

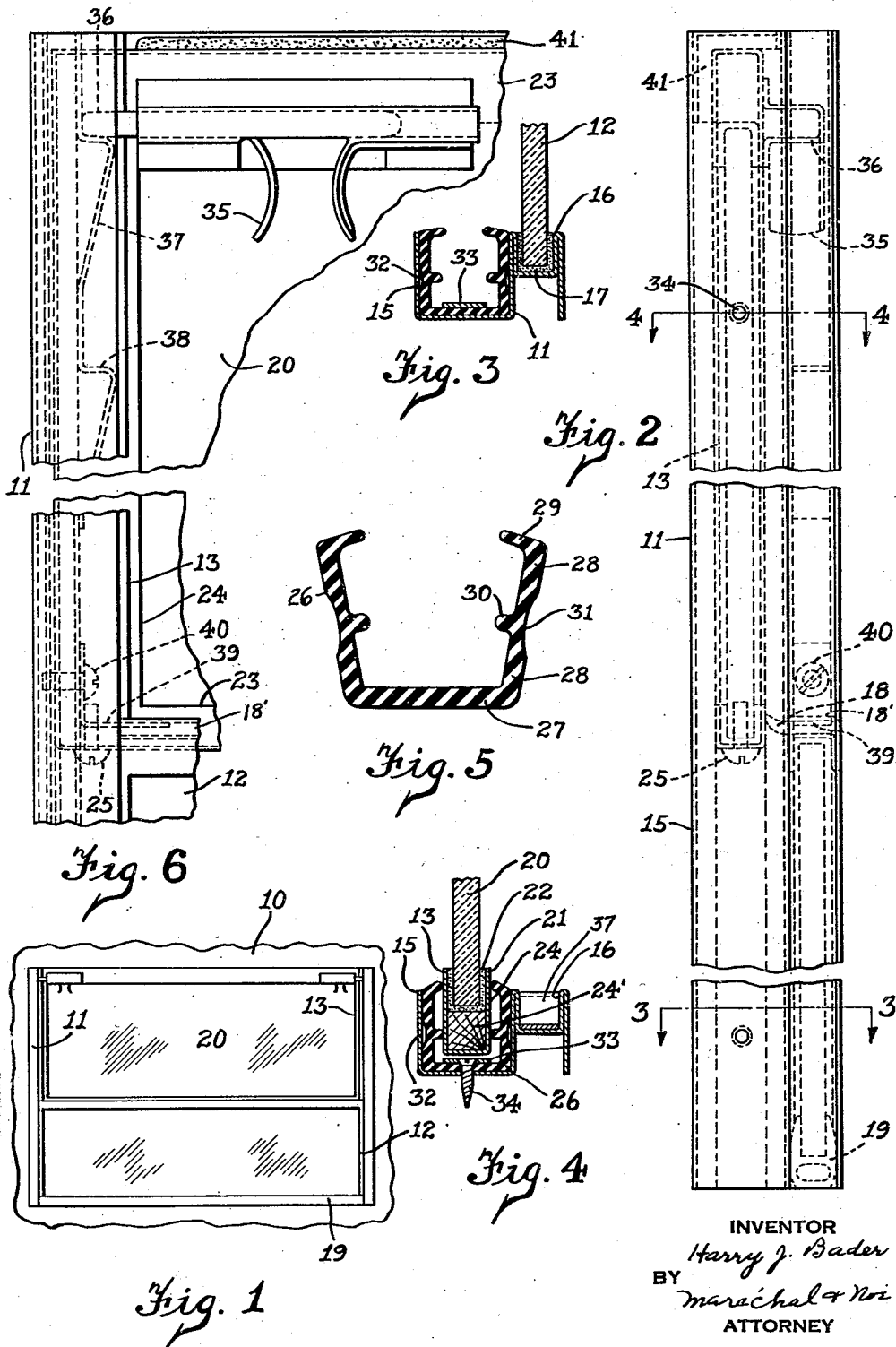
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WINDOW CONSTRUCTION

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WINDOW CONSTRUCTION

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4 Claims. (Cl. 296—44.5)

This invention relates to windows and more particularly to guiding and supporting means for sliding windows.

One object of the invention is the provision of a window construction affording a weather-tight mounting for a slidable window sash in a window frame, so arranged as to hold the sash against play or movement in the window frame but requiring the exertion of only a comparatively small force to open or close the window.

Another object of the invention is the provision of a window construction of the character mentioned in which the window sash is guided for movement in a rubber guide channel which is provided with longitudinally extending intermediate ribs affording a limited area of engagement with the sides of the sash, the outer ends of the legs of the channel terminating in outwardly extending flexible sealing portions engaging the sash.

Other objects and advantages of the invention will be apparent from the following description, the appended claims, and the accompanying drawing, in which:

Fig. 1 is a front elevation of a window construction embodying the present invention;

Fig. 2 is an end view of one of the upwardly extending channel portions of the window frame;

Fig. 3 is a horizontal section taken on the line 3—3 of Fig. 2;

Fig. 4 is a horizontal section taken on the line 4—4 of Fig. 2;

Fig. 5 is an enlarged cross sectional view of the rubber guide channel; and

Fig. 6 is an enlarged front elevation of an upper corner of the window.

The construction as herein shown is particularly adapted for bus windows and the like, in which one of the window sashes is adapted for sliding movement in laterally spaced frame portions. Referring to the drawing by reference numerals, 10 designates the stationary frame structure of a bus or other construction in which the window is arranged, this frame structure including upwardly extending channel portions 11, one of which is shown in Fig. 2, at opposite sides of the window opening. Suitably secured in the lower portion of the window opening is a stationary window 12, while 13 represents the slidable window sash forming a closure for the upper portion of the window opening and preferably arranged to operate in a plane outside of the lower window 12.

The channel portion 11 or post is preferably of sheet steel construction providing an outer

channel 15 and an inner channel 16 for the upper and lower windows respectively. The lower window 12, as shown, comprises a glass panel having a marginal glazing strip 17 of any suitable material, preferably of a resilient character where it extends along the vertical edges of the glass, holding the glass panel in the channel 16. The upper side of the marginal frame is preferably provided with a flexible rubber rain or drip strip 18 held in place by a metal channel 18' and pressing against the inner side of the bottom of the upper sash. The bottom edge of the glass is suitably connected to a rubber edging strip 19 which seals against the lower portion of the window opening in the bus frame structure.

The slidable sash 13 comprises a glass panel 20 which is preferably although not necessarily provided with a marginal sheet metal frame 21 in which the edges of the glass panel are received and retained as by means of suitable cementitious material as indicated at 22. Upper and lower horizontally extending portions 23 of the marginal frame connect with the vertically extending portions 24. As shown in Figs. 2 and 6 screws 25 secure the lower portion 23 to the wooden insert 24' provided in the vertically extending portions 24.

Received in each of the vertically extending channels 15 of the window frame is a resilient guide channel 26 which in turn receives the marginal frame of the window sash 13. This guide channel 26 is an integral yielding rubber member extending from the top to the bottom of the channel 15, the rubber composition being of such character as to afford a comparatively low coefficient of friction so that the sheet metal marginal frame 21 of the sash can be readily moved without undue gripping between the metal and the rubber. As will be apparent from Figs. 3, 4 and 5, the rubber guide channel 26 comprises a web portion 27 integrally formed with laterally spaced sides or legs 28, each of which terminates in an outwardly extending tapering flexible sealing portion 29 adapted to press lightly against the side of the sash and seal the sash against rain, dust, etc.

Each leg 28 is also provided with a longitudinally extending rib 30 which is adapted to bear yieldingly against the side of the marginal frame 21 and locate the latter in a centered position, the rib 30 serving to space the sides of the marginal frame 21 from the adjacent portions of the legs 28 so that the frame 21 is centered mainly by the ribs 30 and to a considerably smaller degree by the sealing portions 29. The outer side

of each leg 28 is provided with a longitudinally extending recess 31 opposite the location of the rib 30 so that when the rubber channel, which has a cross sectional form as shown in Fig. 5 when unconfined, is applied to the channel 15 and the outer portions of the legs are forced towards one another, an air space 32 will be provided adjacent the rib location between the outer sides of the legs and the inner sides of the channel 15. This air space 32 permits the ribs 30 to move outwardly away from one another in a yielding manner so that the sash may be readily received between them, and the rounded ends of the ribs will be maintained in yielding pressure engagement with the sides of the marginal frame 21. As the sash 13 is raised or lowered, the ribs 30 provide the major restraining force preventing lateral movement of the sash transversely to the plane of the sash, and as the area of engagement of the rubber guide channel with the marginal frame 21 is quite small as compared with the area of the marginal frame within the confines of the rubber guide channel it will be apparent that the friction between the metal marginal frame and the rubber is quite small so that the sash may be held against play or vibration in its mounting while requiring only a very small force in excess of the weight of the sash itself to raise the sash. The extending sealing portions 29 exert only a comparatively small force against the sides of the marginal frame 21, since they extend outwardly at an angle and can flex outwardly to conform to and engage the sides of the sash, but are effective in preventing the entrance of rain, water, dust, etc.

Arranged between each side end of the window sash and the rubber guide channel in which it is guided is a rigid strip 33, preferably a flat sheet metal strip about as wide as the peripheral frame 21, this strip being held by a plurality of securing screws 34 which extend through the rubber web 27 and through holes in the channel 15, these screws also acting to hold the webs 27 of the rubber guide channels against the inner surfaces of the channel 15. The heads of the screws are countersunk in the strip 33 so as to be flush with the surface of the strip that is presented to the marginal sash frame. The ends of the peripheral frame 21 of the movable sash are thus guided against metal portions and are prevented from engaging or digging into the rubber of the channel portions 27, these metal strips 33 also acting to reduce the rubbing friction at the ends of the marginal frame when the sash is raised or lowered.

As herein shown, the upper horizontally extending portion 23 of the slidable window is provided with a slidable arm 35 which is connected to a latching tongue 36 which is inwardly offset so as to project into the channel 16 and engage a latch strip 37 which is provided with a series of steps 38, and which is spot-welded or otherwise connected to the upper portion of the channel 16 above the top of the lower stationary sash. The lower sash is preferably held in its lowermost position by means of a metal strap 39 at each end of the frame, each strap 39 extending laterally into the channel 18, and attached by a bolt 40 which is screwed into the channel 16. A suitable sealing closure is provided for the top of the sash 13 as by means of a strip 41 of felt or the like.

While the form of apparatus herein described constitutes a preferred embodiment of the invention, it is to be understood that the invention is

not limited to this precise form of apparatus, and that changes may be made therein without departing from the scope of the invention which is defined in the appended claims.

What is claimed is:

1. In a window construction, a window frame having a channel portion, a rubber guide channel received in said channel portion, and a window sash slidably received in said guide channel, said guide channel having an end web opposite the side end of the window sash and having spaced legs extending along opposite sides of the end of the sash with the outer end of each leg terminating in a flexible sealing portion extending outwardly from the leg and inwardly toward and against the sash, the inner side of each leg having a longitudinally extending narrow rib yieldingly engaging the sash and spacing the sash from the portions of the leg at both sides of the rib, the outer side of each leg, adjacent the rib location, having a recess affording a space immediately outwardly of the rubber guide channel and between the leg and the channel portion of the window frame.

2. In a window construction, a window frame having a channel portion, a rubber guide channel received in said channel portion, and a window sash slidably received in said guide channel, said guide channel having an end web opposite the side end of the window sash and having spaced legs extending along opposite sides of the end of the sash with the outer end of each leg terminating in a flexible sealing portion extending outwardly from the leg and inwardly toward and against the sash, the inner side of each leg having a longitudinally extending narrow rib yieldingly engaging the sash and spacing the sash from the portions of the leg at both sides of the rib, the outer side of each leg, adjacent the rib location, having a recess affording a space between the leg and the channel portion of the window frame, and a metal strip in said guide channel between its end web and the side end of the window sash.

3. In a window construction, a window frame having an upwardly extending channel portion, a rubber guide channel received in said channel portion, a window pane, a marginal frame for said pane slidably received in said guide channel, said guide channel having an end web opposite the side end of the marginal frame and having spaced legs extending along opposite sides of the marginal frame with the outer end of each leg terminating in a flexible outwardly tapering sealing portion pressing against the marginal frame, the inner side of each leg between its sealing portion and the periphery of the marginal frame having an integral longitudinally extending narrow rib yieldingly engaging the sides of the marginal frame, a flat metal strip in said guide channel between the end web of the guide channel and the outer end of the marginal frame, and attaching means extending through said strip, guide channel web, and the channel portion of the window frame.

4. In a window construction, a window frame having an upwardly extending channel portion, a rubber guide channel received in said channel portion, a window pane, a marginal frame for said pane slidably received in said guide channel, said guide channel having an end web opposite the side end of the marginal frame and having spaced legs extending along opposite sides of the marginal frame with the outer end of each leg terminating in a flexible outwardly tapering

sealing portion pressing against the marginal frame, the inner side of each leg between its sealing portion and the periphery of the marginal frame having an integral longitudinally extending narrow rib yieldingly engaging the sides of the marginal frame, the outer side of each leg having a longitudinally extending recess opposite the rib providing an air space between the leg and

the channel portion of the window frame, a flat metal strip in said guide channel between the end web of the guide channel and the outer end of the marginal frame, and attaching means extending through said strip, guide channel, web, 5 and the channel portion of the window frame.

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