Dec. 16, 1941. W. A. MOLLARD 2,266,235

DOUBLE GLAZING

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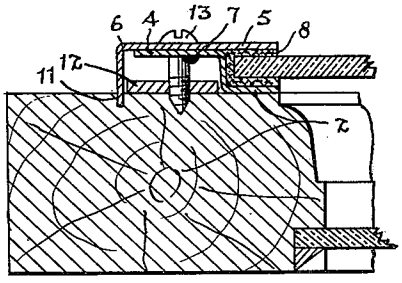


Fig. 2.

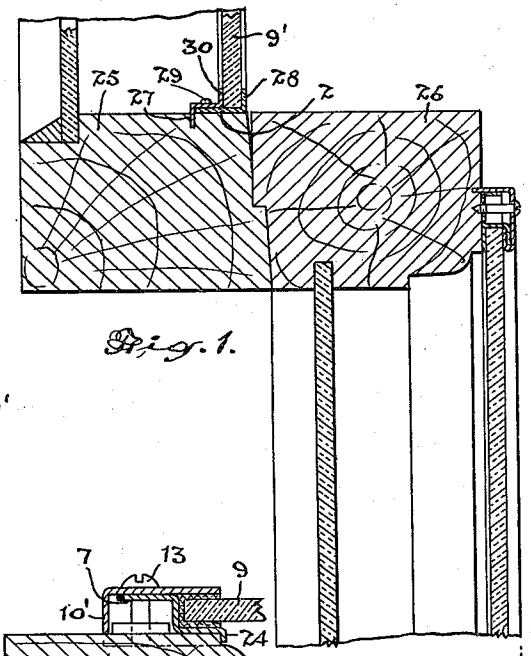


Fig. 1.

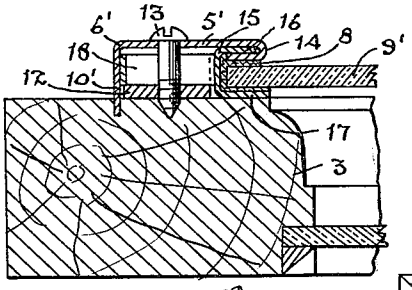


Fig. 3.

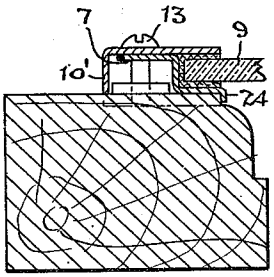


Fig. 6.

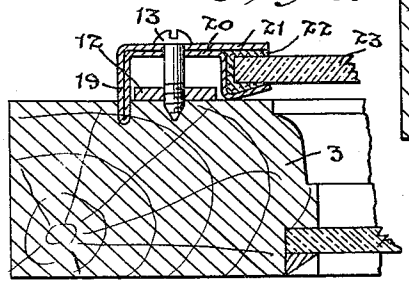


Fig. 4.

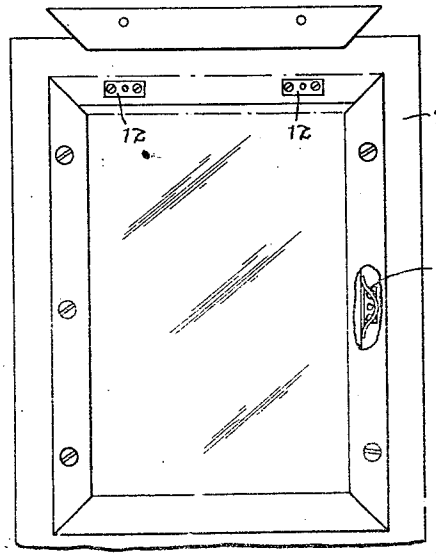


Fig. 5.

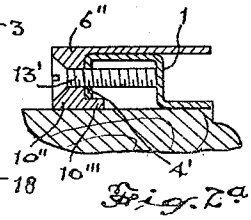
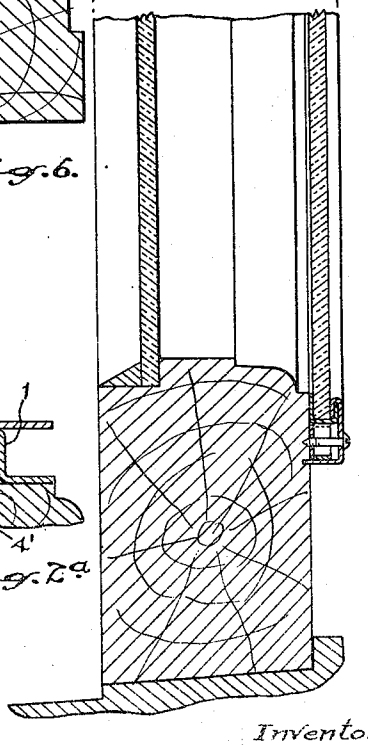


Fig. 7a.



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DOUBLE GLAZING

William A. Mollard, Toronto, Ontario, Canada

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3 Claims. (Cl. 20—56.5)

This invention relates to double glazing and more particularly to improvements in frame constructions for the mounting of the secondary glass, and the principal object of the invention is to provide a simple and inexpensive frame construction which will facilitate the work of double glazing and which will present an effective sealed relation with the sash without the necessity of rebating the main body of the frame into the sash.

A further and important object is to facilitate the reglazing of the frame in the event of the glass being broken.

The principal feature of the invention resides in the novel construction of the frames from light sheet metal in separable sections between which a glass-receiving channel is formed.

A further and important feature resides in the flanged construction of the frame with spaced flange portions, one of which is adapted to rest on the flat outer face of the sash, while the other presents an edge extension adapted to be recessed into the sash below said face to provide a seal and a positioning support.

In the drawing Figure 1 is a contracted view in cross section of a lower sash illustrating one form of the present invention applied thereto and showing the meeting rail of the upper sash and a preferred manner of connecting the upper double glazing frame thereto.

Figure 2 is a cross sectional view through a portion of the sash and showing in section one form of glass mounting frame applied thereto.

Figure 2^a is a cross section through a frame embodying a modification of Figure 2.

Figure 3 is a view similar to Figure 2 showing a modified form of glass mounting frame.

Figure 4 is a view similar to Figure 2 illustrating a further modified form of frame construction.

Figure 5 is an elevational view on a reduced scale showing a sash with the double glazing frame mounted thereon, one section of the frame being indicated as removable.

Figure 6 is a cross sectional view of a modified form of frame.

It is well known that the use of double glazing or storm sash during the colder seasons of the year is possessed of distinct advantages over single glazing and more attention is being constantly directed in this connection through the wider use of air conditioning which calls for the maintenance of a high degree of humidity in the atmosphere within a dwelling. The use of double glazing precludes the objectionable formation of frost on the window glass caused by condensation of the moisture from the atmosphere thereon.

Various types of double glazing structures or storm sash have been proposed from time to time, but these have invariably been of a complicated or costly nature or difficult to instal and service and the present invention contemplates a simple but effective form of construction which may be applied in a very simple manner directly to the sash to provide in association with the standard window glass a double glazed window.

In the form of construction shown in Figure 2 the attachment frame is shown formed of a Z-shaped portion 1 having a flange 2 arranged to flatly overlie the face of the sash member 3 and the flange portion 4 is parallelly offset therefrom and overlapped by the flange portion 5 of an L-shaped member 6. The flanges 4 and 5 are preferably secured together in a detachable manner as for instance by soldered connections 7 arranged at suitable intervals and the flange 5 has a portion spaced from the flange 2 forming a channel 8 to receive the glass 9.

The other flange portion 10 of the member 6 is here shown extending beyond the plane of the face of the sash engaged by the flange to fit in an effective seal and positioning relation to the sash in the groove 11 formed therein.

Metal fastening plates 12 may be secured on the sash in the proper location to receive the fastening screws 13 here shown extending through the flanges 4 and 5.

The construction shown in Figure 2^a is in principle similar to that of Figure 2 but the L-shaped frame portion 6'' is extruded from a suitable metal such as aluminum with an exceptionally thick flange portion 10'' which will have sufficient thickness to threadedly receive a screw 13' and provide for countersinking of the head thereof, such screw engaging the other Z-shaped frame section 1 in glass-clamping contact. The portion 10'' may advantageously be formed with a lip extension 10''' for holding engagement with an extension 4' of the Z-shaped frame section 1.

Referring to the form of the invention illustrated in Figure 3, the outer L-shaped member 6' is shown provided with a return bend 14 and a removable U-shaped frame 15 has a flange portion 16 slidably engaged between the flange portion 5' of the member 6' and the return bend portion 14, and the other flange 17 is spaced from the return bend portion 14 to form a channel 8' to receive the glass 9' and the flange 17 is adapted to flatly engage the outer surface of the sash member 3.

Bowed spring members 18 are here shown

compressed between the flange portion 10' of the member 8' and the displaceable U-shaped channel member 15 to urge the same into holding relation to the glass.

With the construction shown in Figures 2 and 3 it will be apparent that the construction of the frames and glazing thereof will be greatly simplified, since the glass may first be positioned with its edges overlapping the flanges 5 and 5' and the Z-shaped strips may then be placed and tacked securely as by the solder connection 7, or in the case of the construction in Figure 3, the U-shaped member 15 may be quickly slipped into place and the springs 18 placed to hold the same in position and in either case a suitable plastic or sealing agent may be placed within the glass-receiving channel to effectively seal the edge of the glass therein.

In the simpler form of the invention shown in Figure 4 the frame members are formed from a thin strip of metal doubled upon itself into substantial L-formation so that the double flange portion 19 will engage or be recessed into the sash, while the right-angular portion has the inner section 20 turned inwardly parallel to the portion 19 and then laterally away therefrom to form with the extension 21 a channel 22 to receive the edge portion of the glass 23.

With this construction there will be a desirable flexibility between the sections 20 and 21 so that these may be sprung apart to facilitate insertion of the glass for reglazing, or, as indicated in Figure 5, the insertion or removal of the glass may be accomplished by having one end portion of the rectangular frame removable.

In certain cases it may not be desirable to recess the edge of the flange portions 10, 10' or 19 into the sash and this portion of the frame may be allowed to simply abut the outer surface as indicated in Figure 6 and the inner channel-forming flange may be turned laterally as indicated at 24 to engage the normal profile of the sash in positioning contact, forming at the same time a stepped joint.

In order to facilitate the mounting of the upper frame section on the meeting rail 25 of the upper sash, this portion of the frame is here shown formed of a Z-shaped cross section having the horizontal intermediate portion 26 resting on the upper surface of the lower meeting rail, while the flange portion 27 is recessed into said rail, the other flange portion 28 being arranged to engage the glass 9'. A small L-shaped frame section is mounted on the flange portion 26 preferably by a detachable soldered connection at 29 and the flange portion 30 thereof engages the glass 9' on the opposite side.

It may in certain cases be found desirable to recess the frame bodily into the sash for a portion at least of its depth such as by forming a shallow depression in the sash as indicated in broken lines Figure 6, which will not only serve to reduce the projecting bulk of the frame but will provide at the same time the desired stepped joint with its positioning and supporting influence on the frame.

A structure such as defined may be easily applied and removed and will, in addition to its serviceability, present a neat and attractive appearance.

What I claim as my invention is:

1. A double glazing frame for mounting directly on standard sash and of the type formed of inner and outer sections forming therebetween a glass-receiving channel, characterized in that the outer section farthest from the sash is of well defined L-shape in cross section with the base portion of the L extending toward and bearing against the sash in frame-positioning and supporting contact and the inner of said sections closest to the sash is of substantial Z-shape in cross section with one leg of the Z form parallelly underlying the main portion of the L section in extensive surface-supporting contact, the opposite leg portion of the Z-shaped section being substantially parallelly offset inward from the said main portion of the L-shaped section to form said glass-receiving channel.

2. A double glazing frame for mounting directly on standard sash and of the type formed of inner and outer sections forming therebetween a glass-receiving channel, characterized in that the outer section farthest from the sash is of well defined L-shape in cross section with the base portion of the L extending toward and bearing against the sash in frame-positioning and supporting contact and the inner of said sections closest to the sash is of substantial Z-shape in cross section with one leg of the Z form parallelly underlying the main portion of the L section in extensive surface-supporting contact, the opposite leg portion of the Z-shaped section being substantially parallelly offset inwardly from the said main portion of the L-shaped section to form said glass-receiving channel, the overlapping portions of said Z and L-shaped sections being formed with aligned perforations for the reception of mounting screws, the combined thickness of the overlapped portions of said Z and L sections thereby serving to reinforce the structure and distribute the clamping pressure of the mounting screws inserted through said aligned openings.

3. A double glazing frame as claimed in claim 1 in which said L-shaped section is formed of extruded metal having the said base portion of the L of materially heavier cross section than the said main portion thereof and having a lip extension for positioning immediately adjacent the sash, said first-mentioned leg of the Z-shaped section having an edge portion flanged to parallel the base of said L-shaped section and engaging the inner side of the said lip in sliding and guiding contact, said base portion of the L-shaped section and the parallel flange portion of the Z section having aligned screw-receiving openings therein, and a screw member inserted through said aligned openings and adapted to relatively adjust said Z and L sections.

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