Sept. 14, 1943. R. T. AXE 2,329,238

WINDOW FRAME AND SASH CONSTRUCTION

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Fig. 1

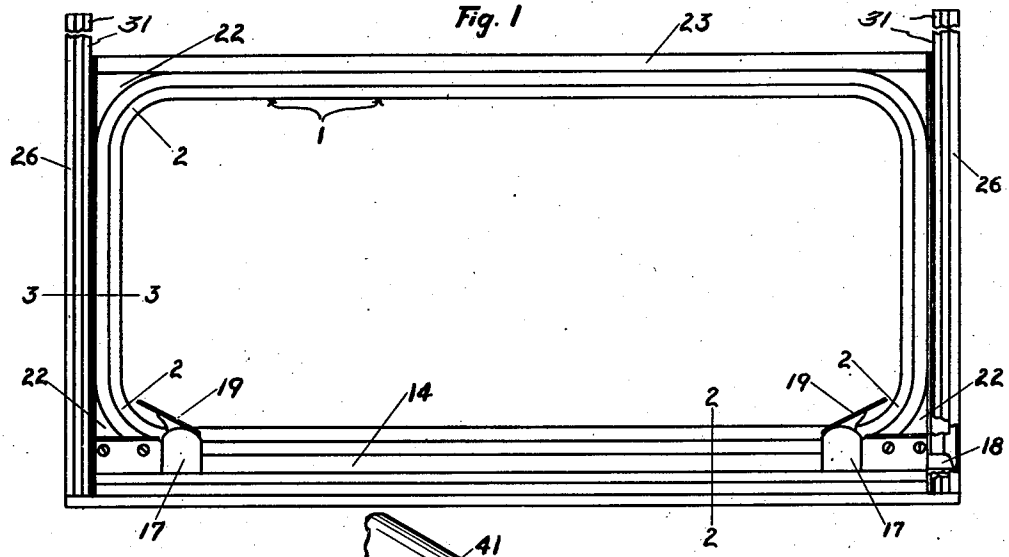


Fig. 6

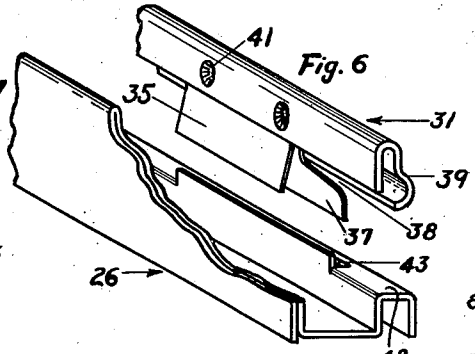


Fig. 7

Fig. 3

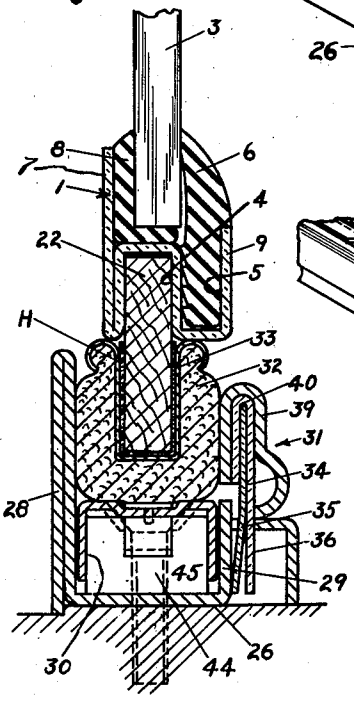
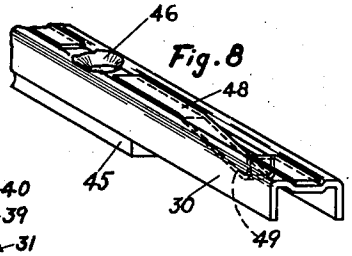


Fig. 8



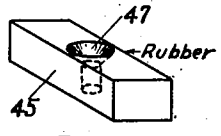
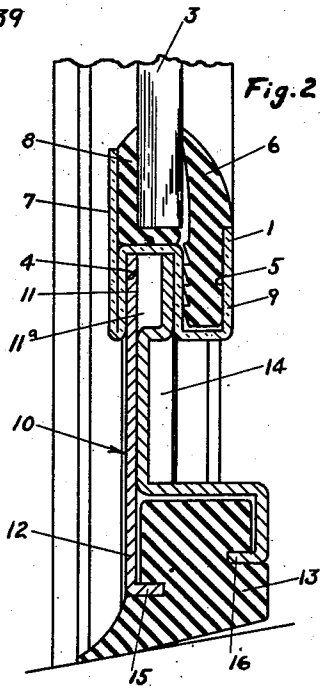


Fig. 9

Fig. 2



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Fig. 4

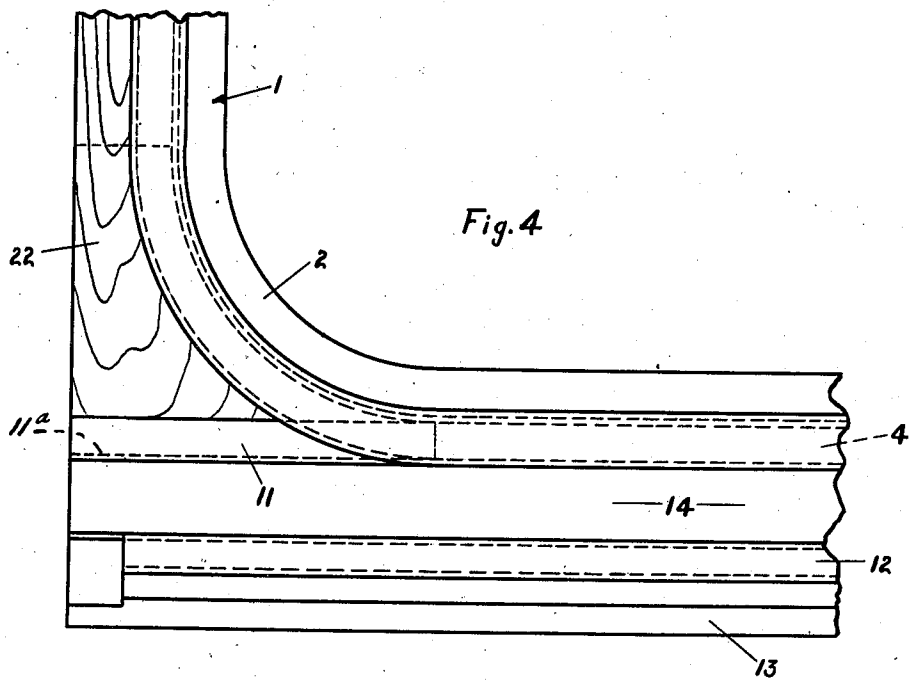


Fig. 10.

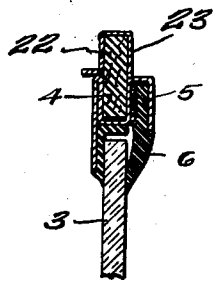


Fig. 5

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UNITED STATES PATENT OFFICE

2,329,238

WINDOW FRAME AND SASH CONSTRUCTION

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Application August 20, 1941, Serial No. 407,637

10 Claims. (Cl. 189—76)

This invention relates to window constructions, and has for its object a window sash and window frame construction by which a sash frame with rounding corners can be readily adapted and applied to rectangular window openings, giving a stream-lined effect, and also features of construction by which the sash and the sash guide are readily applied to the window openings and readily demountable and at the same time is weather tight and held against looseness and rattling.

Other objects and features appear in the specification.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

Figure 1 is an elevation of this window construction.

Figures 2 and 3 are enlarged sectional views on lines 2—2 and 3—3, Figure 1.

Figures 4 and 5 are enlarged fragmentary elevations of opposite sides of the corner portion of the sash.

Figure 6 is an isometric view of the retaining strip.

Figure 7 is a fragmentary isometric view of the portion of the window frame with which the retaining means coacts.

Figure 8 is a fragmentary isometric view of the insert in the frame member showing the resilient mounting therefor and the rack supported on the insert.

Figure 9 is a detail isometric view of the resilient mounting.

Figure 10 is an enlarged sectional view on line 10—10, Figure 1.

1 designates a sash frame having rounding corners at 2, this being formed to receive a glass panel 3 and also formed with a peripheral or re-entrant channel 4 opening through the edge of the frame. The channel 4 is located in the plane of the glass 3. The frame is also formed with a channel 5 located out of the plane of the glass 3 and opening inwardly, this channel 5 being for the purpose of receiving a glazing strip 6. As here shown, the frame is formed up from a sheet metal blank to provide the channels 4, 5 and also provide an abutment wall 7 on the outer side of the sash, that is, the side of the structure or car body to which the window is applied, this abutment extending inwardly far enough to lap the margin of the glass pane. This wall 7 together with the bottom of the channel 4 forms an angular recess for receiving the margin of the glass pane 3. A suitable resilient seating strip 8 is located in this angular channel against the abutment wall 7 and the bottom wall of the channel 4. The outer wall 9 of the channel 5 is of less width than the abutment wall 7 and is of such width as to permit the glass panel to be placed flatwise in the angular channel against the seating strip 8. The glazing strip 6 has a base portion in the channel 5 and a head portion extending inwardly out of the channel opposing the seating strip 8 and pressing against the margin of the glass pane 3.

In order to readily and economically adapt the sash with the rounding corners to the rectangular window frames or openings, filler strips are provided seated in the peripheral channel 4 of the sash frame 1.

In the illustrated embodiment of my invention, one form of filler strip is provided along the bottom rail and a different one along the stiles and top rail. As in most of the window constructions, the sash is capable of being raised and lowered and the force applied to the bottom rail, the bottom filler is of a rigid construction. In windows where the sash is dropped to open and the handles or sash locks on the top rail, the top rail is of rigid construction.

10 (Figure 2) designates the filler strip along the bottom rail. This is formed of metal, and preferably of sheet metal shaped to form a head 11 along the inner edge thereof snugly fitting in the channel 4 and with a head 12 at its outer edge for receiving a weather or buffer strip 13. The head 11 is bifurcated or is in the form of a channel or groove 11a facing upward. The groove at its ends serves a purpose to be presently described. The head 12 supports the buffer strip and is considerably wider than the head 11. The portion of the strip between the heads is thin and planular with like side faces of the heads forming an inset or panel or channel 14 extending lengthwise of the strip, this channel being presented toward the inner side of the frame 4 or sash. The intermediate portion, which forms the bottom of the channel 14, is practically a web between the heads 11 and 12 and provides the panel or channel 14. The head 12 is formed with inturned flanges 15, 16 for interlocking into the rubber weather or buffer strip 13, this coacting with the sill of the window frame when the sash is closed. The strip 10 extends at its ends beyond the vertical planes of the edges of the frame 1 to the edge of the sash.

17 designates the sash locks, these being mounted on the intermediate portion or web of the filler strip 10 in the channel 14 and including a bolt 18 and a suitable mechanism including a handle 19 for operating the bolt. The bolt 18 coacts with the rack on the window frame as will be presently described.

The filler strip 10 along the bottom rail extends beyond the rounding corners of the frame 1 and beyond the vertical plane of the edge of the frame 1, leaving a space generally triangular in general form, which is filled by a filler strip, as will be hereinafter described. On the outer side of the sash or the side opposite to that on which the sash locks are located, the outer wall of the filler strip 10 is provided with upward extensions 21 filling out the rounding corners of the sash frame 1, the upward extension being an extension of one side of the channel of the head 11, or an extension of one of the bifurcations of the head 11. The extension also extends laterally beyond the plane of the vertical edge of the sash frame 1.

22 designates the filler strip between the upright sides of the frame 1 and along the top thereof, this being shaped to square the upper corners of the frame 1. The filler strip 22 is flat and is snugly fitted or secured in the channel 4 in the upright and top sides of the frame 1 and projects out of said channel. The portions of the strips on the upright sides of the frame 1 or the projecting portions thereof coact with sash guides. The projection of the portion of the strip along the top is covered by a metal shield 23 in the form of a channel. The lower ends of the strip 22 along the uprights lap behind the extension 21 and are seated at their lower ends in the ends of the channel 11a of the bifurcated head 11. The lower portions of the upright filler strips 22 are also recessed, so that the surfaces thereof are flush with the surfaces of the extension 21. Exposed portions of the filler strip at the corners of the sash are jointed. The filler strips 22 are usually of wood, as ply wood.

The sash guides may be of any suitable construction. They are here shown as formed up of sheet metal and applied to the window frame or post structure of the vehicle or other body to which the window construction is applied.

As here illustrated, the sash guides comprise a channel-shaped member 25 secured with the bottom of the channel formation against the post or window frame structure, one side 28 of the channel being higher than the other 29, an insert 30 in the channel-shaped member 26, and a demountable retaining strip 31 on the side of the member 26 on which the lower side wall 29 is located. The insert 30 is located in the channel member 26 against the bottom thereof, this being in the form of an inverted channel slidably fitted and resiliently mounted in the member 26. 32 designates a wear strip of fibrous material, U-shaped in general form and mounted in the channel member 26 and bottoming on the insert 30. The U-shaped wear strip embraces the laterally projecting portion of the filler strip 22. Preferably it is formed with a metal lining 33 which is secured, as by an adhesive at H, to the projecting portion of the filler strip 22, so that the wear strip rides up and down as a unit with the window and slides in the sash guide 26.

The demountable retaining strip 31 (Figures 3 and 6) comprises a body 34 having springs 35, as leaf springs, extending beyond one lengthwise edge thereof and spaced apart at intervals along the lengthwise edge of the body, lugs 36 also spaced apart along the lengthwise edge of the body and having lengthwise extending straight hooks 37 which form slots 38 opening through like ends of the lugs, and an outer cover strip 39. The lugs are preferably paired with the springs 35 and the springs overlie the lugs. The lugs and springs are secured to the body 4, and as here shown, the body is folded upon itself at 40 and the lugs and springs extended between the body and the folded-over portion. They are also additionally secured to the body in any suitable manner, as by screws extending through screw holes 41. The cover strip 39 is folded around the folded-over portion of the body of the retaining strip. The screw holes 41 extend through one wall of the cover 39.

As seen in Figure 7, the channel-shaped frame member 26 is also provided with a hollow raised lengthwise rib portion 42 on the side thereof on which the lower side 29 of the channel is located, this being usually formed integral with the narrower side 29 of the channel formation of the member 26. The rib 42 is provided with lengthwise slots 43 at intervals.

The retaining strip is placed in position by a rectilinear movement edgewise to pass the lugs 36 and springs 35 through the slots 43 and then vertically to interlock the hooks 37 with the like end walls of the slots 43. When the retaining strip 31 is placed in position, the springs 35 press against the channel-shaped member 26 and give a bias to the retaining strip to press it against the wear strip 32. The retaining strip is removed by the reverse of these operations to permit the sash to be demounted from the window frame. The insert 30 is resiliently mounted in the channel-shaped frame member 26, and as here shown, is mounted on rubber blocks 45 spaced apart at intervals. The insert is held in position by screws as 44 extending through the same and through the rubber blocks 45 and threading in the bottom of the channel-shaped member 26, the screws extending through holes 46 and 47 in the insert and in the rubber blocks and threading into the bottom of the channel-shaped member 26. By tightening or loosening these screws, when the sash equipment is being installed, the rubber blocks may be placed under more or less compression and may be adjusted from time to time. The purpose of the rubber blocks is to compensate for misalinements in the post structure, as the posts may not be parallel. One may be vertical and the other inclined slightly, or both may be inclined slightly. By reason of the rubber blocks, such misalinements may be compensated for without interfering with the raising and lowering of the window.

48 designates rack strips for coacting with the bolts 18 of the sash lock 7, these strips 48 overlying the bottom of the channel formation of the insert 30 and formed with offsets 49 extending through slots in the bottom of the channel formation of the insert, providing rack teeth or notches. The racks may be suitably secured in position, as by welding, the bottom of the channel formation being formed with a lengthwise depression or groove, so that the racks lie flush with the bottom of the channel formation. The sections are long enough to extend between holes 46 and between the holes 46 and the ends of the insert. The lower portions of the wear strips 30 are also pro-

vided with passages through which the bolts of the sash lock extend.

What I claim is:

1. A window sash construction comprising a sash frame having means for receiving a glass pane and formed with a circumferential channel opening through the edge of the frame, the frame having rounding corners, filler strips extending edgewise relatively to the frame and squaring the corners of the sash at the rounding corners of the frame, the filler strips being seated in said channel.

2. A window sash construction comprising a sash frame having means for receiving a glass pane and formed with a circumferential channel opening through the edge of the frame and filler strips formed of rigid material extending edgewise relatively to the frame and having their inner margins fixedly secured in the channel.

3. A window sash construction comprising a sash frame having means for receiving a glass pane and formed with a circumferential channel opening through the edge of the frame, the frame having rounding corners, filler strips adapted for sliding engagement with a window frame extending edgewise relative to the sash frame and squaring the corners of the sash frame at the rounding corners thereof, said filler strips being fixedly secured in said channel.

4. A window sash construction comprising a sash frame having means for receiving a glass pane and formed with a circumferential channel opening through the edge of the frame, the frame having rounding corners, filler strips adapted for sliding engagement with a window frame extending edgewise relatively to the frame and squaring the corners of the sash frame at the rounding corners thereof, said filler strips being fixedly secured in said channel and extending outwardly therefrom, and a wear strip in the form of a channel U shaped in cross section embracing the outwardly extending portions of said wear strip.

5. A window sash construction comprising a sash frame formed with means for receiving a glass pane and a re-entrant circumferential channel opening through the edge of the sash frame and being in the plane of the glass receiving means, filler strips extending edgewise relative to the frame and fixed in the channel, the sash frame having rounding corners and the filler strips squaring the corners of the sash frame at the rounding corners thereof.

6. A window sash construction comprising a sash frame having means for receiving a glass pane and a channel opening through the edge of the frame along one side thereof, a filler strip extending edgewise relatively to the sash frame and having a lengthwise head portion fixedly secured in the channel, an intermediate web portion and a head portion at the outer edge of the web portion, and a wear strip carried by the latter head portion.

7. A window sash construction comprising a sash frame having means for receiving a glass pane and a channel opening through the edge of the frame along one side thereof, a filler strip extending edgewise relatively to the sash frame and having a head portion seated in the channel, an intermediate web portion and a head portion at the outer edge of the web portion, the intermediate web portion being in line with like sides of the head portions, whereby the heads are offset on one side of the plane of the web portion providing a lengthwise channel, and sash locks mounted in the channel and including bolts extending lengthwise of the channel beyond the edge of the sash frame.

8. A sash construction comprising a sash frame having means for receiving a glass pane and with a circumferential channel opening through the edge of the frame, the frame having rounding corners and a filler strip of rigid material extending edgewise relative to the sash frame and having a head portion secured in the channel along one side of the frame, a strip extending beyond the rounding corners to the edge of the sash, filler strips extending along the upright edges of the frame and being fixed in the channel therein, the latter strips having like ends coacting with the head portion of the former filler strip at the rounding corners of the sash frame.

9. A window sash construction comprising a sash frame having means for receiving a glass pane and with a circumferential channel opening through the edge of the frame, the frame having rounding corners, a filler strip of rigid material extending edgewise relative to the sash frame and having a channel shaped head portion seated in the channel along one side of the frame, the strip extending beyond the rounding corners to the edge of the frame, filler strips extending along the upright edges of the frame and seated in the channel therein, the latter strips having like ends seated in the channel shaped head portion of the former filler strip at the rounding corners of the sash frame.

10. A window sash construction comprising a sash frame having means for receiving a glass pane and with a circumferential channel opening through the edge of the sash frame, the frame having rounding corners and a filler strip extending edgewise relative to the frame and having a head portion seated in the channel along one side of the frame, the strip extending beyond the rounding corners to the upright edges of the frame, filler strips extending along the upright edges of the sash and seated in the channel therein, the latter strips having like ends coacting with the head portion of the former filler strip at the rounding corners of the sash frame, the edges of the filler strips along the upright edges being alined with the end edges of the first filler strip and coacting to serve as guides for the sash during sliding movement thereof in a window frame.

ROY T. AXE.