46 can be placed in position by deflecting these outer members 46, 46 sufficiently to enable them to be snapped into place after the glass panes are mounted.

As shown in Fig. 2 of the drawings the side jamb is placed against the wall section 11 while in Fig. 4 a slightly modified form of structure is shown with a hollow door post 86 being positioned against a cover plate 29 covering the open side of the side jamb 16 and is secured to this cover plate by means of screws 87, 87 and provides for a door support if one is needed in the wall section 11.

The installation and operation of the window wall structure is quite simple and easily understood from the foregoing description and we believe the installation and setting in place of the glass pane sections will also be easily understood. In a proposed installation the window opening in the buiding is first prepared by providing a structure of proper rectangular dimensions and supporting wall structure by erectors of the building structure. Thereupon the sill 17 is placed upon the supporting building structure such as 13 which can be of any approved building form either brick, concrete or frame as may be desired. The top jamb is then placed in position which top jamb is preferably of the same length as the sill for a particular installation and normally is of a sufficient length to span the space to be occupied by the window. Thereafter, a side jamb such as 23 is placed into position and secured to the fixed wall adjoining the window wall opening with the lower end of the side jamb being mounted on top of the bottom rail and the upper end in engagement with the head jamb. The installation at the opposite side of the window depends upon the span of the window or the size of the glass pane or panes which are placed in position to form the window. If the span is a long one such as shown in Fig. 2 of the drawings, a mullion is placed in vertical position which is composed of a pair of inner sash members placed in back-to-back relation with each other and a pair of cooperating outer sash members secured to the mullion thus formed as shown particularly in the cross-section in Fig. 3 of the drawings. If the side of the window opposite the fixed portion is at a corner then if it is desired to have a glass section at the adjacent side a corner post is provided which is built up in accordance with the arrangement of parts shown in Fig. 4 of the drawings with a corner post forming means to which the inner and outer sash members can be secured on two adjacent sides of the post. In this particular form, two glass wall sections are provided which are angularly disposed with relation to each other and if the window opening is formed by a wall structure such as shown in Fig. 2 of the drawings of the side section, then a side jamb similar to a side jamb such as 33 is placed in position against the wall and secured thereto which forms a basis for the mounting thereon of the inner and outer sash to hold the glass pane in position. If this wall section is adjacent a door, then a door post illustrated in Fig. 4 may be secured to the vertical jamb and the usual frame mounted thereon. If the area to be occupied by the window is small enough to be covered with one pane of glass, and the size of the opening is defined by the walls of the building then vertical jambs are placed between the top jamb and the bottom sill and secured to these side walls to form mountings for the sash members in the same fashion as heretofore described and which extend entirely around the marginal edge of the glass pane forming the transparent portion of the window. Also, if instead of the door post intermediate to angularly disposed sections, a wall section or corner support of the building is provided, then a vertical jamb is placed against such section and the necessary sash members mounted thereon in the same fashion as these sash members are secured to other jamb sections heretofore described and the enclosure is ready for the placing in position of the inner sash members. In any event, the inner sash members 34 are placed in position preferably the vertical sash members being first installed with their lower ends resting upon the sill and their upper ends in position against the top jamb and thereafter, a bottom length is placed in position and secured to the bottom sill and the top jamb with each of its ends abutting against the adjacent vertical sash member at each of its ends. When the window opening has thus been prepared by the placing and fixing in position of the inner sash around any window opening the sash is then ready for the installation of the glass pane 38 in that particular section. The glass pane is lifted into position by the workmen with its edges passing slightly beyond the contacting edges of the ribs 36 on the inside sections around the edges of the entire glass pane and is held in proper position by blocks (not shown) resting upon the bottom sill of the window frame. In this position the workmen insert the clips in spaced relation with each other and around the entire marginal edge of the glass pane in any number that may be necessary to hold the glass pane firmly against the inside sash member, these clips being slipped into position around the edges of the glass pane so that the folded ends thereof are placed into the openings between the ribs 45 and the plate portion 41 until the outer edges pass over the rib 42 and are pushed inward so that the lower legs of these clips are firmly seated on the plate portion 41 of the member 34 in which position because the clips are put under tension causes a pressure exerted on the glass pane and automatically set themselves against the under-cut portion 43 on the side of the rib 42. Each clip is thereby placed under tension as it is placed in position and exerts its force upon the glass pane pressing it in an inward direction. The clips are of sufficient number and are of sufficient strength when placed in position under tension to hold a large section of plate glass firmly in position to form a window and thereafter the outer sash sections of suitable length are merely snapped into position by having the open sides pressed into position over the angular ends 61 and 65 of the clips. Because these clips yield slightly as these parts are pressed into position and the outer sections are opened slightly, the two forces operate to hold the outer sash firmly in position and closes this part of the combination against water, snow and the like, which may be impinged upon the glass surface but do not in and of themselves perform any other function than that merely of being a cover section for this part of the mounting and present a finished appearance to the window section.

If a plate glass section is broken it is only necessary in order to remove the broken glass to first remove the outer sash members and then a part of the clips if the glass pane is to be taken out section by section and the broken glass pane removed as well as the clips and a new glass pane inserted therein by following the steps hereinabove described without in any way disturbing the contents of a window or without any necessity of the

workmen going inside the building or changing any part of the window sash mounting inside of the building.

It is also to be understood that by the use of substantially three members, namely, the sills and jambs which are of the same dimension and of the same form, inner and outer sash members and the clips, a complete wall section can be installed in any building by merely cutting these various portions to suitable lengths to fit into a pre-determined window opening. Of course, if a double window is desired and a mullion placed in position between the two window panes the mullion can be formed by placing two inside sash members in back-to-back relation with each other and installing the glass and thereafter putting outside sash members in position. Likewise, if a corner is needed to be built, a corner can also be provided with the addition only of the inside corner angle and an outside angle therefor so that in building almost any combination of window wall section it can be accomplished with a minimum of similar pieces of material to fully equip workmen for the installation of a particular job. Therefore, it is only necessary to be supplied with the necessary pieces of material which are duplicates of each other cut to suitable length which can be easily and quickly installed in a new building or an old one, if desired.

While I have described more or less precisely the details of construction, I do not wish to be understood as limiting myself thereto, as I contemplate changes in form, the proportion of parts and the substitution of equivalents as circumstances may suggest or render expedient without departing from the spirit or scope of the invention.

What is claimed is:

1. Window wall construction comprising in combination a building having a window opening therein, a sill, a top header and side jambs at each side of the window opening, an inner sash member mounted upon the said sill and against the header and secured thereto by means of screws and against each of said jamb members, angular clips secured to the said sill and to each of the said vertical inner sash members, the said jamb members and to the inner sash member whereby the inner sash member is removably attached to the said sill and the jamb members, the said inner sash member having a depending portion integrally formed therewith and lying in face-to-face engagement with the said sill and each of said jamb members, spring clips mounted in said depending portion and in engagement with the said glass pane portion an outer sash member having flange portions thereon, one of which flange portion is in engagement with the window pane and the second flange portion being in engagement with the said sill and jamb members and overlying the end of the said depending portion of the inner sash member and held in position by the said spring clips.

2. Window wall section comprising in combination with a building having an opening therein, a window frame comprising a sill, a top panel and side jambs at one side of each of the said window openings, inner sash members at the top and bottom of the window opening secured to the header and to the sill respectively by means of screws, vertical sash members at each side of the window against the angles secured to the said sill and to the said side jambs and to the vertical inner sash members, a vertical mullion centrally positioned of the said window and composed of a pair of inner sash members placed in back-to-back relation of each other whereby a plurality of window openings is formed, an inner window sash around each of said openings, a plurality of glass panes mounted in the said inner frames, detachable angles secured to the said sill and to the said side jambs and to the inside sash members forming the mullion, spring clips mounted in said inner sash member and the said mullion in engagement with the said glass panes and outer sash members secured over the mullion and the inner sash members.

3. Corner construction having glass wall section comprising an angular sash member, an inner angular sash member having depending portions extending outward therefrom, anchoring means attaching the said inner sash member to the bottom sill and the top jamb, a plurality of window panes mounted in the said inner sash member, spring clips mounted in the said depending portions in engagement with the said glass panes whereby the said panes are held in position in the inner sash member, a corner post having depending portions underlying and secured to the depending portions of the inner sash member and outer sash members comprising channel sections having one flange resting against the corner member and overlying the edges of the depending portions of the inner sash member means securing these flange portions together with one flange portion of the outer sash member being in engagement with the outer face of the glass pane members.

4. Window frame construction comprising in combination an inner channel section having a web portion engaging the inner side of a glass pane and having a flange portion at an angle to the web portion and an outwardly projecting base portion for the inner channel section integrally formed with the said flange portion extending under the edge of the glass pane and having a clip anchoring rib thereon spaced from its outer edge, the said flange portion having a clip retaining rib thereon extending parallel with and spaced from the said base portion, a spring clip having a base portion mounted upon the base portion of the inner channel section, the rear end of the clip being retained under the clip retaining rib on the flange portion and anchored against the clip retaining rib on the base portion of the inner sash member, the said clip having a glass pane engaging portion and having an outward extending tongue portion, and an outer sash member comprising a flange portion in engagement with the outer side of the glass pane, and one end of the said clip with a web portion connecting the two flange portions, and a second flange portion, the inner edge of said flange portion resting upon the base portion of the inner sash member and held in engagement therewith by the outwardly extending tongue portion of the said clip.

5. Window frame construction comprising in combination an inner channel section having a web portion engaging the inner side of a glass pane and having a flange portion at an angle to the web portion and an outwardly projecting base portion for the inner channel section integrally formed with the said flange portion extending under the edge of the glass pane and having a clip anchoring rib thereon spaced from its outer edge, the said flange portion having a clip retaining rib thereon extending parallel with and spaced from the said base portion, a spring clip turned upon itself to provide a base portion and two leg portions having free ends, the base portion resting upon and supported by the base portion of the inner channel section and having its turned in end retained between the base portion of the inner channel section and the retaining rib on the flange portion of the inner channel section, one of said leg portions engaging a window pane on its outer side, the second leg portion being angularly disposed for engagement with the anchoring rib on the base portion of the inner channel member, and having a projecting portion thereon, and having its free end in engagement with the said first mentioned leg portion whereby the said first mentioned leg portion is reinforced.

6. Window frame construction comprising in combination an inner channel section having a web portion engaging the inner side of a glass pane and having a flange portion at an angle to the web portion and an outwardly projecting base portion for the inner channel section integrally formed with the said flange portion extending under the edge of the glass pane and having a clip anchoring rib thereon spaced from its outer edge, the said flange portion having a clip retaining rib thereon

extending parallel with and spaced from the said base portion, a spring clip having a base portion mounted upon the base portion of the inner channel section, the rear end of the clip being retained under the clip retaining rib on the flange portion and anchored against the clip retaining rib on the base portion of the inner sash member, the said clip having a glass pane engaging portion and having an outward extending portion and an outer sash member comprising a flange section in engagement with the outer side of the glass pane and the end of the said clip and having a second flange portion with a web connecting the two flange portions, the inner edge of said second mentioned flange portion resting upon the base portion of the inner sash member and held in engagement therewith by the outwardly extending portion of the said clip, and an integrally formed wall section integrally formed with the web portion and extending parallel with the said flange portion.

7. Window construction comprising in combination an inner sash member having a base portion, a web portion having a free edge in engagement with a glass pane, a second web portion integrally formed with the first web portion, and the base portion, and having a clip retaining rib thereon, the said base having a rib retaining rib adjacent its marginal edge, a spring clip turned upon itself to form a base portion and having a plurality of

leg portions, one of said leg portions being in engagement with the said glass pane, the second leg portion having an angular portion seated against the anchoring rib on the base portion of the inner sash member and having an elastic tongue extending therefrom, and having its free end portion in support engagement with the said first mentioned leg portion, and an outer sash member consisting of parallel extending spaced flange portions and a connecting web portion, the edge of one of said portions being in engagement with the glass pane and the other of said flange portions overriding the outer elge of the base portion of the inner sash member and in frictional engagement with the tongue on the second mentioned leg portion of the spring clip.

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