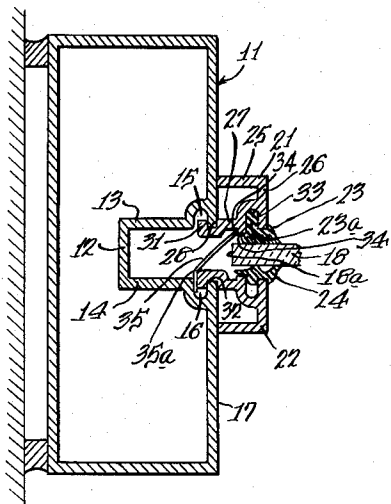


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BUILDING CONSTRUCTION

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## BUILDING CONSTRUCTION

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The present invention relates to building constructions, and more particularly to a novel glazing arrangement and new and improved structural members which are adapted to be interfitted with one another in different arrangements whereby a small number of differently shaped parts may be used for many different structural purposes in fabricating building frames and in securing window panes in the frames. Certain subject matter disclosed but not claimed in this application is covered by the copending application filed jointly with Lewis L. Pulling, Serial No. 615,597, filed October 12, 1956.

Because of its many advantages over the older types of building construction, the curtain wall type of building construction has been widely used in recent years. The metallic members which make up the curtain wall are necessarily formed at the factory and, in the case of prior art curtain walls, a large number of differently shaped members which are ordinarily used in the fabrication of any one building must be manufactured and stacked. In order to reduce the number of different types of parts which must be provided, it would be desirable to minimize the number of differently shaped structural members which are needed, while at the same time not diminishing the number of different structural shapes which are available to the architect in designing the building. It would also be desirable to provide interfitted members which may be easily assembled to one another without the use of special tools or the like and which do not have exposed screws or other fastening devices which would mar the appearance of the completed unit or encourage vandalism and thus the destruction of certain parts of the building.

An object of the present invention is to provide a new and improved glazing arrangement.

A further object of the present invention is to provide a glazing arrangement having no exposed screws or other fastening devices.

Another object of the present invention is to provide a glazing arrangement which is particularly suited for use with the above-referred to frame member.

Very briefly, certain of the above and further objects are realized in accordance with one aspect of the present invention by providing extruded frame members having a particularly shaped glazing channel therein which may be used as a window frame in connection with either putty or puttlless glazing and which may be used as a number of other constructional members by the connection thereto of other suitably shaped members. In accordance with another aspect of this invention the above-referred to glazing channel may be formed by a plurality of different members whereby said other suitably shaped members for said glazing arrangement may be used therewith.

Further of the above and other objects are realized in accordance with the present invention by providing a glazing arrangement which may be used with or without putty for mounting window panes in window frames. In an exemplary embodiment of the invention the glaz-

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ing arrangement includes a set of resilient gaskets and a pair of channel shaped glass stops having reentrant lips on the end of one side flange for reception in undercut glazing channels in a window frame. The resilient gaskets are compressed between the glass stops and opposite sides of the window pane and thus provide a seal between the glass stops and the window pane. In addition, and as more fully described hereinafter, the gaskets serve to removably secure the glass stops to the supporting frame.

The invention both as to its organization and method of operation, together with further objects and advantages thereof, will best be understood by reference to the following detailed description taken in connection with the accompanying drawing which illustrates in cross section a window including a puttlless glazing arrangement of the present invention.

Referring now to the drawing, there is shown a vertically extending tubular frame member 11 which may be mounted between the floors of a building by conventional means (not shown). Preferably, the frame member 11 is extruded and includes a generally rectangular glazing channel 12 having a pair of side walls 13 and 14 in which longitudinally extending grooves 15 and 16 are provided at equal distances from a jamb surface 17. It will be understood that the frame member 11 is one of four frame members which may be attached in a rectangle to provide a window frame for a glass pane 18, and since the manner in which the pane 18 is attached to each of the four frame members may be the same as that shown in the drawing, only the glazing arrangement by which the pane 18 is secured to the frame member 11 is described.

In order to secure the pane 18 to the frame 11 and to provide a weather-tight seal across the marginal edges of the pane 18, a pair of identical glass stops 21 and 22, which are substantially rigid and preferably are metallic extrusions, are fastened to the frame member 11 and support a pair of gaskets 23 and 24 which are resiliently biased against the opposite sides of the pane 18. As shown, the marginal edge 18a of the pane 18 is located outside of the channel 12 and the gaskets 23 and 24, which are resilient, are interposed between the glass stops 21 and 22 and the sides of the pane 18.

The glass stops 21 and 22, which as mentioned above are identical and thus may be cut in the field from the same extruded member, are generally channel-shaped in cross-section comprising a side flange 25, a bottom web 26, and an opposite side flange 27. The outer surfaces of the flange 25 and the web 26 constitute a molding and in accord with modern design are planar surfaces. Obviously, however, a more ornate configuration could be provided. The flange 27, which is hidden from view in the completed window, has a reverse bend near the marginal edge to define an inwardly opening groove 28 adjacent a reentrant lip or toe 31. The width of the groove 28 is only slightly larger than the corresponding dimension of a plurality of inwardly facing lips 32 which are respectively provided on the frame 11 between the grooves 15 and 16 and the jamb surface 17.

As shown, the flange 27 is longer than the flange 25 and the side wall of the groove 28 which is closest to the web 26 is spaced from the web 26 by a distance equal to the height of the flange 25. Accordingly, with the toe 31 hooked over the lip 32 and positioned in the groove 15 or 16 the marginal edge of the flange 25 abuts against the jamb surface 17.

In order to fixedly position the gaskets 23 and 24 in place, tongue and groove joints are provided between the gaskets and the glass stops. Therefore, an external groove 33 is provided in the flange 27 near the web 26 and a tongue 23a on the gasket 23 and a similar projec-

tion on the gasket 24 are respectively received in the groove 33. A plurality of projections may be provided on the sides of the tongue 23a to hold the gasket in engagement with the glass stop.

In accordance with another aspect of this invention, a shoulder 34 is provided on the outer surface of the flange 27 intermediate the groove 33 and the marginal edge thereof and faces toward the marginal edge to provide a surface against which one end of a flat spring member 35 abuts. The spring 35 is provided to hold the glass stop 21 in place during installation of the pane 18 and is positioned between the shoulder 34 and a wall of the groove 16. As shown, the spring 35 is bent at 35a to provide an end portion which lies flat against the adjacent wall of the groove 16. In mounting the pane 18 within the frame including the frame member 11, the glass stop 21, which may be termed the fixed glass stop and is hereinafter referred to as such, is slipped into the position shown in the drawing and a plurality of the flat springs 35, which may have a cross-sectional width of about one-quarter inch, are spatially arranged along the length of the glass stop 21 and are respectively interposed between the shoulder 34 and the inner side wall of the groove 16 thereby to force the marginal edge of the flange 25 against the jamb surface 17 and to press the flange 27 snugly against the lip 32. In a normal sized window, two or three of the springs 35 are generally used. The gasket 23 is now secured to the glass stop 21 if it had not previously been attached thereto.

With the fixed glass stop 21 thus held in place by the springs 35, the pane 18 is positioned in the window frame opposite the channel 12 in abutment with the gasket 23. The glass stop 22 is then moved into position so that the toe 31 is disposed in the groove 16 between the upper side thereof and the spring 35. The toe 31 is sufficiently short that it can be moved over the lip 32 while the pane 18 is in place against the gasket 23. With the glass stop 22 thus in position, the gasket 24 is forced between the pane 18 and the glass stop 22 until the tongue of the gasket 24 snaps into the groove in the stop 22. The gaskets 23 and 24 are sufficiently resilient to permit this type of assembly and preferably, the gasket 23 is positioned on the outside of the pane 18 and is more resilient than the gasket 24 so that movement of the gasket 24 into place is facilitated while still providing a window construction in which movement of the pane 18 in the frame is maintained at a minimum.

When the gasket 24 has thus been snapped into place, the pane is resiliently held between the gaskets 23 and 24 due to the natural resiliency thereof, and moreover, the natural resiliency of the gaskets 23 and 24 causes the glass stop 22 to be pivoted in a clockwise direction as viewed in Fig. 1 so that the marginal edge of the flange 25 thereof is resiliently pressed against the jamb surface 17 thereby to provide a tight straight joint between the glass stop 22 and the jamb 17 which is not unattractive in appearance. It will thus be apparent that the jamb surface 17 should be of substantial width to provide a sturdy glazing arrangement. Moreover, a wide jamb surface enables the use of a tubular frame thereby to provide a rigid channel.

Although the use of resilient gaskets 23 and 24 is preferred, where desired, putty may be used in place of the gaskets. Also, under some circumstances where resilient gaskets 23 and 24 are used, the springs 35 may be eliminated. If, however, the putty type of glazing is used, i.e., the gaskets 23 and 24 are replaced with putty, the springs 35 should be employed.

The use of a glazing channel 12 having grooves 15 and 16 thus provides means for receiving glass stops which support a window pane.

Moreover, the building construction of the present invention is simple in design which facilitates rapid assembly of a wall and provides a strong, durable product.

The various parts may be assembled without the need of special tools and the like and there are no exposed screws, clips or other small pieces of hardware to vibrate loose, to be removed by acts of vandalism or to become corroded so as to make removal thereof for normal maintenance extremely difficult.

While a particular embodiment of the invention has been shown, it will be understood, of course, that it is not desired to limit the invention thereto since modifications thereof may be made, and it is, therefore, contemplated by the appended claims to cover any such modifications as fall within the true spirit and scope of the invention.

Having thus described the invention, what is claimed and desired to be secured by Letters Patent is:

1. In a window construction, the combination of a frame including a framing member having a jamb surface and a channel opening toward the center of said frame, opposite side walls of said channel being respectively provided with grooves defining opposing lips which are coplanar with the jamb surface of said frame member, a pane positioned in said frame with one edge of said pane opposite said channel, a plurality of elongated glass stops, each of said stops being substantially channel shaped and having one leg longer than the other leg with reversely shaped toe portions near the edge of the inner surface thereof respectively receivable in said grooves beneath said lips, each of said stops having its second leg portion seating on the jamb surface at a distance from the channel and each having intermediate portions overlapping a portion of the sides of said pane, and resilient means interposed between said intermediate portions of said stops and the adjacent sides of said pane for providing a seal between said stops and said pane and for biasing said second leg portions of said stops against said jamb surface thereby removably to secure said pane to said frame member.

2. In a window construction, the combination of a frame including an elongated framing member having a longitudinally extending jamb surface and a glazing channel in said jamb surface, a pair of oppositely directed grooves in the opposite side walls of said channel, a plurality of reentrant lips on the side walls of said channel near the mouth thereof, a pane positioned in said frame with one edge of said pane opposite said channel, a plurality of elongated, substantially rigid glass stops, each of said stops being substantially U-shaped and having one leg portion with a reversely bent toe portion receivable in an associated groove, the second leg portions of said glass stops being juxtaposed to said jamb surface of said frame at a distance from the channel, the intermediate portions partially overlapping the sides of said pane, and a plurality of resilient gaskets respectively interposed between said intermediate portions of said stops and the adjacent sides of said pane for providing a weather seal and for biasing said second leg portions of said glass stops against said jamb surface of said frame member thereby to secure said pane to said frame member.

3. In a window construction, the combination of a frame including a framing member having a glazing channel opening toward the center of said frame, grooves in opposite side walls of said channel, a pane positioned in said frame and coplanar with said channel, an elongated glass stop of generally channel shaped configuration, said glass stop having one leg portion with a reversely shaped toe portion for reception in a groove of said frame member, the second leg portion of said glass stop being juxtaposed to a surface of said frame member at a distance from the channel, said glass stop having an intermediate portion overlapping a portion of one side of said pane, and means including resilient means secured to said glass stop and interposed between said intermediate portion of said glass stop and the adjacent side of said pane for providing a seal between said glass stop and said pane and for holding said pane in place.

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4. In a window construction, the combination of a frame including a framing member having a jamb surface and a channel opening toward the center of said frame, undercut portions in opposite side walls of said groove defining opposing lips which are coplanar with the jamb surface of said frame member, a pane positioned in said frame with one edge of said pane opposite said groove, a plurality of elongated glass stops, each of said stops being substantially channel shaped and each having one leg portion with reversely shaped toe portions respectively receivable in said grooves beneath said lips and having second leg portions juxtaposed to said jamb surface of said frame at a distance from the channel, said glass stops each having intermediate portions overlapping a portion of the sides of said pane, resilient means interposed between said intermediate portions of said stops and the adjacent sides of said pane for providing a seal between said stops and said pane and for biasing said second leg portions of said stops against said jamb surface thereby removably to secure said pane to said frame member, an external shoulder on one of said glass stops, said shoulder facing toward the bottom of said channel and interposed between said internally opening groove and said externally opening groove, and spring means compressed between said shoulder and the portion of said frame member defining the groove in which the toe of the other glass stop is disposed to resiliently secure said one of said glass stops to said frame member.

5. An elongated glass stop, for use in a window construction of the type including a framing member having a jamb surface and a channel opening toward the center of the framing member with the opposite side walls of the channel being respectively provided with

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grooves defining opposing lips which are coplanar with the jamb surface of the frame member, and a pane positioned in the frame with one edge of the pane opposite the channel, said glass stop comprising a substantially channel shaped member and having one leg longer than the other with reversely shaped toe portions near the edge of the inner surface thereof adapted to be receivable in one of the grooves of said framing member beneath the lips thereof, said stop having its second leg portion adapted for seating on the jamb surface of the framing member at a distance from the channel opening and having intermediate portions adapted to overlap a portion of the sides of said pane, the stop being adapted to receive resilient means interposed between said intermediate portions of said stop and the adjacent sides of the pane for providing a seal between said stop and said pane and for biasing the second leg of said stop against the jamb surface whereby the stop removably secures the pane to the frame member.

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