Dec. 28, 1937. C. D. LOWRY 2,103,732

SASH AND STORE FRONT CONSTRUCTION

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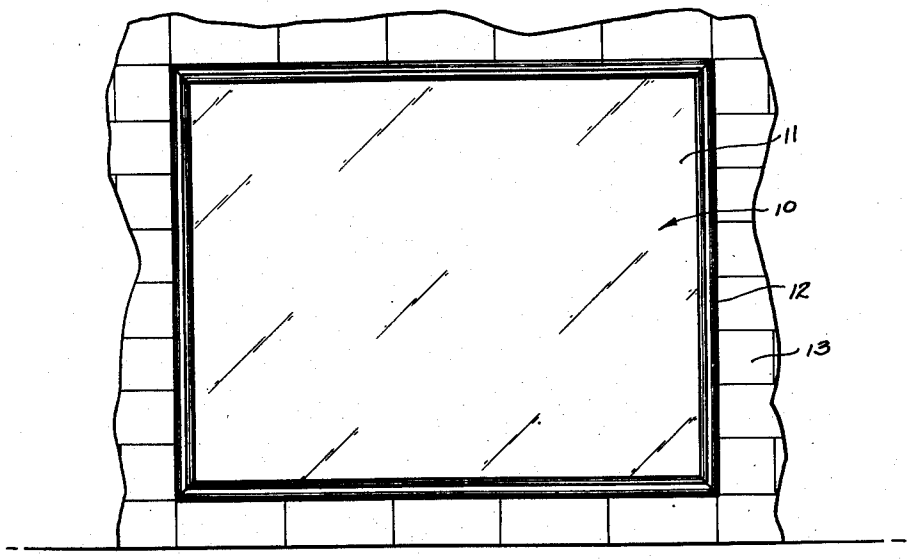


Fig. 1.

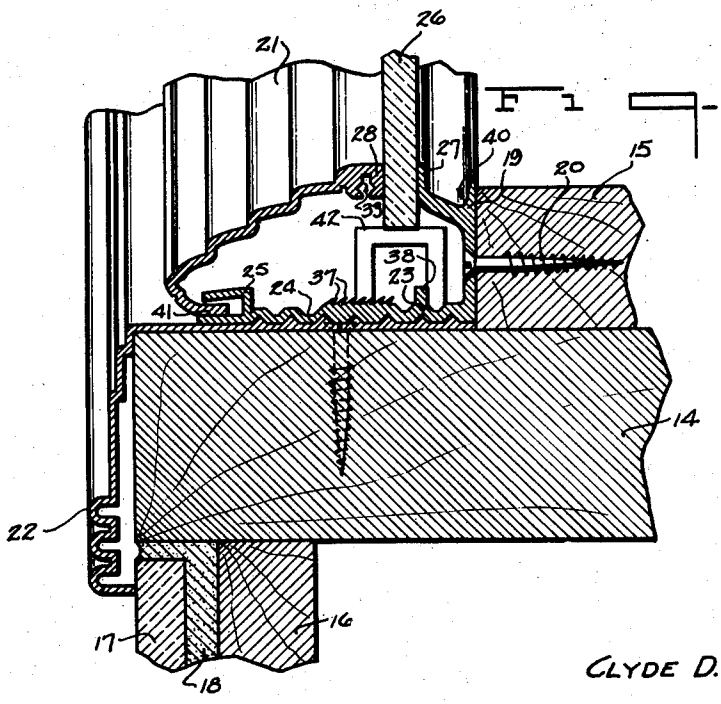


Fig. 2.

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Fig. 3.

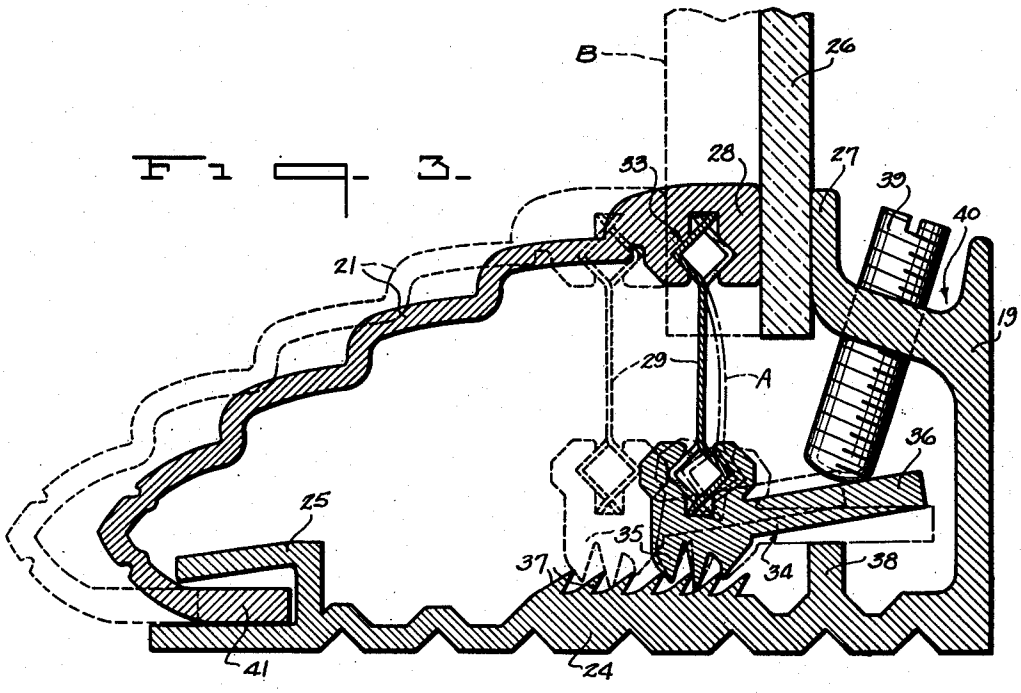
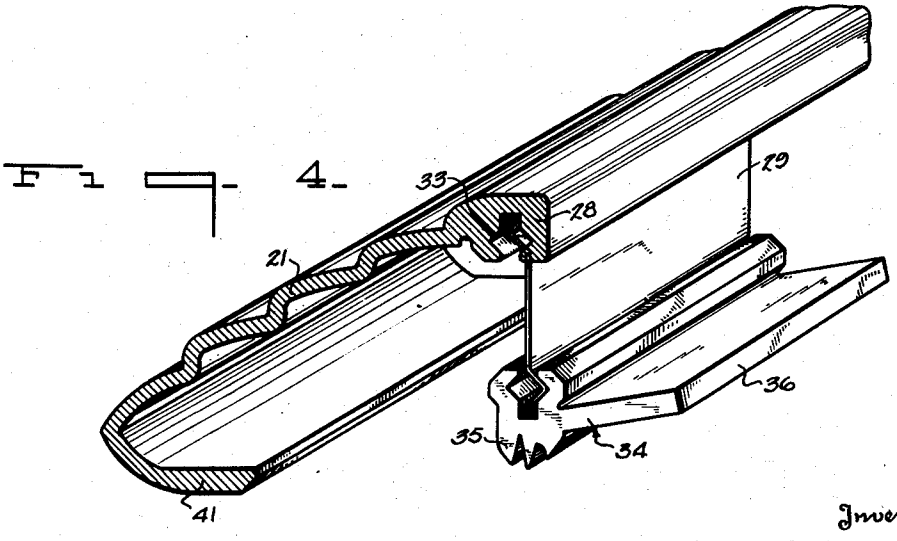


Fig. 4.



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Fig. 5.

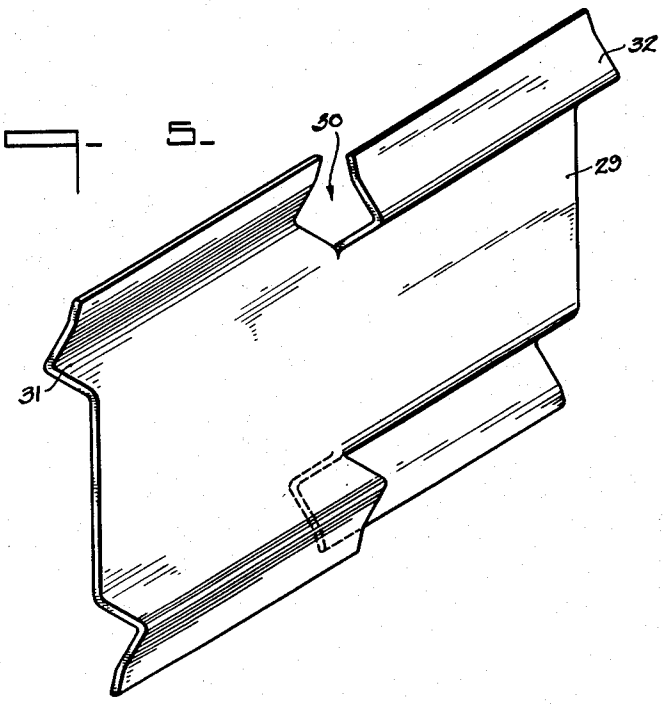
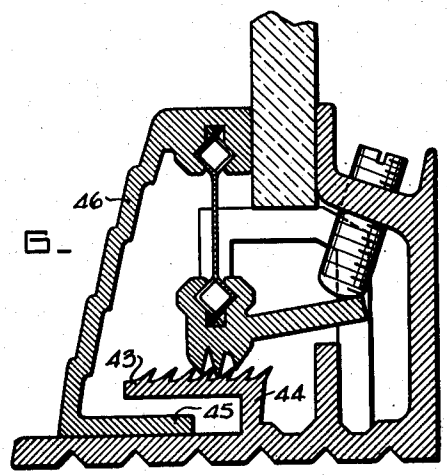


Fig. 6.



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UNITED STATES PATENT OFFICE

2,103,732

SASH AND STORE FRONT CONSTRUCTION

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Application May 8, 1937, Serial No. 141,482

12 Claims. (Cl. 20—56.4)

The present invention relates to a sash and store front construction.

In general, the invention has to do with an improved type of means for supporting and holding in position lights of glass in glazed openings, for example, store fronts, showcases, and the like. Broadly speaking, the sash member comprises two sections—a stationary back member and a movable face member associated with the back member in such a way that resilient pressure can be exerted upon the glass to hold it in position and at the same time the construction is such that crushing or straining pressures cannot be exerted upon the glass regardless of the skill of the party making the installation.

More specifically, the pressure applied by the adjusting members for effecting clamping of the glass between the back and face members is transmitted through a spring device, with positive stop means being provided to limit forward adjustment of said adjusting members whereby a substantially predetermined spring or resilient pressure is always applied to the glass. Furthermore, the main parts of the construction can be of extruded metal capable of being given the desired contour, finish, and so on, and the parts can be easily and quickly assembled on the job.

Other objects and advantages of the invention will become more apparent during the course of the following description when taken in connection with the accompanying drawings.

In the drawings wherein like numerals are employed to designate like parts throughout the same,

Fig. 1 is a front elevation illustrating a store front including the use of my improved construction;

Fig. 2 is a fragmentary transverse section through one form of the construction;

Fig. 3 is an enlarged sectional view showing various adjustments;

Fig. 4 is a fragmentary perspective view, partly in section, of a face member;

Fig. 5 is a perspective view of a spring arm or clamp employed in the construction; and

Fig. 6 is a transverse section of a slightly modified form of construction.

Referring to Fig. 1, the numeral 10 is used to designate a glazed opening in its entirety in which a sheet of glass 11 is supported in a wall opening by the sash construction 12. As shown, the building is faced with stone, Vitrolite, or other slabs 13. It will of course be understood that a store front is merely one field of use for my invention as the same construction can be used in other fields, for example, showcases, windows, and the like.

Using a store front as an example of one type of installation, in Fig. 2 is shown a sill 14 on which rests a back stop 15. The sill 14 rests at one end on a plate 16 faced with Vitrolite or other decorative sheeting 17, being held in position by means of a mastic 18 or other support.

The sash construction consists in the main of a back member 19 which may be permanently mounted by means of screws 20 extending therethrough and being received in the back stop 15. Associated with the back member is the face member 21, the details of which are more clearly shown in Fig. 3. Also shown in Fig. 2 is a sill cover 22 which may be an extruded metal section adapted to extend down over the front edge of the sill and covering a portion of the facing 17 to give a proper finished effect. In the construction illustrated, the sill cover extends over the top of the sill 14, being interposed between said sill and the bottom of the back member 19. Allocaters 23 may be used to insure proper alignment within the opening or the bottom member of the rear member may be provided with the grooves to receive caulking material leaving out the male part of the allocaters shown as carried by the sill cover. Obviously, any other preferred means may be used to get proper alignment of the sash members in the opening and to seal against moisture.

Referring now more particularly to Fig. 3, the back member 19 has the base portion 24 extending in a horizontal plane forwardly from the rear portion of the construction. It will be understood that in describing the structural details, reference is being made to the lower sash member, although the same construction is used around the entire opening. The front end of the base 24 is provided with the extension 25 which cooperates with the base portion to form a substantially U-shaped channel for receiving the lower end of the face member 21. The sheet of glass 26 is adapted to be clamped between the lip 27 of the rear member 19 and the lip 28 of the face piece 21. Carried by the face piece 21 is a spring arm 29 formed of suitable spring material, and to hold the spring arm in position the upper edge thereof may be slit as at 30 and the reverse bends 31 and 32 formed so that the arm may be sprung into position whereby the reverse bend portions are locked in the grooves 33 formed in the face member as shown in Fig. 3. The lower end of the spring arm 29 is finished in a manner similar to the upper edge and this is done to allow for sup-

porting the lever member 34, as clearly illustrated in Fig. 3. The lever member 34 includes the toothed end 35 and an arm 36. The toothed end 35 is adapted for selective engagement with the tooth or rack portion 37 formed on the upper surface of the base member 24. Also carried by the base member 24 is a permanent stop 38 arranged substantially in opposition to the adjusting member 39 which may be in the nature of a set screw threaded through the gutter portion 40 of the back member 19. It will be seen that the end 41 of the face member 21 is received within the channel formed between the base plate and the extension 25, the channel being of greater width than the thickness of the end 41 to prevent undesirable binding of said member in the channel.

The rear member 19 including the stop 38, toothed or rack portion 37, and flange 25 may all be extruded as an integral construction. Likewise, the lever arm 34 may be extruded as can the face plate 21.

It is preferred that the face member 21 be provided with a plurality of spring arms and lever members 34. This is illustrated in Fig. 4, the spring arms being clamped into position on the face plate at spaced intervals, with an adjusting member 39 being provided for each of the lever arms 34 used. The tooth portion 37 and the stop 38 may be continuous sections.

To install a light of glass in an opening to be glazed, the back members are first put into position either directly upon the sill or on top of a sill cover in such a way as suggested in Fig. 2. After the back member is securely mounted, setting blocks 42 are located to support the lower edge of the glass sheet 26. These blocks may be placed at spaced intervals and are of a construction adquate to carry the load of the glass without danger of glass chipping by reason of contact therewith.

The face member 21, equipped with the desired number of spring arms and associated parts, is then moved into position by placing the end 41 under the flange 25 and shoving the face member toward the rear member so that the glass 26 will contact the lip 27 and the lip 28 will contact the sheet 26. When properly positioned in this way, the toothed portion 35 will engage a portion of the rack 37. This is illustrated in full lines in Fig. 3. It may be said that the toothed portion 37 constitutes a rack bar and the toothed portion 35 of the lever member corresponds to a pinion adapted for selective engagement with said rack bar. The thickness of the glass being installed determines the teeth of the rack bar with which the pinion meshes, and it will be noted from the preferred embodiments shown that the teeth of the rack bar are similar to one another and are inclined rearwardly, while the teeth of the pinion portion of the lever member are slightly curved and of varying dimensions. The particular form need not be followed exactly but the arrangement shown gives exceedingly satisfactory results, permitting any thickness of glass to be installed without interfering with proper action of the members. In Fig. 3 the lever arm is shown in full lines as arranged at an angle to the horizontal, so that when the adjusting member 39 is moved forward, the lever is swung against the stop 38 by virtue of the pinion rocking on the rack bar.

During this installation, the adjusting members 39 are all in retracted position so that they will not interfere with proper positioning of the parts. To then hold the glass and face piece in the desired position, the adjusting members 39 are all screwed down into position to the maximum limit possible. There is no necessity for the operator to rely on his judgment for the amount of tension to be exerted upon the glass. The operator, in all installations, works the adjusting member downwardly as far as possible which is that point where the lever 36 rests upon the positive stop 38. During this movement of the lever arm, it will be seen that the arm rocks about the toothed portion and as the teeth are in engagement with the rack segment on the base, movement of the lever results in a rocking motion which in turn bends or flexes the spring arm 29. This is illustrated by the dash and dot lines A. It is this spring tension that clamps the glass sheet 26 between the front and back members. Due to the design of the construction, all of the adjusting members 39 are operated to bring the levers 36 into contact with the stops 38. This eliminates any danger of excessive pressure being exerted upon the glass and the necessity for judgment on the part of the operator.

When in relaxed position, the spring members 29 are in a substantially vertical plane, so that as the springs are flexed upon movement of the lever 36 and pinion 35, the pressure exerted upon the glass is in a direct longitudinal or horizontal plane regardless of the thickness of glass being installed.

In Fig. 3 is also illustrated the installation of a substantially thicker sheet of glass B, shown in dotted lines to emphasize the fact that the same construction, operation, and installation is employed whether thick or thin sheets of glass are being mounted. When the thick sheet of glass B is being installed, the face member is shown in dotted lines as are the remaining associated parts. In all cases the adjusting members 39 are operated to move the lever arm 36 against the positive stop 38.

Fig. 6 shows a modified construction involving all of the same principles and elements but in different arrangement. This type of construction is particularly well suited where the larger sash mounting shown in Fig. 3 cannot be employed. The main difference resides in the fact that the rack or tooth segment 43 is carried by the upstanding arm 44 instead of being formed in the base as shown in Fig. 3. This permits placement of the end 45 of the face member 46 between the rack portion 43 and base plate. Otherwise, the construction and operation of the device is the same as that given in connection with Fig. 3.

In addition to the method of controlling pressure upon the glass with this design of sash mounting and elimination of glass breakage danger, an important feature resides in the simplicity of installation. One man can easily install the face piece 21 and this is a distinct advantage over common forms of sash constructions. Furthermore, the face piece is merely shoved in against the glass, resulting in automatic positioning of the pinion on the rack bar, and the face piece is then locked in clamping position upon forward adjustment of the means 39, all of which are adjusted to their maximum limits, whereby a uniform, non-injurious, resilient pressure holds the glass in place.

It is to be understood that the form of the invention herewith shown and described is to be taken as the preferred embodiment of the same, and that various changes in the shape, size and arrangement of parts may be resorted to without

departing from the spirit of the invention or the scope of the subjoined claims.

I claim:

1. In a sash or store front construction, the combination of a fixed section and a movable section adapted to receive and grip a pane of glass therebetween, spring means carried by the movable section, a toothed end carried thereby, toothed means associated with the fixed section adapted to receive the toothed end of the spring means, and means for rocking the toothed end on the spring means when in engagement with the toothed portion of the rigid member to urge the sections into yielding engagement with the pane of glass.

2. In a sash or store front construction, the combination of a fixed section and a movable section adapted to receive and grip a pane of glass therebetween, spring means carried by the movable section, a toothed end carried thereby, toothed means associated with the fixed section adapted to receive the toothed end of the spring means, means for rocking the toothed end on the spring means when in engagement with the toothed portion of the rigid member to urge the sections into yielding engagement with the pane of glass, and means for limiting said movement to prevent excessive pressure from being applied by the sections to the pane of glass.

3. In a sash or store front construction, the combination of a fixed section and a movable section adapted to receive and grip a pane of glass therebetween, spring means carried by the movable section, a rigid member carried by the spring means and having a pinion portion, a rack bar member associated with the rigid section and adapted for cooperation with the said pinion portion, and an adjusting member for acting upon said rigid member to rock it upon the bar member to flex the spring means and to urge the sections into yielding engagement with the pane of glass.

4. In a sash or store front construction, the combination of a fixed section and a movable section adapted to receive and grip a pane of glass therebetween, spring means carried by the movable section, a rigid member carried by the spring means and having a pinion portion, a rack bar member associated with the rigid section and adapted for cooperation with the said pinion portion, an adjusting member for acting upon said rigid member to rock it upon the bar member to flex the spring means and to urge the sections into yielding engagement with the pane of glass, and means for limiting the rocking movement of the rigid member to prevent excessive pressure from being applied by the sections to the pane of glass.

5. In a sash or store front construction, the combination of a fixed section and a movable section adapted to receive and grip a pane of glass therebetween, spring means carried by the movable section, a rigid member carried by the spring means and having a pinion portion, a rack bar member associated with the rigid section and adapted for cooperation with the said pinion portion, an adjusting member for acting upon said rigid member to rock it upon the bar member to flex the spring means and to urge the sections into yielding engagement with the pane of glass, and a positive stop for restricting the rocking movement of said rigid member to limit the amount of pressure applied to the pane of glass.

6. In a sash or store front construction, the combination of a fixed section and a movable section adapted to receive and grip a pane of glass therebetween, a spring arm mounted at one end on the inner side of the movable member, a rigid lever arm carried by the opposite end of the spring arm and having a toothed portion, a series of teeth carried by the fixed section and adapted to receive the toothed portion of the rigid lever arm, and adjusting means for acting upon said rigid lever arm to rock the same upon the teeth carried by the fixed section to flex the spring arm and to urge the sections into yielding engagement with the pane of glass.

7. In a sash or store front construction, the combination of a fixed section and a movable section adapted to receive and grip a pane of glass therebetween, a spring arm mounted at one end on the inner side of the movable member, a rigid lever arm carried by the opposite end of the spring arm and having a toothed portion, a series of teeth carried by the fixed section and adapted to receive the toothed portion of the rigid lever arm, adjusting means for acting upon said rigid lever arm to rock the same upon the teeth carried by the fixed section to flex the spring arm and to urge the sections into yielding engagement with the pane of glass, and a positive stop to limit the yielding pressure applied to said pane of glass.

8. In a sash or store front construction, the combination of a fixed section and a movable section adapted to receive and grip a pane of glass therebetween, a spring arm mounted at one end on the inner side of the movable member, a rigid lever arm carried by the opposite end of the spring arm and having a toothed portion, a series of teeth carried by the fixed section and adapted to receive the toothed portion of the rigid lever arm, adjusting means for acting upon said rigid lever arm to rock the same upon the teeth carried by the fixed section to flex the spring arm and to urge the sections into yielding engagement with the pane of glass, and a stationary stop member against which the rigid lever arm comes to rest for limiting the amount of pressure applied to the pane of glass.

9. In a sash or store front construction, the combination of a fixed section and a movable section adapted to receive and grip a pane of glass therebetween, said fixed section having a rack bar associated therewith, a spring arm carried by the movable section, a toothed member carried by the spring arm and adapted for selective engagement with the rack bar of the fixed section, and means for rocking the toothed member upon the rack bar to flex the spring arm and to urge the sections into yielding engagement with the pane of glass.

10. In a sash or store front construction, the combination of a fixed section and a movable section adapted to receive and grip a pane of glass therebetween, said fixed section having a rack bar associated therewith, a spring arm carried by the movable section, a toothed member carried by the spring arm and adapted for selective engagement with the rack bar of the fixed section, means for rocking the toothed member upon the rack bar to flex the spring arm and to urge the sections into yielding engagement with the pane of glass, and means for limiting the rocking movement of the toothed member to prevent excessive pressure from being applied by the sections to the pane of glass.

11. In a sash or store front construction, the combination of a fixed section and a movable section adapted to receive and grip a pane of glass therebetween, a spring arm carried by one of the

sections, a rigid lever arm carried by the spring arm, said rigid lever arm being rockable upon the other of said sections, adjusting means for rocking said rigid member to flex the spring arm and to urge the sections into yielding engagement with the pane of glass, and a positive stop to limit the yielding pressure applied to said pane of glass.

12. In a sash or store front construction, the combination of a fixed section and a movable section adapted to receive and grip a pane of glass therebetween, a spring arm carried by one of the sections and disposed in a substantially vertical plane when in relaxed position, a pinion member carried by one end of the spring arm and adapted for contact with the other of said sections, means for rocking the pinion member upon the latter-mentioned section to flex the spring arm and to urge the sections into yielding engagement with the pane of glass, and means for limiting rocking of the pinion member to prevent excessive pressure from being applied by the sections to the pane of glass.

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