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WEATHER STRIPPING IN WINDOW SASH

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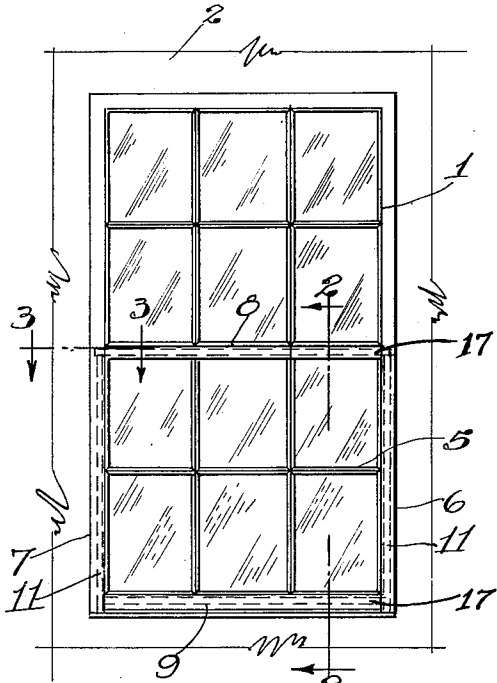


Fig. 1

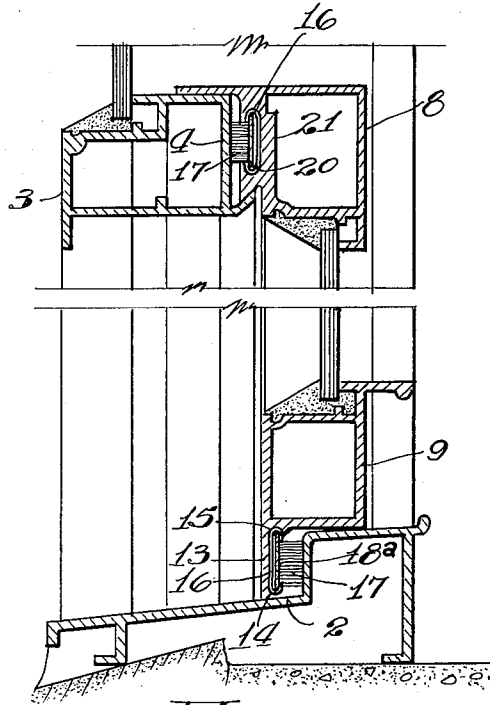


Fig. 2

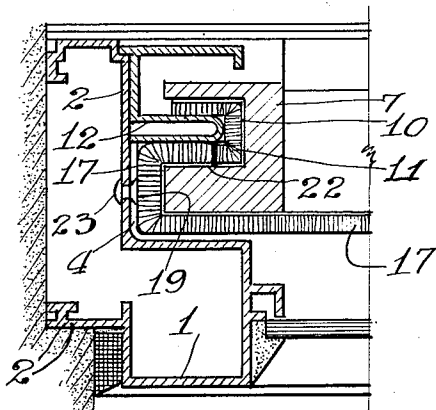


Fig. 3

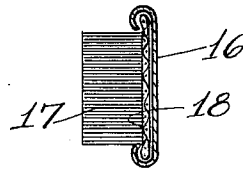


Fig. 4

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# UNITED STATES PATENT OFFICE

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## WEATHER STRIPPING IN WINDOW SASH

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5 Claims. (Cl. 20-69)

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The sash frames are preferably made of formed metal or metal alloy sections by extrusion.

This invention relates to improved means in end closure and weather stripping window sash at the meeting rails. No claim is made herein upon any particular weather stripping material though in practicing my invention, I use a pile fabric strip, with a woven back, which is supported and held in a metal binder.

An object of my invention is to provide means for holding the weather stripping in a cross rail of the sash without additional parts and yet permit the ready removal or replacement of the weather stripping. And particularly, the continuation of the weather stripping around a portion of the end of the horizontal sash rail or the vertical rails joined thereto, to close off the opening between the sash and frame.

Further objects and advantages of the invention will be apparent from the following specification and the accompanying drawings, wherein a preferred embodiment of the invention has been shown and described.

In the drawings:

Figure 1 is a front view on a vertical plane of a window with a fixed upper sash and movable double hung lower sash, with the weather stripping indicated by hidden lines.

Figure 2 is a cross-sectional view, in part, of Figure 1 on the line 2—2, showing the weather stripping in position on the cross-rails of the lower sash.

Figure 3 is a cross-sectional view, in part, of Figure 1 on the line 3—3, showing the method of turning the weather stripping about the end of the upper sash rail of the lower sash.

Figure 4 is a cross-sectional view of the weather stripping material used.

Similar numerals refer to similar parts throughout the several views.

As illustrated in the drawings, the fixed upper sash 1 is formed and constitutes a part of the main frame 2, with a formed bottom cross-rail 3, which has a plurality of walls and protrusions, including the wall 4. The double hung lower sash 5, movable in a vertical plane, has the side rails 6 and 7 and the top and bottom cross-rails 8 and 9, respectively. The side rails 6 and 7 have a channel 10, accommodating a U-shaped weather strip 11 which in turn contacts intimately the sash guide 12, forming a weather seal between said side rails and the window frame.

The formed bottom cross-rail 9 has an elongated leg 13 which is inturned at its end forming the groove 14, with a similar groove 15 formed at its inside base, said grooves 14 and 15 and the

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inside face of said elongated leg 13 forming a channel the length of the cross-rail in which the metal binder 16 on the weather strip is journaled or inserted, said weather stripping extending to the ends of said bottom cross-rail. This weather strip consists of the pile 17 with its woven back 18 firmly held in the metal binder 16. The pile 17 abuts against and intimately contacts the inner face 18a of the formed window frame 2, making a weather seal between the cross-rail 9 and the bottom of the window frame 2, as shown in Figure 2.

A more difficult problem is presented in effecting a weather seal between the lower cross-rail 3 of the upper sash 1 and the upper cross-rail 8 of the lower sash 5, particularly, in closing the opening 19 between the end of the cross-rail 8 and the adjacent wall of the frame 2, which is simple in construction and free from added parts which tend to loosen under constant operation of the sash. I accomplish this by forming the channel 20 in the wall 21 of the cross-rail 8, said channel extending the entire length of said rail. In this channel 20, the metal binder 16 of the weather strip is journaled or inserted, the pile 17 thereof abutting against and intimately contacting the adjacent face of the wall 4 of the bottom rail 3 of the fixed upper sash 1, making a weather tight seal therebetween. The channel 20 in the horizontal rail 8 extends to the outside perimeter of the sash 5, regardless of the corner joinery used. The weather strip inserted in said channel 20, is continued and bent in U-shape about the leg 22 of the side rail 7, where it is held in position by the metal binder 16, the pile 17 thereof abutting against and in intimate contact with the sash guide 12 and the inner face of the wall 4 of the cross-rail 3, which is extended and warped against and fastened to the frame 1, as by the rivet 23, as shown in Figure 3, thereby filling and weather sealing the opening 19 between said cross-rail 8 and the window frame 2. While I have described in detail above in respect to the weather stripping of one end of the cross-rail 8, it is obvious that the same methods apply to the opposite end of said rail.

Marked advantage results from the method described above of weather stripping the sash at the meeting rails and the end opening, in that the weather stripping itself may be easily replaced, if desired, and no additional parts or members are required, which, due to space limitation and lightness of construction, present many difficulties during a period of continued operation.

While I have shown and described herein, for

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illustrative purposes, a preferred embodiment of the invention, it should be understood that considerable variation in the details of construction may be employed, without departing from the spirit and scope of the invention, as set forth in the following claims.

I claim as my invention:

1. In a window sash having joined horizontal and vertical rails, a formed horizontal upper rail having a weather strip retaining channel in its side and a weather strip consisting of a binder and woven pile fabric strip firmly attached to said binder inserted in said channel extending beyond the ends of said channel, the extensions of said weather strip conforming to exterior surfaces of the vertical rails.

2. In a window consisting of a formed main frame, upper sash and lower sash, each of said sash having horizontal and vertical rails, said vertical rails being joined to said horizontal rails at their respective ends, a formed horizontal upper rail in said lower sash having a continuous channel therein extending the width of the said sash, adjacent to an abutting horizontal rail of said upper sash, and a weather strip consisting of a metal binder and woven pile fabric firmly held in said metal binder inserted in said channel, said weather strip extending beyond the ends of said channel and conforming to exterior surfaces of the adjoining vertical rails, where it is held in position by said metal binder, weather sealing the opening between said sash and the main frame.

3. A window construction consisting of a formed main frame with a fixed upper sash and vertically movable lower sash, a formed horizontal upper rail in said lower sash having a groove therein extending the width of said sash adjacent to an abutting horizontal rail of said upper sash, and a weather strip consisting of a binder and

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woven pile fabric firmly held in said binder inserted in said groove and extending beyond the ends of said groove, said weather strip extensions conforming to exterior surfaces of said lower sash adjacent to said main frame.

4. In a window sash having upper and bottom horizontal rails and vertical rails joined to said horizontal rails at their respective ends, said sash being slidable in a supporting frame; a resilient weather stripping positioned on the side of the upper horizontal rail throughout its length and extended around the end of said sash, closing the opening between said sash and the supporting frame.

5. In a window having a plurality of sash vertically slidable in a supporting frame, each of said sash having joined horizontal and vertical rails, the exterior side of said vertical rails adjacent to said frame having a channel contour accommodating a sash guide on said frame; a resilient weather stripping positioned on the side of a horizontal rail adjacent to a rail of an abutting sash, extending beyond the ends of said horizontal rail in substantially U form, embracing said contour in each of the joining vertical rails and intimately contacting the abutting frame.

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