

[54] WINDOW UNIT

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[22] Filed: **Jan. 13, 1971**

[21] Appl. No.: **106,203**

[52] U.S. Cl.**49/419, 49/413, 49/504**

[51] Int. Cl.**E06b 1/04**

[58] Field of Search.....**49/413, 414, 419, 49/423, 504**

[56] **References Cited**

UNITED STATES PATENTS

3,256,641	6/1966	Johnson	49/419
3,491,584	1/1970	Selzer.....	49/501
2,192,776	3/1940	Robinson	49/423
3,483,658	12/1969	Dallaire	49/413 X

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[57] **ABSTRACT**

In a single or double glazed horizontal or vertical sliding type window unit, a removable header or jamb track structure is disclosed wherein detent means having a plurality of outwardly projecting serrations which are inserted into grooves located in the flanges of a channel-shaped window frame member to retain by means of a lip the movable pane receiving members within the opening in the channel-shaped window frame. The window frame and the detent means are also adapted to receive moulded window frame coverings.

The movable pane receiving members used in the header of an horizontal sliding type window unit are interchangeable with the movable pane receiving member used in the jamb of a vertical type window unit and vice versa.

6 Claims, 10 Drawing Figures

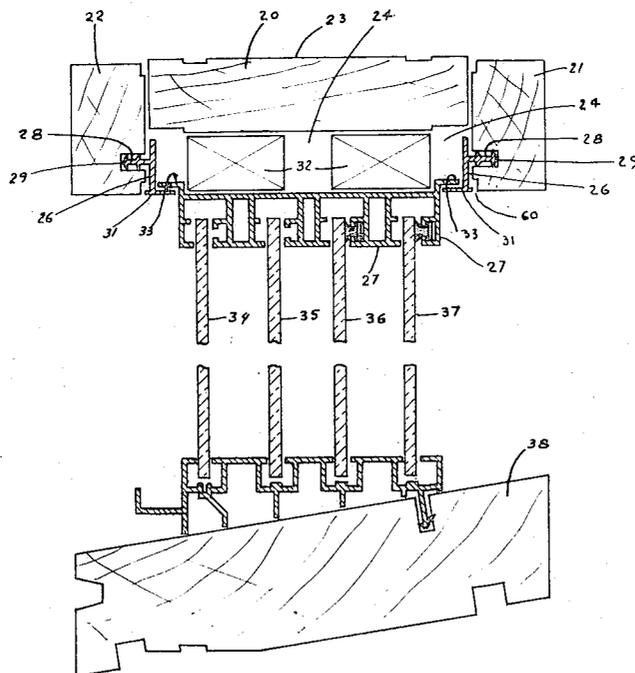
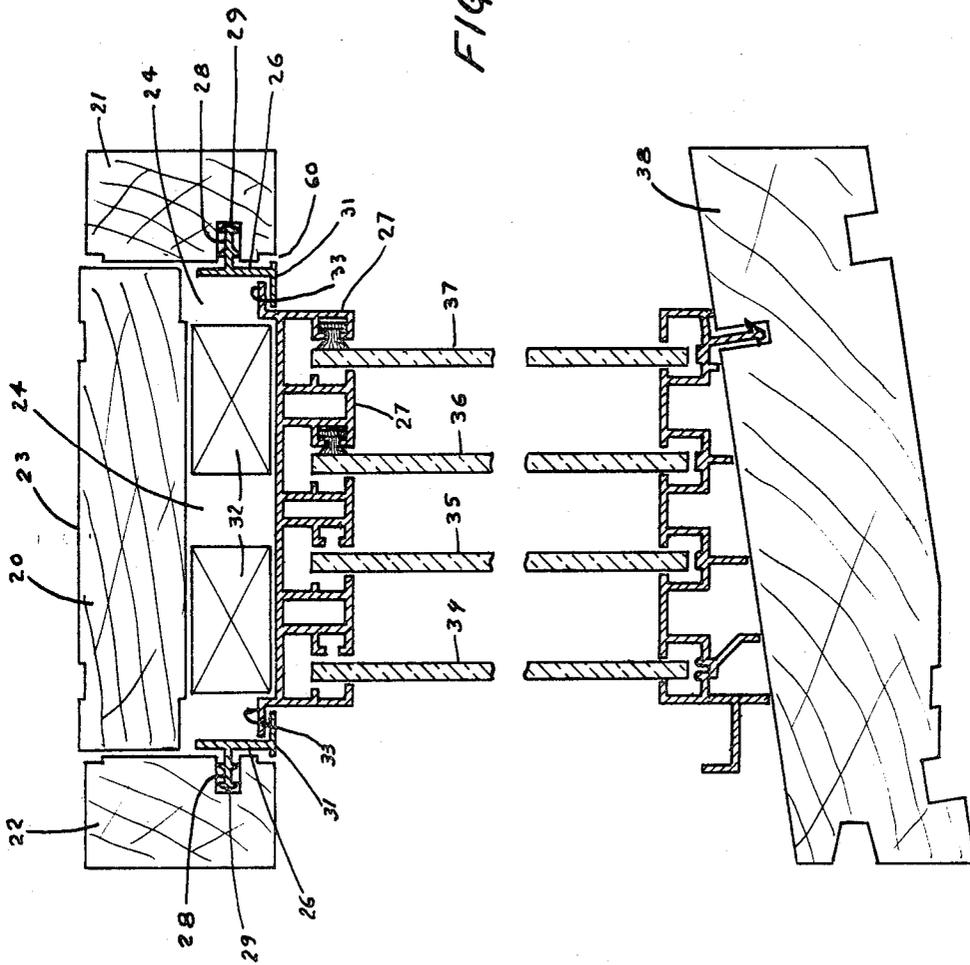


FIG. 1



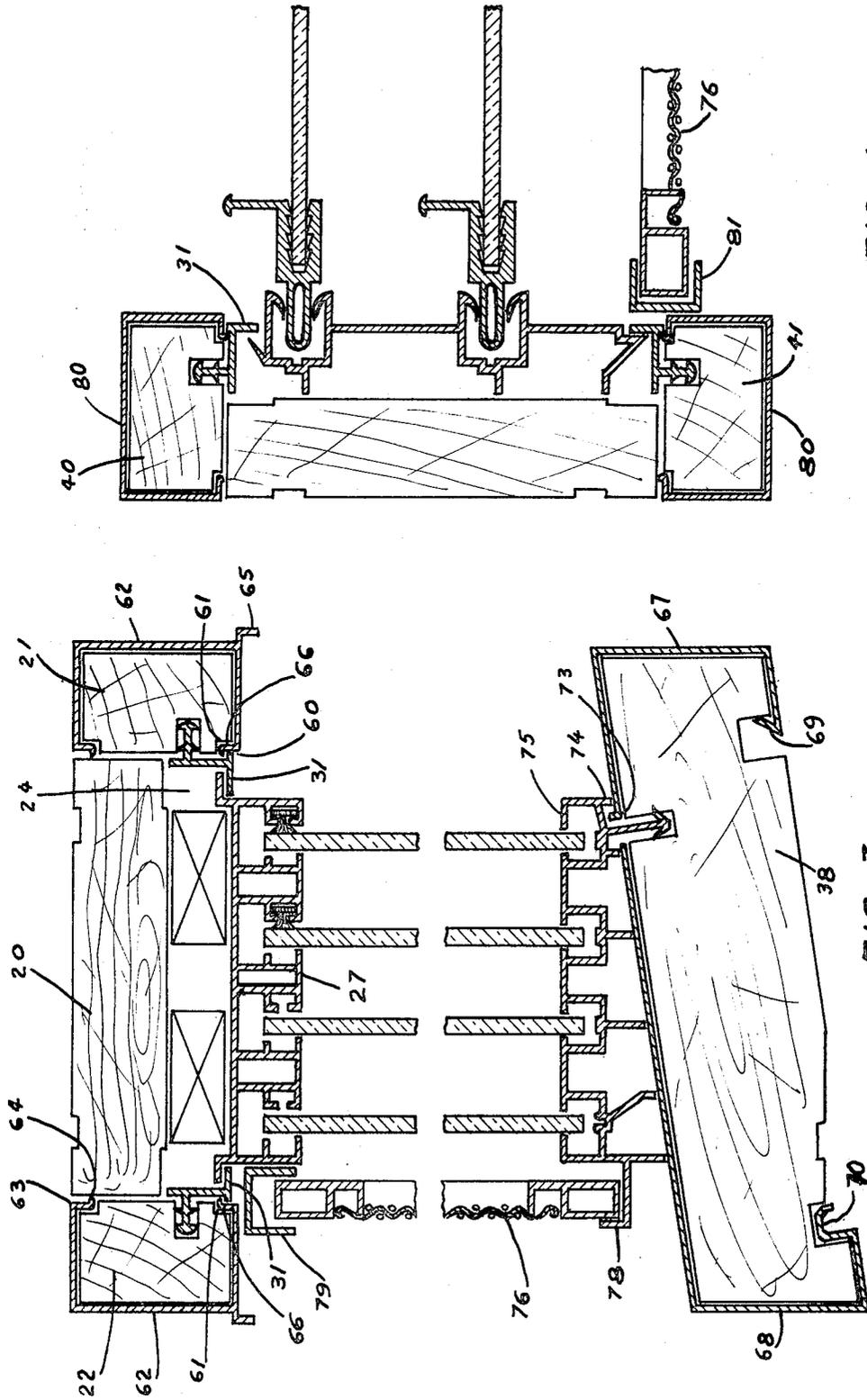


FIG. 4

FIG. 3

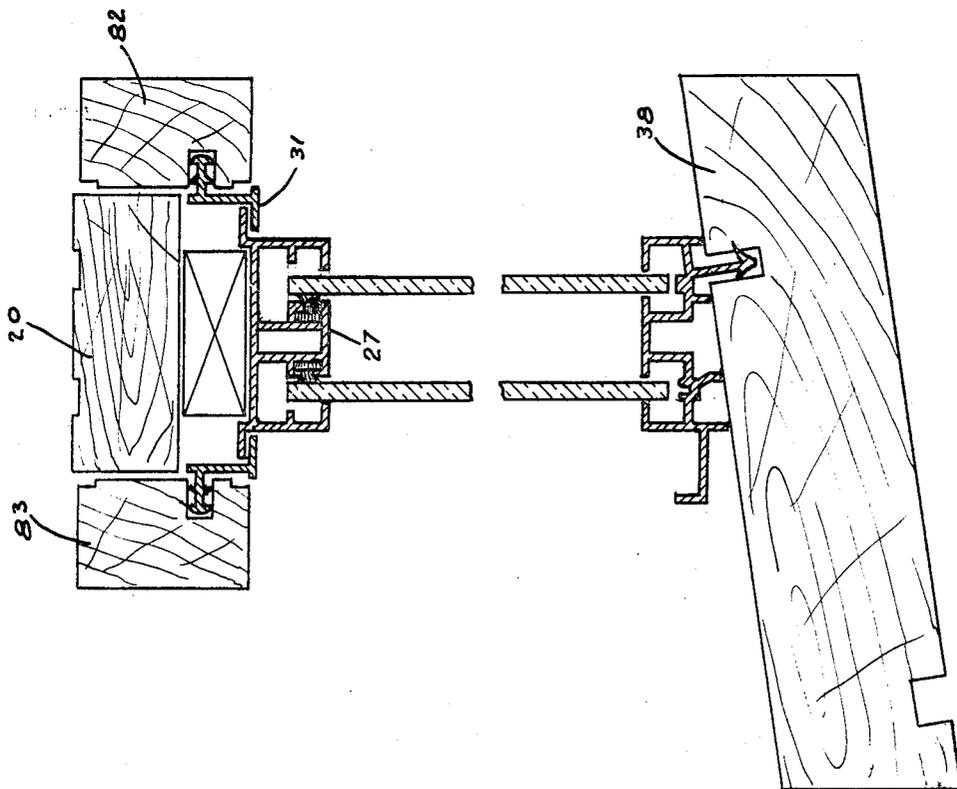


FIG. 5

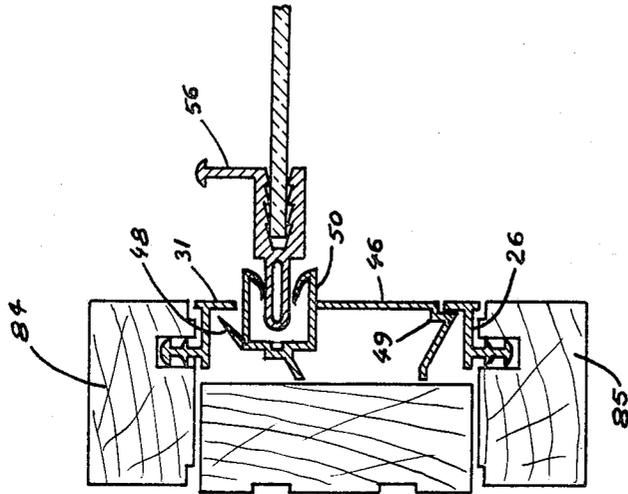


FIG. 6

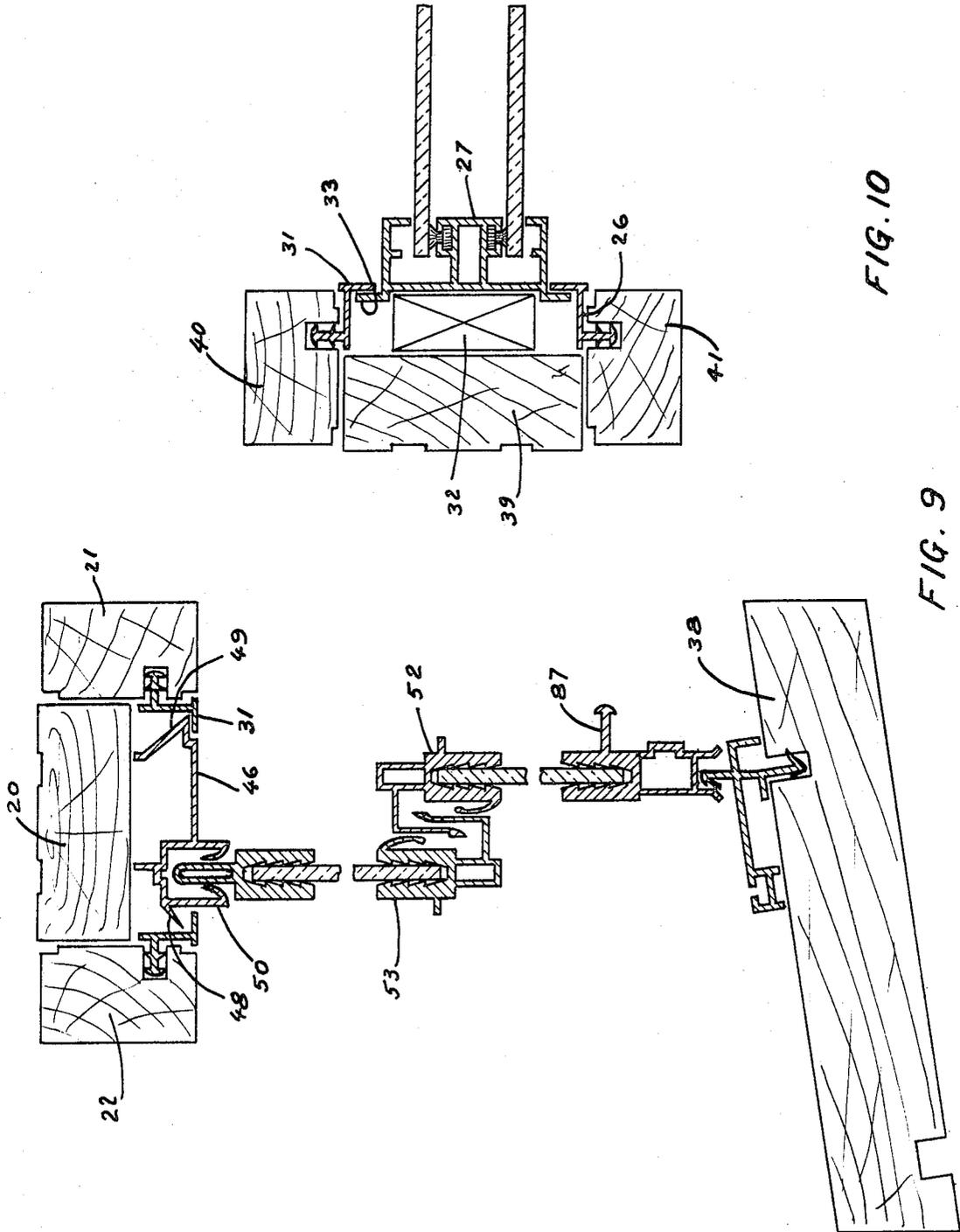


FIG. 10

FIG. 9

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WINDOW UNIT

This invention relates generally to a window unit and more particularly concerns novel header or jamb sections for window units.

An object of the invention is to provide moulded plastic header or jamb extrusions which are simple to manufacture, easily installed and when required, readily replaced.

It is also an object of the invention to provide novel header or jamb extrusions for a window unit to which is co-ordinated a plastic extrusion covering at least the outer surfaces of the wooden window frame. The advantages and description of such window covering or cladding which is preferably plastic material such as a vinyl (polyvinyl chloride) is described in the copending U.S. Pat. application Ser. No. 772, 263 entitled "CURTAIN WALL SYSTEM" (Dallaire et al.) now U.S. Pat. No. 3,600,854 dated Aug. 24, 1971.

In the installation of modern day window units having plastic extruded components, whether they are of the vertical sliding or the horizontal sliding type, it is essential that care be taken since use of improper fastening methods damage the extrusions or the window frames. It has been the practice to fasten the plastic header, sill and jamb extrusions to the window frame by means of glue, nails, screws or the like. This method is not reliable since during hot and cold weather periods the coefficient of expansion of the window frame is not the same as that of the plastic extrusions. Loosening of the extrusions from the window frame therefore results. Also, nailing of the plastic extrusions to the window frame often results in damage or scuff marks on the plastic extrusions.

The U.S. Pat. No. 3,256,641 to Johnson shows plastic extruded jambs secured in place within the window frame jamb of a window unit having sliding sashes by means of laterally projecting serrations integral with the plastic extruded jambs. Apart from the fact that these plastic extruded jambs are not easily removed and replaced, the Johnson invention does not permit or call for any cooperation between the extruded plastic jambs and the cladding of the window frame.

This invention is an improvement to and is of particular advantage when applied to a structure or a window unit constructed in the manner set forth in Raymond Dallaire's U.S. Pat. Nos. 3,383,801 and 3,483,658. This invention is similarly a novel improvement to the window system as disclosed in Dallaire's et al. U.S. Pat. application Ser. No. 772,263 now U.S. Pat. 3,600,854.

The present invention provides for a new and improved header track structure and jamb track structure for use in either vertical sliding type sashless windows and horizontal sliding type sashless windows. It is also an object of this invention to provide for a window unit which may be very easily, quickly and cheaply changed from a vertical sliding type to an horizontal type sashless window, or vice versa.

Thus one advantage of this invention is apparent in that the jamb and header structures of a vertical sliding type and horizontal sliding type window are identical. To convert the jambs and headers from one system to the other, the detachable pane receiving channels and side rail receiving channels need only be removed by hand and replaced by the other type of channel.

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It is also an important object of this invention to provide for an extruded plastic window unit component which is readily adapted for use in a single or double glazed vertical or horizontal sliding sashless window.

Further, it is an important object of this invention to provide for a window unit jamb or header which can be quickly assembled on site preventing any damage to the window unit during transit or during the construction and installation of the window frame.

Also an object of the present invention is to provide for a window unit whose extruded plastic components can be installed quickly without any special tools. Once installed, the window unit assembled pursuant to the invention may be quickly removed or replaced at any time without damaging any of the window unit components.

Another object of the invention is to provide means for securing on the inner or/and outer surfaces of the window frame an extruded plastic covering. The header or jamb structure provided for in the present invention permits the placement of such window frame coverings during installation of window unit or at any time subsequent to such installation. Moreover, another object of the present invention permits at any time the easy removal of the said window frame covering.

It is also an object of the invention to provide for a window unit constructed with materials having different coefficients of expansion, which window unit will operate efficiently during periods of differential expansion and contractions of these materials.

It should be noted that further to the present invention the window unit is interchangeable between horizontal types and vertical types sliding sashless windows. The novel header track structure in a horizontal sliding type window unit is similar to the jamb track structure in a vertical type sliding sashless window, and vice versa. This invention provides for a header for use in an horizontal sliding type sashless window system but is understood that in another embodiment of this invention that this novel header track structure can be used as a jamb track structure for a vertical sliding type sashless window. The header track structure which is secured to the window frame header comprises two three legged generally step-shaped detent means, a movable and removable sliding pane receiving or guiding member and resilient means which can be integral or not with the pane receiving member. One end of the detent means has a plurality of outwardly projecting serrations extending throughout its length and is embedded in a groove located in each of the two inside flanges of the said channel in and parallel to the length of the window frame header. Each of the other ends of the step-shaped detent means forms a lip on which the horizontal flange of the pane receiving member is urged against by the resilient means located between the wooden frame header and the pane receiving member. The middle leg of each of the detent means rests against the flanges of the channel. Further an integral extension of the detent means, parallel to and along the lip end of the detent means forms a ledge within another groove located adjacent the window frame header channel, said ledge being away from the pane receiving member. This ledge is advantageously used to readily assembly and fasten extruded plastic

window frame coverings to the window frame. The appearance of the window, with or without the window covering is therefore clean and simple.

Other objects and advantages of the invention will become apparent upon reading the following detailed description and claims. Also, in order to understand clearly the nature of the invention and the best means for carrying it out, reference will now be had to the accompanying drawings in which;

FIG. 1 is a vertical cross-section of an horizontal sliding type double glazed sashless window constructed in accordance with the invention,

FIG. 2 is an horizontal cross-section of an horizontal sliding type double glazed sashless window constructed in accordance with the invention,

FIG. 3 is similar to FIG. 1, but complete with coverings or claddings on both exposed inner and outer window frame members,

FIG. 4 is similar to FIG. 2, but shows only the jambs section of the window complete with cladding on the exposed inner and outer window frame members,

FIG. 5 is a vertical cross-section of a horizontal sliding type single glazed sashless window constructed in accordance with the invention,

FIG. 6 is a horizontal cross-section through the jamb of an horizontal sliding type single glazed sashless constructed in accordance with the invention,

FIG. 7 is a vertical cross-section of a vertical sliding type double glazed sashless window complete with cladding on the exposed inner and outer window frame members constructed in accordance with the invention,

FIG. 8 is a horizontal cross-section through the jamb of a vertical sliding type double glazed sashless window complete with cladding on the exposed inner and outer window frame jamb and constructed in accordance with the invention,

FIG. 9 is a vertical cross-section of a vertical sliding type single glazed sashless window constructed in accordance with the invention,

FIG. 10 is a horizontal cross-section through the jamb of a vertical sliding type single glazed sashless window constructed in accordance with the invention.

With the exception of the window frame header and jambs which are preferably constructed of Canadian Red Cedar, the header track and jamb track components and the cladding further to this invention are preferably extrusions made from plastic materials such as vinyl (polyvinyl chloride).

Referring to FIG. 1, there is shown in vertical cross-section a horizontal sliding type double glazed window. In the preferred embodiment as shown in FIG. 1 the wooden window frame header, generally referred to as 20, comprises inner and outer header members 21 and 22 and the base header member 23. The inner and outer header members 21 and 22 are identical and extend throughout the length of the base header member 23 and are fastened to it by means of nails or screws in such a way as to form a channel-shaped recess or opening 24 on the lower surface of the window frame header 20. The header track referred to generally as 25 includes two generally step-shaped detent means 26 and a pane receiving channel 27. The end 28 of the detent means 26 has a plurality of outwardly projecting serrations extending throughout its length and is adapted as

shown to be inserted in a groove 29 located on the inside flanges of the inner and outer header members 21 and 22. Once the serrated end 28 of the detent means 26 is inserted preferably by hand into the groove 29, the middle leg 30 of the detent means 26 rests against the inner and outer members 21 and 22 while the other end of the detent means 26 forms a lip 31. Mounted above the pane receiving channel 27 are one or more elastic fillers or resilient foam strips 32 which urged the pane receiving channel 27 away from the base header 23. The pane receiving channel 27 is retained within the header recess 24 by the detent means lip 31 upon which rests overlapping flanges 33 on the outer edges of the pane receiving channel 27. The channels in the lower faces of the pane receiving channel 27 as well as the glass panes 34, 35, 36, 37 and the window sill 38 are similar to those described and shown in U.S. Pat. Nos. 3,483,658 and 3,383,801 to Dallaire and in U.S. Pat. No. 3,600,854 to Dallaire et al.

FIG. 2 is a horizontal cross-section of a horizontal sliding type double glazed sashless window of the type which cooperates with the novel header track 25 described above. The window frame jamb generally referred to as 39 and which is preferably of wood consists in its preferred embodiment of three pieces referred to as the base jamb member 40 and the identical inner and outer jamb members 41 and 42 respectively. It is noted that for ease of construction and assembly and in accordance with this invention the base header member 23 is of the same cross-sectional size as the base jamb member 36. The jamb and header inner and outer members 21, 22, 41 and 42 are also identical. The inner and outer jamb members 41 and 42 are fastened to the base jamb member 40 by means of nails or screws. As shown in FIG. 2, once assembled, the window jamb members form a channel-shaped recess 43. Within the recess 43, detent means 26 previously described are inserted in longitudinal grooves 44 and 45 on the inner and outer jamb members 41 and 42, which grooves are similar to the grooves 29 in the inner and outer header members 21 and 22. Instead of a pane receiving channel 27 found in a header track 25, the jamb track is provided with a side rail receiving channel 46 which is resiliently urged against the lips 31 of the detent means 26 by integral resilient barb flanges 47. The side rail receiving channel is held within the recess 43 by means of flanges 48 and 49. In the preferred embodiment as shown in FIG. 2 each side rail receiving channel 46 is provided with two side rail tracks 50 and 51 having weatherstripping means of an integral resilient wing-shaped type. It is also apparent from this invention that the side rail receiving channel 46 is identical with and is therefore reversible with the other jamb's side rail receiving channel 46 used on the opposite side of the window. A reduction in a number of components required to complete the installation of such a window is therefore arrived at. The advantages of designing and constructing a window using the detent means 26 are therefore once again observed.

Details of the structure and operation of the meeting rails 52, 53, 54 and 55 and the side rails 56, 57, 58 and 59 are found in the aforementioned issued U.S. Letters Patents to Dallaire and in the name of Dallaire et al.

FIG. 3 is similar to FIG. 1 but also shows the window frame covering or cladding on the exposed inner and

outer members. Detent means 26 are also provided with an integral flange 60 located away from the detent means lip 31. This flange 60 extends slightly into groove 61 of the inner and outer header members 21 and 22, which groove is located adjacent the outward corners of the recess 24 formed in the window frame header 20. The inner and outer members 21 and 22 are provided with an identical header covering extrusion 62 having a flange 63 engaged in a groove 64 each in the inner and outer header members 21 and 22, and provided with drip cap 65 and a snap-in flange 66 which is engaged in groove 61 with the detent means flange 60. The header covering extrusion 62 is thus adapted to be snapped onto the wooden inner and outer header members of a window. Coverings or claddings of the sill member 38 is accomplished as shown in FIG. 3 with covering extrusion 67 and 68 having flanges 69 and 70 respectively engaged respectively in grooves 71 and 72 in the sill member 38. Sill covering extrusion 67 is provided with a snap-in flange 73 which is engaged with flange 74 of the sill track 75. As shown, the preferred embodiment of this invention may be provided with an insect screen 76 having a frame 77 retained within extruded plastic channels 78 and 79 provided in a sill track 75 and on the header 20. Channel 79 can be fastened to the header 20 by any usual fastener including staples.

FIG. 4 is similar to FIG. 2 but shows only one of the two jamb section of the window complete with covering or cladding on the exposed outer and inner members. Since the outer and inner jamb members 40 and 41 are identical to outer and inner header members 21 and 22, the header covering extrusions 62 with the drip cap 65 removed becomes the jamb covering extrusion 80. The insect screen 76 is retained within extruded plastic channel 81 which is identical to the extruded channel 79.

It is apparent once again, that many plastic extrusions and members of the header and jamb structures are identical, thereby making it possible to construct and assemble a reliable window unit at a lower cost.

It should be noted that if it is desired only to clad the outer header and jamb members 22 and 41 respectively, this can also be very conveniently accomplished. It will be appreciated that if exposed wooden framework is preferred on the interior or inner header and jamb members 24 and 40 respectively that the snap-on coverings may be omitted from the windows of this invention and the wood frame may be finished in any manner according to the taste of the owner of the building.

FIG. 5 is a vertical cross-section of a horizontal sliding type single glazed sashless window constructed in accordance with the invention. FIG. 6 is a horizontal cross-section through a jamb of a horizontal sliding type single glazed sashless window constructed in accordance with the invention. The embodiment of the invention as shown in FIGS. 5 and 6 is the same as shown and described with respect to FIGS. 1 and 2 with the exception that this embodiment of the invention shown in FIGS. 5 and 6 provides for a single glazed window and not for a double glazed window. It will be noted that the inner and outer header and jamb members 82, 83, 84 and 85 are all identical with the inner and outer header and jamb members 21, 22, 40 and 41.

The plastic extrusion covering members 62 and 80 can be snapped on the inner or outer, or both header and jamb members of all the described embodiments of this invention. This invention provides that the only differences between a single and double glazed window are the pane receiving channels, side rail receiving channels and the base header and jamb members. Apart from the fact that these members are all equally reduced in width, the pane receiving channels and the side receiving channels only include two and one tracks respectively to accommodate the single glazed window system.

FIG. 7 and FIG. 8 are similar to FIG. 3 and FIG. 4 but represent an embodiment of the invention in a vertical sliding double glazed window instead of a horizontal sliding type double glazed window. Further to the invention the header structure of the horizontal sliding type window shown in FIG. 1 becomes the jamb structure of the vertical sliding type window shown in FIG. 8. Similarly the jamb structure shown in FIG. 2 is identical to the header structure in FIG. 7. The meeting rails 52, 53, 54 and 55 are identical to those in FIGS. 2 and 4. The lift rails 86 and 87 are common in the art and a locking mechanism as disclosed in the U.S. Pat. No. 3,339,957 to Dallaire or as known in the art may be used. In FIG. 7, the insect screen 88 does not cover the whole window. The insect screen is retained in position by channel 89 which is fastened to the jamb structure.

As previously discussed, and in the manner described the plastic coverings or claddings on the exposed surfaces of the window frame may be omitted.

FIGS. 9 and 10 are similar to FIGS. 5 and 6 but represent an embodiment of the invention in a vertical sliding type single glazed window instead of a horizontal sliding type single glazed window. It is noted that the jamb structure shown in FIG. 10 is identical with the header structure of FIG. 5. Also, the header structure shown in FIG. 9 is identical with the jamb structure of FIG. 6.

It is therefore apparent that the novel header and jamb structures provide for a novel window unit which is simple, easily assembled and readily removed and replaced. Since many of the components are identical, a saving in inventory results.

To install the novel header and jamb structures according to this invention, once the window frame has been fixed to the house or building, the serrated end of the step-shaped detent means is firstly inserted into the grooves in the flanges of the recess within the window frame jamb and header. The pane receiving channels and side rail receiving channels are thereafter inserted within the header or jamb recesses making sure that the resilient foam is placed between the base header member and the pane receiving channel. The pane receiving channel and the side rail receiving channel are readily inserted within their respective window frame recesses and are retained in position by the detent means lips since these channels are made of a plastic material which is pliable and resilient in a direction perpendicular to their length. If cladding is to be added, these coverings can then be snapped on over the desired window frame members. The required number of glass panes are then inserted in the glass pane channels by depressing the pane receiving channels with one end of the glass pane and inserting the

