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WINDOW STRUCTURE

2,663,917

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3 Sheets-Sheet 1

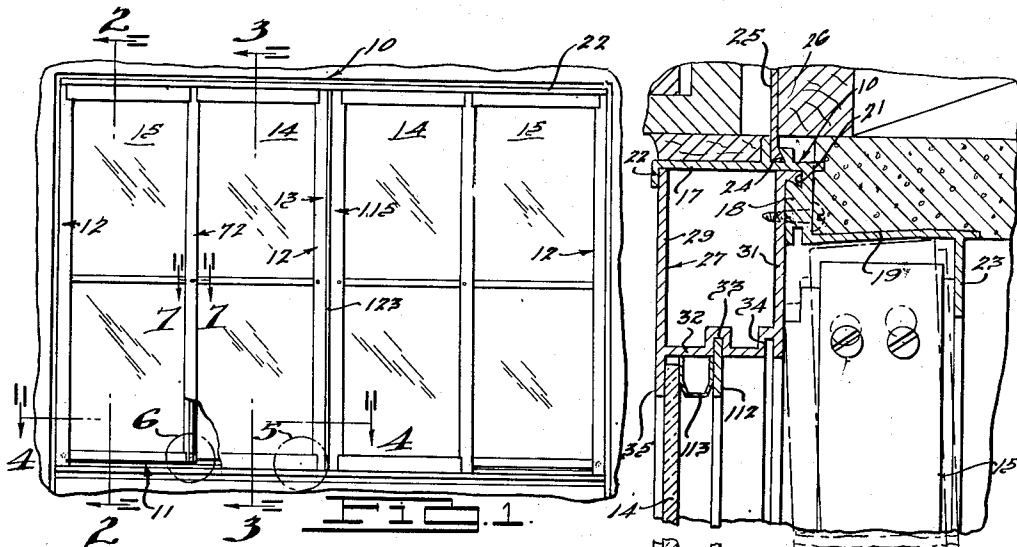


FIG. 1.

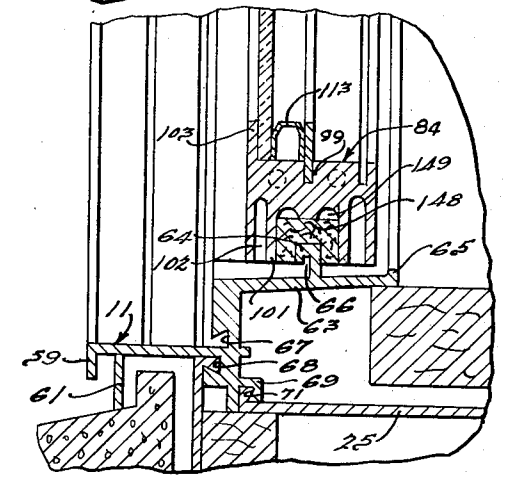
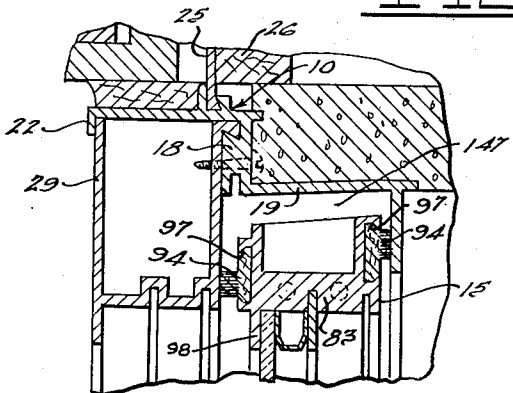
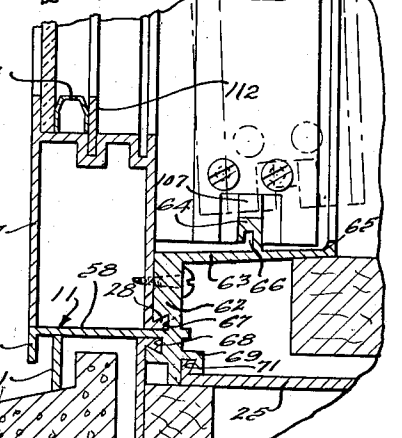
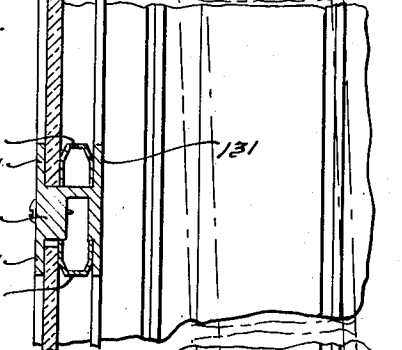
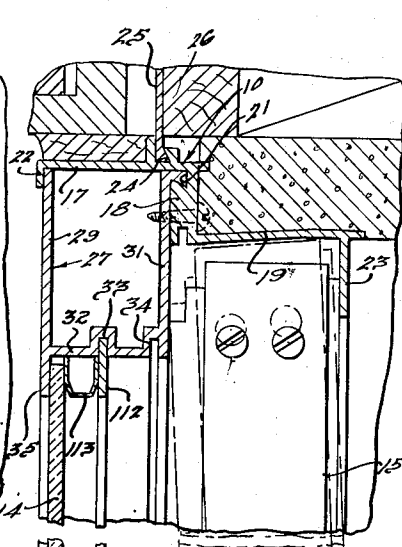


FIG. 2.

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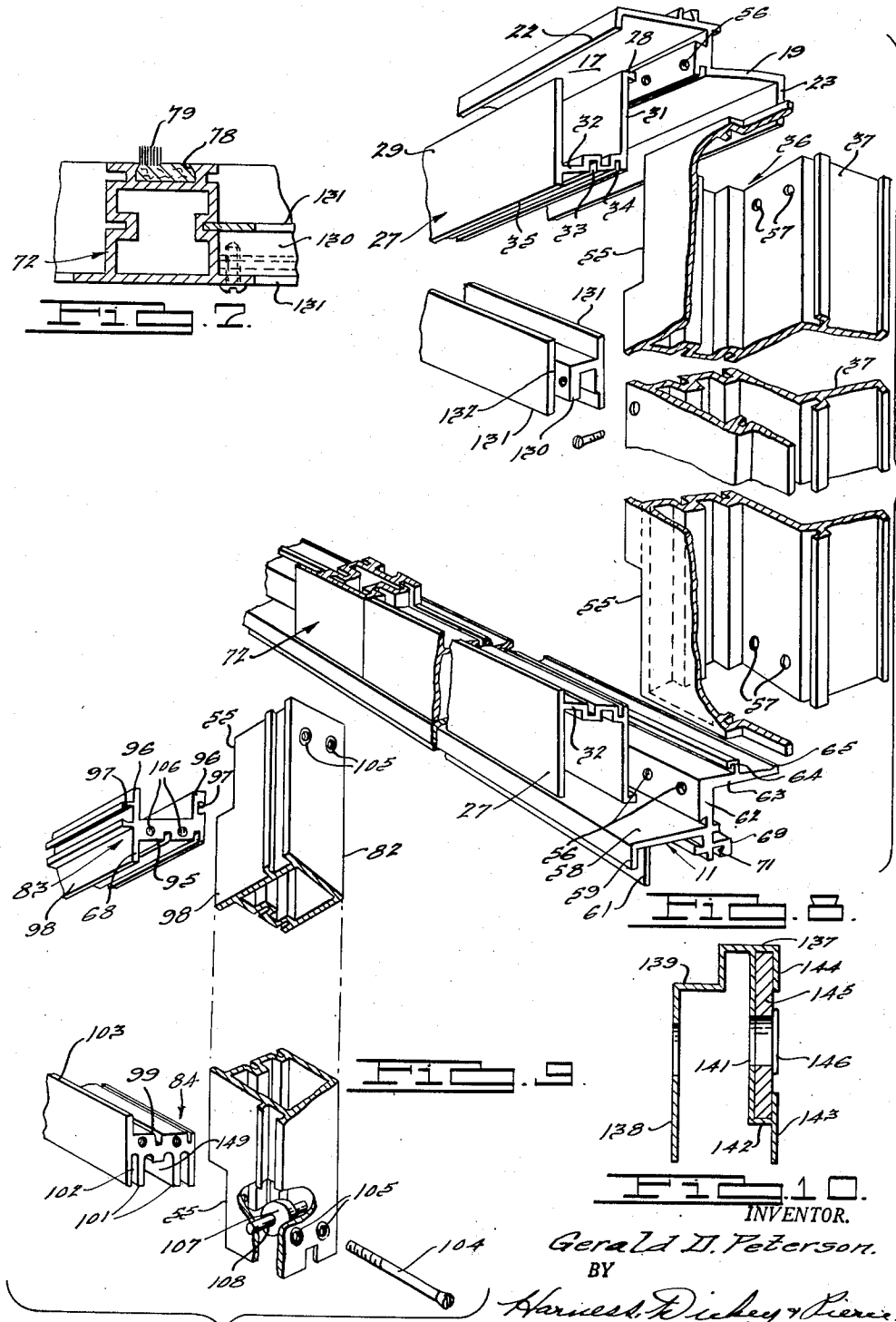
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WINDOW STRUCTURE

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3 Sheets-Sheet 3



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WINDOW STRUCTURE

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10 Claims. (Cl. 20-52.2)

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This invention relates to frames for windows, and particularly to a frame of the all-metal type which may be joined together by mullions which extend the frames to cover any desired length of opening.

It has been the practice heretofore in the art to employ two or more windows to cover an elongated opening in a building and provide a mullion as a separate element to join the windows together.

The present invention substitutes for the adjacent sides of the frame, strips which may be joined together by an expansion joint so that the window frames become a unit extension of each other when filling the window opening. The cost of the plurality of frames when so joined together is less than the two complete window frames joined by the separate mullion. Further, the mullion employed for joining the present frames is not much larger than the frame section itself, so that the mullion disposed between the frame is not as noticeable as the cumbersome mullion separating the two complete window frames.

A part of each window frame has a fixed window pane therein, while an adjacent part has a horizontally movable sash containing a window pane which is sealed to the frame when in closed position by suitable weatherstrips. Rollers are provided on the movable sash which engage a track on the sill portion of the frame to eliminate friction during the sliding operation. A space is provided above the sliding window in the header structure which permits the movable sash to be raised and moved inwardly at the bottom with respect to a building in which installed over the track so that it may be removed from the frame. With this arrangement, the windows may be readily washed on the inside and outside from the inside of the building.

The sections of the frame are so formed as to interlock with each other, and screws are provided for joining the frame sections at the corners so that the entire frame may be shipped in knocked-down condition, occupying very little space. Sealing elements are employed on the window frame and on the sliding sash so as to completely seal the sliding window in closed position. Glazing putty may be employed for retaining the panes in position in the frame or spring strips may be utilized for holding the window pane within the frame. The frame is so constructed as to support a single thickness of glass, or two thicknesses of glass or a "Thermopane" type window glass may be mounted directly into

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the frame. A screen or a storm window may be mounted in the opening closed by the sliding window so that the opening may be closed by a screen in summer or by a storm window in the winter.

Anchors are provided which dovetail into the different sections of the window frame by which the frame is secured in the opening when the anchors are nailed to the building. The adjoining sections of the frame are so formed that the mullion resulting holds the two frame sections together in movable relation to adjust themselves for expansion and contraction of the frames.

Accordingly, the main objects of the invention are: to provide a window made of sections of a metal which are securable together to form the header, sill and jamb sections which are releasably secured together at the corners by screws; to provide a metal frame for a window having a vertical bar dividing the area into two portions, in one of which a window pane is fixed in position and in the other of which a horizontally movable sash containing a window pane is mounted; to provide adjacent jamb edges on a window frame which are interconnectable to form a mullion which provides an expansion joint between the separate, adjoining window frames; to provide anchors for a window frame which are releasably locked thereto for supporting the frame in the opening of a building; to provide spring strips for retaining one or a pair of window panes in the window openings of the frame; to provide a sill ventilating section which may be applied to the opening in the frame, covered by the movable sash, on which a storm window may rest in the wintertime; and, in general, to provide a frame for a window which is simple in construction, economical of manufacture and which may be mounted in extension of each other to fill any desired opening.

Other objects and features of novelty of the invention will be specifically pointed out or will become apparent when referring, for a better understanding of the invention, to the following description taken in conjunction with the accompanying drawings, wherein:

Figure 1 is an elevational view from the exterior of two window frames in mullion arrangement embodying features of this invention;

Fig. 2 is an enlarged broken sectional view of the structure illustrated in Fig. 1, taken on the line 2-2 thereof;

Fig. 3 is an enlarged broken sectional view of the structure illustrated in Fig. 1, taken on the line 3-3 thereof;

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Fig. 4 is an enlarged broken sectional view of the structure illustrated in Fig. 1, taken on the line 4--4 thereof;

Fig. 5 is an enlarged view of the structure illustrated in Fig. 1 within the circle 5 thereof when the sash is moved to completely open position;

Fig. 6 is a vertical sectional view of the structure illustrated in Fig. 1, as viewed within the circle 6 thereof;

Fig. 7 is an enlarged sectional view of the structure illustrated in Fig. 1, taken on the line 7--7 thereof;

Fig. 8 is an enlarged exploded view of the header, muntin, sill and jamb sections of the window frame illustrated in Fig. 1;

Fig. 9 is an exploded view of a head and sill and jamb element of the sash which slides within the window frame, with parts broken away, and

Fig. 10 is a sectional view of a sill ventilator employed in the frame opening.

Referring to Fig. 1, a window assembly of the present invention is illustrated, wherein a pair of frames is disposed in an opening, forming a mullion therebetween. Each frame comprises a header section 10, a sill section 11, jamb sections 12 and a mullion jamb section 13. Within each frame, fixed window panels 14 are supported in offset relation with window sash assemblies 15 which may slide to the left or right in overlapping relation to the fixed panes 14, thereby having the window assemblies 15 move to open position.

It is to be understood that any number of the individual windows may be secured to each other to fill any length of opening by utilizing the mullion jamb sections 13 along the mating edges of each window frame. The window sections 15, which slide horizontally, are supported on a track projecting upwardly from the window sill section 11 and engaged by rollers on the lower edge of the sections to assure ease of movement of the sections. A weatherstrip of the pile type is supported on the sash 15 about the track so as to seal the window at the bottom, and similar sealing strips are employed at the top of the movable sash section on both the inner and outer sides thereof in contact with the header sections 10. The stile sections of the movable sash have similar sealing strips projecting outwardly of the sash in engagement with the window frame sections when in completely open or completely closed position. An additional sealing strip is supported on the frame meeting rail between the movable and fixed window pane assemblies to be in lateral abutting relation with the weatherstrip on the sash when in closed position. This abutting also obtains when the window sash has been shifted to completely open position.

Referring to Fig. 3, the header section 10 embodies a header bar having a web 17 having a downwardly extending portion 18 and an inwardly sloping web portion 19. A dovetailed recess 21 is located at the junction between the web 17 and portion 18. A downwardly projecting flange 22 is provided on the opposite end of the web from the portion 18, and a similar downwardly directed flange 23 extends from the end of the web 19. A dovetailed recess 24 is provided on the outer surface of the web 17 adjacent to the dovetailed slot 21. This latter dovetail 24 is employed to receive and be secured by a head anchor 25 which is nailed or otherwise secured to the building structure 26. A dual-purpose inner header and sill section 27 is joined

to the web 17 of the header section 10 through the engagement of the dovetail 23 thereof in the dovetailed slot 21 of the portion 18. The inner header and sill section is of U shape having an outer web 28 and inner web 31 on the end of which the dovetail 23 mentioned above is provided. The webs 28 and 31 are joined by a base web 32 having downwardly presented spaced slots 33 and 34 therein. The web 28 extends downwardly at 35 below the base web 32.

The side jamb sections of the frame 12 (Figure 4) embody a channel section 35 having a laterally extending web 37 which is flanged outwardly on the end at 38. A ridge 39 on the outer surface of the web 37 has an outwardly facing slot 41. The web 37 is disposed laterally of a side web 42 of the channel element 35 having joined thereto the base web 43 of channel portion which is provided with a pair of spaced slots 44 and 45 which are aligned with the slots 33 and 34, respectively, of the inner header and sill section 27. An outer web 46 extends from the base web 43 of the channel portion parallel to the web 42 and is provided with an offset portion 47 having a slot 48 therein aligned with the slot 41 in the ridge 39 in the outer surface of the web 37. A flange 49 extends from the offset portion 47 of the web 46. A jamb anchor 51 has a web portion 52 engaged in the slots 41 and 49 from which a web 53 extends in a position to be secured to the frame elements of the building. By reversing the jamb section of the frame element 12 end for end, it may be applied to either the right or left-hand side of the window frame.

The web 46 of the flange is extended at 54 below the base web 43 and this web is notched out at the top to receive the web 23 (Figure 8) and extending flange 35 of the inner header and sill section 27. This forms the top corners of the frame which are held together by a pair of screws extending through apertures 55 and are threaded into a pair of apertures 57 in the web 42 of the channel portion 35 of the jamb section.

The sill section 11 comprises a sill bar having a web 58 (Figures 2 and 3) having on the end a downwardly extending flange 59 and inwardly therefrom a flange 61. A portion 62 extends upwardly from the web 58 and has an inwardly extending web 63 which slopes upwardly and which is provided with a track 64 and an upwardly extending lip 65 at the inner end. This lip collects the condensation from the windows and permits it to flow down the slope of the web 63 outwardly of the frame. The trackway has a slotted portion 66 therein which permits apertures to be drilled therethrough to permit drainage, and any burrs that may be left in the hole need not be removed because of their location within the slot. The portion 62 of the section is provided with a pair of dovetailed slots 67 and 68 and a ridge 69 forms a dovetailed slot 71. An anchoring element 25 engages the dovetailed slot 71 to anchor the sill in position in the building opening. A similar anchoring element 25 may also be utilized for engaging in the dovetailed slot 68 for anchoring the sill to the building structure. The inner header and sill section 27 is applied to the flange 59 of the sill bar through the engagement of the dovetail 23 in the dovetailed slot 67. The bottom portion of the inner header and sill section 27 is employed only across the fixed window assembly 14 at the sill and the end of the section mates in a notch 55 where it abuts the jamb section 12. A pair of screws ex-

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tends through the apertures 56 in the upwardly directed portion 62 of the section and is threaded into apertures 57 in the web 42 of the jamb of the section 12 for securing the sill section to the jamb section at the corner to which the sill section 27 extends.

The opposite end of the section 27 at the corner of the sill abuts against a frame meeting rail 72 (Figures 4 and 7), the lower end of which has a laterally extending flange 73 cut away to provide a notch for receiving the end of the section 27. As illustrated in Fig. 3, similar screws are utilized for extending through apertures in the upwardly extending portion 62 on the sill section 11 and secured in threaded apertures on the inner face of the frame meeting rail 72. Spaced webs 74 of the section 72 have outwardly directed spaced slots 75 and 76 in alignment with the slots 33 and 34 in the inner header and sill section 27 and with the slots 44 and 45 in the jamb section 12. The section 72 abuts against the web 47 of the header section 10 and is secured in position by screws extending through apertures in portion 18 into threaded apertures provided in the inner web 77 of the section. A large dovetailed groove 78 is provided in the face of the web 77 for receiving a weatherstrip 79 which is retained in position thereby. Certain of the channel sections 36 of the jamb section 12 may be provided with dovetailed grooves 40 for receiving a weatherstrip 79 which is retained in position thereby to abut the weatherstrip 94 when the movable sash is in closed position.

The ends of the frame jamb section 12 which engage the sill section 11 at the point adjacent to the area of the sliding window when closed, at which the sill section 27 is not utilized, are secured together by screws extending through apertures 56 in the upwardly extending portion 62 into the threaded apertures 57 in the web 42 of the jamb section. It will be noted in this arrangement that the notch 55 is omitted because of the absence of the sill section 27 at this point.

The sliding window 15 (Figures 4 and 9) has a sliding sash 81 which embodies two like stiles 82, a top rail 83 and a bottom rail 84. The stiles are of tubular form having outer side faces 85, inner webs 86, a glass supporting web 87 and an outer web 88. The glass supporting web 87 is provided with inwardly directed slots 89 and 91 which are spaced from each other, while the web 88 has an extending flange 92 which projects beyond the web 87. The outer surface of the web 89 is provided with a dovetailed groove 93 for supporting and securely holding a sealing strip 94. The top rail 83 of the movable sash has a central web 95 with upwardly directed flanges 96 at each end, the outer surface of which is provided with projections containing dovetailed grooves 97 for receiving the weatherstrip 94. A downwardly projecting flange 98 is provided in alignment with the flange 96 on the front face of the top rail.

The bottom rail 84 comprises a central web 99 having downwardly projecting wall portions 191 containing slots 102 for reducing the weight of the section. An upwardly extending flange 103 is provided at the front of the bottom rail, aligned with the flange 98 of the top rail 83 and flange 92 of the stiles 82. The flange 92 is cut away on the sash stiles 82 to provide notches 55 for receiving the ends of the top rail and bottom rail to which they are secured by screws 104 extending through apertures 105 in the web 85 of the stile and threaded into apertures 106 in the webs 95

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and 99 of the rails 83 and 84, respectively. In this manner the sash is securely held together at the four corners.

Rollers 107 have their stub shafts 108 extending through apertures in the webs 96 and 99 so as to be in alignment with the track 64 of the sill section 11. The screws 104 are disposed on each side of the roller to assist in maintaining the roller in alignment with the track. The shafts 108 are peened in the aperture and the roller freely turns on the shaft. A roller is mounted in the lower end of each of the stiles 82 of the sash so that both ends ride upon the track 64.

A window pane 111 is mounted against the flange 73 of the frame meeting rail 72, the flange 35 on the inner header and sill section 27 and the flange 54 on the jamb section 12. The flanges above named are coplanar and directly receive the glass. The glass is forced against putty or other sealing material placed on the flanges. Four glazing strips 112 form a coplanar retaining flange around the opening when inserted in the aligned slots in the inner header and sill section, in the frame meeting rail 72 and in the jamb section 12. Thereafter, four spring elements 113 are slipped in between the glass 111 and the strips 112 to urge the glass outwardly against the coplanar flanges. Spring tension in the strips retains the strips and glass in position. The window glass 114 is applied in the same manner to the window sash 15, the pane first being placed against the flange 92 of the stiles and flanges 93 and 103 on the top and bottom rails 83 and 84. Thereafter, glazing strips 112 are placed in one set of slots to be coplanar with the flanges above mentioned against which the glass is placed, after which four of the spring strips 113 are added between the flanges 112 and the window glass 114 to hold the glass in position.

When it is desired to join two windows together, they are assembled in the same manner, with the exception that a frame mullion jamb 115 (Figure 4) replaces the standard frame jamb 12 in one of the windows. This mullion jamb has a channel section 116 having an outer web 117 and an inner web 118 joined by a base web 119 containing spaced slots 121. The web 117 at the end has an inwardly extending flange 122 and also an offset projecting flange 123. The web 118 has a web 124 extending from the end inwardly at right angles therefrom, which has on its inner end an enlarged portion 125 provided with a slot 126 for receiving a strip 112 which overlaps the web 37 of the frame jamb section 12. The flanges 122 and 123 mate with the flange 49 and web 46 of the frame jamb section 12 and prevent the section 116 from moving inwardly, while the engagement of the portion 127 of the enlarged portion 125 of the mullion section 13 prevents the section from moving outwardly. A leaf spring 128 is disposed between the web 124 and the flange 38 on the section 12 to urge the webs 124 and 37 away from each other but permitting them to move toward each other in case the metal of the frames expands. When the metal contracts, the spring maintains the engagement of the web 37 with the strip 112.

While it is within the purview of this invention to use window panes which extend from the top to the bottom of the frame and sash, muntins can be employed therebetween for using glass panes of shorter height. A section of the muntin is illustrated in Fig. 3 wherein the muntin is the shape of an H having a central web 130 and

two parallel webs 131 disposed at right angles thereto and in T relation therewith. This provides an upwardly and downwardly presented channel on either side of the web 130 for the reception of the bottom of the top pane of glass and the top of the bottom pane of glass. It will be noted that on the outside of the window the flange 131 is cut away at the end at 132 for overlapping the projecting flange 92 on the sash stile 35. The muntin is secured in position by a screw projecting through the flanges 92 into the web 130, the heads of the screws being visible on the outside of the frame, as illustrated in Fig. 1. Similarly, the muntin is secured to the jamb 12 and the frame meeting rail 72 by having the cutaway end portions 132 overlap the flange 54 on the jamb 12 and the flange 73 on the frame meeting rail 72. Screws extend through the flanges 54 and 73 into the web 130 for securing the muntin to the window frame for supporting the fixed window panes.

It will be noted when examining the window frame structure and the movable sash structure that the adjacent faces which support the window panes 111 and 114 have an additional set of slots 89, 76, etc. parallel to but spaced from the slots in which the glazing strips 112 are employed for securing the panes in the frame, as illustrated. If "Thermopane" glass is to be employed embodying a pair of spaced window panes, these are mounted in the window opening and cover the slots now employed for holding a single pane. The supporting glazing strips are applied to the innermost set of slots and putty alone is employed for holding the "Thermopane" glass in position.

It is also within the purview of the present invention to apply a pane of glass against the strips 112 and employ another set of glazing strips 112 in the innermost slots and utilize additional glazing springs 113 for retaining the second glass against the glazing strips 112 to provide double thicknesses of glass in the openings. The window glass could be of the removable type having a frame (Figure 4) which can be set in the opening against the strips 112 and retained in position through the application of another set of strips 112 in the innermost slots. In the summer months these latter strips and window may be removed and stored.

It will be noted that the storm or frame window may be applied directly to the outside flanges 54 and 73 of the frame in the window opening as the distance between the flange 73 and slot 75 of the frame meeting rail 72 is exactly the same as the distance between the face of the strip 112 and the slot 89 of the window sash stile. This is also true of the distance between the face of the strip 112 and the slot 45 of the frame jamb section 12. The same treatment may be applied to the fixed window, to the movable sash, and also to the window opening through the frame.

Various means may be employed for locking the window sash in open and closed positions. For the purpose of illustration, a pin 134 is shown having a handle 135 on one end and provided with a tubular sleeve therearound containing a spring which permits the handle to withdraw the plunger end 136 from an aperture in the frame meeting rail 72 when the window is in closed position.

When a storm window is placed in the frame, a sill ventilator is preferably employed, as illustrated in Fig. 10, having an outer flange 139. A step 139 is provided at the top for receiving the

bottom of the storm window, the storm window being held in position at the sides and top. An inwardly extending flange from the step has a downwardly projecting web 141 terminating in an inwardly directed flange 142 and a vertical web 143 which extends on each side of the flange 142. Similarly, a downwardly extending flange 144 is provided coplanar with the flange 143. Suitable apertures are provided in the outer flange 138 and web 141, the latter being covered by a slide 145 which may be shifted laterally by the handle 146 to uncover one or a plurality of the apertures as may be desired. By the use of this ventilator, the window pane employed in the fixed window openings may also be employed in the opening of the movable sash since the step 139 is aligned with the base web 32 of the inner sill section 27. It is to be understood that in place of the storm window a screen may be mounted in the same manner within the opening of the movable sash.

It will be noted from Fig. 2 that a space 147 is provided above the movable sash between the header section which permits the movable sash to be lifted upwardly and to have the bottom of the sash clear the track 64, as illustrated in Fig. 3, so that the sash may be pulled inwardly from the bottom and thereby removed. Similarly, the sash may be first inserted in the top, lifted upwardly and pushed in at the bottom to again apply the sash to the track 64. A sealing strip 148 is provided in a slot 149 which encompasses the track 64 for sealing the sash bottom rail thereabout.

Referring to Fig. 4, it will be noted that the jamb anchor 51 is reversible so that the web 53 thereof may be disposed inwardly of the frame, as viewed in the figure, or outwardly thereof, as illustrated in dot and dash line. In the position illustrated in unbroken line, the anchor is employed with a brick veneer type of construction, while in frame types of buildings the web 53 of the anchor is usually in the position illustrated in broken line. Similarly, the head or sill anchors 25 may be employed at any point along the frame and in various spaced positions relative to each other as the need may require.

Referring again to Fig. 1, it will be noted that the left-hand and right-hand windows which go to make up the pair of windows joined by the mullion have the movable sash reversed, that is to say, the sash is on the left-hand side of the left-hand window and on the right-hand side of the right-hand window of the pair as viewed in the figure from the outside of the building. It should be understood that the movable sash 15 may be disposed on the left-hand or right-hand side of both of the windows, or both of the sashes could be placed adjacent to each other, the construction of the present window readily lending itself to such adaptation.

What is claimed is:

1. The combination with a window frame having a head section containing a downwardly presenting channel, a sill section having an upwardly presenting track, and jamb sections joining said sill and head sections to complete the frame, a meeting rail joining said head and sill sections of the frame intermediate the jamb sections thereof a horizontally slidable sash for said frame having a top rail projectable within said channel of the head section of the frame, a bottom rail for the sash having a channel in the bottom thereof for receiving said track, stiles joining said top and bottom rails to com-

plete the sash structure, vertical sealing strips on the inner face of one of the jamb sections and the meeting rail of said frame, and vertical sealing strips on the outer faces of the stiles of the sash so located as to be in abutting relation with the vertical sealing strips of the frame when the sash is in closed position.

2. The combination with a window frame having a head section containing a downwardly presenting channel, a sill section having an upwardly presenting track, and jamb sections joining said sill and head sections to complete the frame, a meeting rail joining said head and sill sections of the frame intermediate the jamb sections thereof a horizontally slidable sash for said frame having a top rail projectable within said channel of the head section of the frame, a bottom rail for the sash having a channel in the bottom thereof for receiving said track, stiles joining said top and bottom rails to complete the sash structure, vertical sealing strips on one of the jamb sections and on the meeting rail of said frame and vertical sealing strips on each of the stiles of the sash, said vertical sealing strips being so located with respect to the vertical sealing strips on said frame as to be in weather-sealing relationship therewith when said sash is in its closed position.

3. The combination with a window frame having a head section containing a downwardly presenting channel, a sill section having an upwardly presenting track, and jamb sections joining said sill and head sections to complete the frame, a meeting rail joining said head and sill sections of the frame intermediate the jamb sections thereof a horizontally slidable sash for said frame having a top rail projectable within said channel of the head section of the frame, a bottom rail for the sash having a channel in the bottom thereof for receiving said track, stiles joining said top and bottom rails to complete the sash structure, said head and sill sections of said frame being spaced apart a distance sufficiently greater than the spacing of the top and bottom rails of the sash that said sash can move upwardly into said downwardly presenting channel a distance sufficient to permit it to be lifted off said track; vertical sealing strips on one of the jamb sections and on the meeting rail of said frame and vertical sealing strips on the stiles of the sash, said vertical sealing strips being so located with respect to the vertical sealing strips on said frame as to be in weather sealing relationship therewith when said sash is in its closed position.

4. The combination described in claim 3 including also a projection extending downwardly from the web of said downwardly presenting channel for preventing upward movement of said sash when said sash is in at least a partially closed position.

5. A structure defined in claim 3 including also a fixed sash within said frame positioned out of the path of travel of said sliding sash and mounted between said frame head section and said frame sill section and between said meeting rail and one of said frame jamb sections.

6. The combination defined in claim 2 wherein a stile of said slidable sash at least partially overlaps, and is closely engageable with said meeting rail when said slidable sash is in closed position.

7. The combination with a window frame having a head section containing a downwardly presenting channel near one edge thereof, a sill section having an upwardly presenting

track near one edge thereof, and three jamb sections joining said sill and head section to complete the frame and define two adjacent openings offset from said track and channel, said frame head, sill and jamb sections being adapted to retain a fixed window panel in one of said openings and to removably retain a fixed screen panel co-planar with said window panel in the other of said openings; a window panel in said one of said openings; a horizontally slidable sash for said frame having a top rail projectable within said channel of the head section of the frame, a bottom rail for the sash having a channel in the bottom thereof for receiving said track, stiles joining said top and bottom rails to complete the sash structure, said horizontally slidable sash being movable from a position in substantial register with said one of said openings to a position in substantial register with said other of said openings; vertical weather sealing means on an adjacent two of said jamb sections and vertical sealing means on the stiles of said sash, said last-named vertical sealing means being so located with respect to the vertical sealing means on said frame as to be in weather sealing relationship therewith when said sash is in its closed position.

8. The combination with a window frame having a head section containing a downwardly presenting channel near one edge thereof, a sill section having an upwardly presenting track near one edge thereof, and three jamb sections joining said sill and head section to complete the frame and define two adjacent openings offset from said track and channel, said frame head, sill and jamb sections being adapted to removably retain a fixed window panel in one of said openings and to removably retain a fixed screen co-planar with said window panel in the other of said openings; a window panel in said one of said openings; a horizontally slidable sash for said frame having a top rail projectable within said channel of the head section of the frame, a bottom rail for the sash having a channel in the bottom thereof for receiving said track, stiles joining said top and bottom rails to complete the sash structure, said horizontally slidable sash being movable from a position in substantial register with said window panel to a position in substantial register with the said other of said openings, vertical weather sealing means on an adjacent two of said jamb sections and vertical sealing means on the stiles of said sash, said last-named vertical sealing means being so located with respect to the vertical sealing means on said frame as to be in weather sealing relationship therewith when said sash is in its closed position, said sash being also in weather sealing relationship with said channel and with said track whereby when said sash is in substantial register with the portion of the frame surrounding said screen panel, it will be in weather sealing relationship with said frame around its entire periphery.

9. The combination with a window frame having a head section containing a downwardly presenting channel near one edge thereof, a sill having an upwardly presenting track near one edge thereof, and three jamb sections joining said sill and head section to complete the frame and define two adjacent openings offset from said track and channel, said frame head, sill and jamb sections being adapted to retain a fixed window panel in one of said openings and to removably retain a fixed screen panel

co-planar with said window panel in the other of said openings; a window panel in said one of said openings; a horizontally slidable sash for said frame having a top rail projectible within said channel of the head section of the frame, a bottom rail for the sash having a channel in the bottom thereof for receiving said track, stiles joining said top and bottom rails to complete the sash structure, said horizontally slidable sash being movable from a position in substantial register with said one of said openings to a position in substantial register with said other of said openings, vertical sealing strips on one of the jamb sections and on the meeting rail of said frame and vertical sealing strips on the stiles of the sash, said vertical sealing strips being so located with respect to the vertical sealing strips on said frame as to be in weather sealing relationship therewith when said sash is in register with said one of said openings.

10. A combination with a window frame having a head section containing a downwardly presenting channel near one edge thereof, a sill section having an upwardly presenting track near one edge thereof and three jamb sections joining said sill section and head section to complete the frame and define two adjacent coplanar openings offset from said track and channel, said frame head, sill and jamb sections being adapted to retain a fixed window panel in one of said openings and to retain a fixed screen panel in the other of said openings; a horizontally slidable sash for said frame having a top rail projectible within said channel of the head section of the frame, a bottom rail for the sash having a channel in the bottom thereof for receiving said track, stiles joining said top and bottom rails to complete the sash structure, said horizontally slidable sash being movable from a position in substantial register

with said one of said openings to a position in substantial register with said other of said openings, vertical weather sealing means on an adjacent two of said jamb sections and vertical sealing means on the stiles of said sash, said last-named vertical sealing means being so located with respect to the vertical sealing means on said frame as to be in weather sealing relationship therewith when said sash is in its closed position.

GERALD D. PETERSON.

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