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WEATHER STRIP

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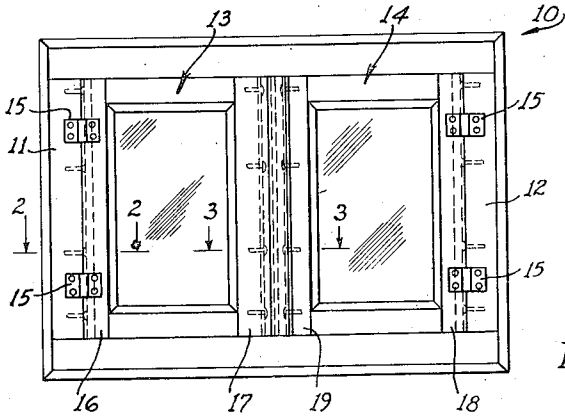


FIG. 1

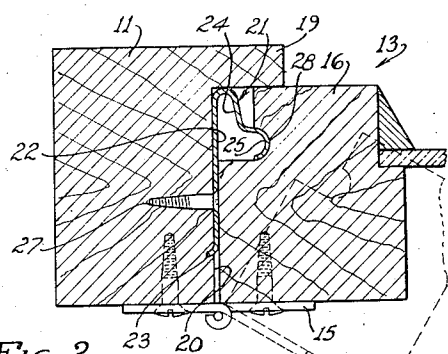


FIG. 2

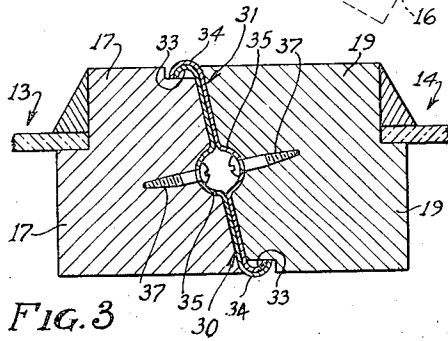


FIG. 3

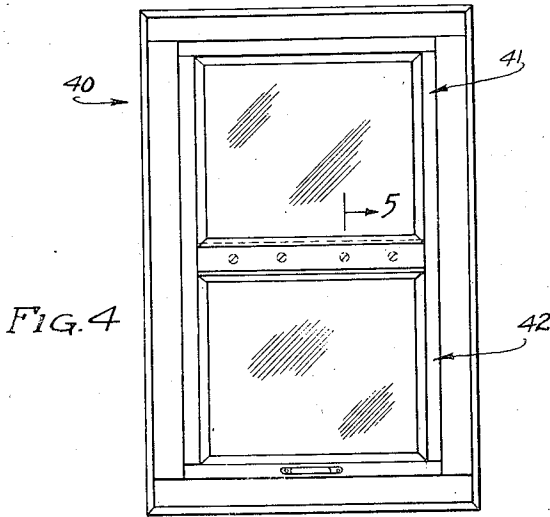


FIG. 4

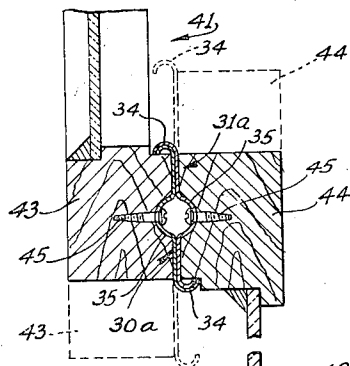


FIG. 5

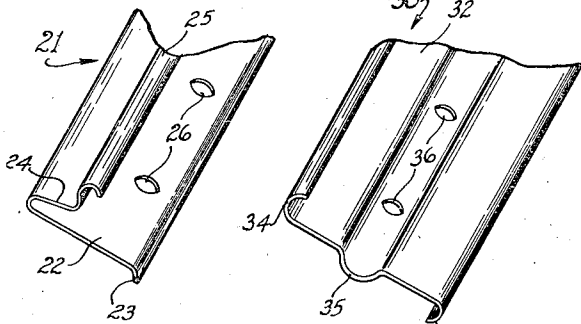


FIG. 6

FIG. 7

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WEATHER STRIP

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2 Claims. (Cl. 20-69)

This invention relates to new and useful improvements in window and door constructions and has particular relation to weather stripping for such constructions.

The objects and advantages of the invention will become apparent from a consideration of the following detailed description taken in connection with the accompanying drawing wherein a satisfactory embodiment of the invention is shown. However, it is to be understood that the invention is not limited to the details disclosed but includes all such variations and modifications as fall within the spirit of the invention and the scope of the appended claims.

In the drawing:

Fig. 1 is a front elevational view of a casement window having weather stripping applied thereto in accordance with the invention;

Fig. 2 is an enlarged sectional view taken as along the line 2-2 of Fig. 1;

Fig. 3 is an enlarged sectional view taken as along the line 3-3 of Fig. 1;

Fig. 4 is a front elevational view of a double hung window having my weather stripping applied thereto;

Fig. 5 is an enlarged sectional view taken as along the line 5-5 of Fig. 4;

Fig. 6 is a perspective view of an end portion of a weather strip of the invention; and

Fig. 7 is a similar view of another weather strip of the invention.

While in the accompanying drawing and following description my improved weather stripping is shown and described as specifically applied to casement and double hung windows it is to be understood that the invention is not limited to such applications since the weather stripping of the invention may obviously be applied to doors and the like. Therefore, wherever in the following specification and claims the structure specified is applicable to door constructions it is to be understood as covering the same, the word "window" being intended to comprehend other closures such as doors.

Referring in detail to the drawing and at first more particularly to Figs. 1, 2 and 3, at 10 is generally indicated the frame of a casement window including vertical jambs 11 and 12 on which are mounted sashes 13 and 14 respectively. As here shown hinges 15 serve to mount the sashes for movements between open and closed positions. The sashes are of similar construction and sash 13 includes a hinged rail 16 and a free rail 17 while sash 14 includes a hinged rail 18 and a free rail 19.

Weather stripping is provided between the jambs 11 and 12 and the sash rails 16 and 18 respectively. Since the construction is the same in each case the details are shown and will be described only in connection with the jamb 11 and the rail 16. Jamb 11 is cut away to provide an extension 19 disposed at right angles to an inner surface or shoulder 20 of the jamb.

A weather strip generally designated 21 and preferably although not necessarily formed of springy sheet metal is mounted on the mentioned surface of the jamb. This weather strip is an elongated structure (see also Fig. 6) including a base plate 22 disposed against the surface 20 of the jamb and along one edge having a depending lip 23 embedded or forced into the jamb.

The other longitudinal edge of the plate 21 is bent to extend to the opposite side of the plate from that at which the lip 23 depends to provide a spring-like supporting portion 24 the free edge of which is shaped to provide a channel member or transversely arcuate bead 25 open at its side toward the base plate 22. Preferably toward its edge carrying the lip 23 the base plate 22 is provided with perforations 26 for the passage of screws or other securing means 27.

A corner portion of the rail 16 is cut away and provided with a longitudinally extending groove or recess 28 so positioned as to receive the bead 25 when the sash is closed as in Fig. 2. With this arrangement it will be understood that the lip 23 being embedded in the jamb 11 air may not blow under the base plate 22 and to the inner side of the window. Further the arm 24 being somewhat springy the normal position of the bead 25 is slightly outwardly of that shown in Fig. 2 and thus it will be understood that when the sash 13 is fully closed the mentioned bead is forced into and has a tight fit in the groove 28 and so air is prevented from passing between the sash and the weather strip.

A weather strip joint is provided between the free sash rails 17 and 19 and the details of this joint will be best understood by reference to Figs. 3 and 7. It will be noted in Fig. 3 that the edges of the rails 17 and 19 which are located in opposing relation when the sashes are closed are cut on an incline or bevel so that the rail 17 actually overlies a portion of the rail 19 when the sashes are closed.

Secured against the described faces of the sash rails are weather strips generally designated 30 and 31. These strips are of identical construction and each includes an elongated plate-like portion 32 having one longitudinal edge curved

in to one side of the plate to provide a channel 33 and having its other longitudinal edge portion curved in the opposite direction providing a channel 34. Intermediate its longitudinal edges the plate is provided with a bead 35. Actually channel 34 is of a size to receive the channel 33 being curved on a somewhat larger radius.

Through its channel portion 35 each plate is provided with openings 36 for the passage of screws or other securing means 37 and such channel portions 35 of the plates are disposed in grooves, provided for their reception, in the beveled edge portions of the rails 17 and 19. The strips 30 and 31 are secured to the rails with one strip in reversed position relative to the other. That is, larger radiused channel 34 of the plate 31 is at the outer side of the rail 19 while the larger radiused channel 34 of the strip 30 is at the inner side of rail 17.

Thus when the window sashes 13 and 14 are closed the smaller radiused channel 33 of each strip enters or is received in the larger radiused channel 34 of the other strip. The smaller radiused channels have snug fits in the larger radiused channels so that when these channels are in engagement or nested in one another as in Fig. 3 air may not blow in between the strips 30 and 31. In addition the channels 35 of the strips being snugly embedded in the beveled faces of the rails 17 and 19 air may not blow into the room by passing between the strips and the rails on which they are mounted.

Due to the nesting of the channels of smaller radii in the channels of larger radii when the sashes are closed the weather strips are interlocked with one another. However, the sashes may be readily opened since it will be apparent that due to the beveled construction the sash 13 may be readily swung inwardly to open position after which the sash 14 may be similarly swung to open position. If it is desired that the sashes swing outwardly to open position it is only necessary in making the installation to reverse the mountings.

From the above it will be clear that with the construction disclosed closing of the sashes provide a weather tight joint at both the hinge and free or meeting rail joints. Attention is also directed to the fact that where but a single casement sash is used one of the strips 30, 31 will be mounted on the free rail of said sash while the other strip will be mounted on the frame jamb adjacent where said rail is located when the sash is closed. As above suggested the weather stripping construction herein disclosed is not restricted to use with casement windows but may be used in connection with doors and the like.

Referring now to Figs. 4 and 5 the weather stripping of the invention is there shown as incorporated in a double hung window. In such figures the window frame is generally designated 40 and mounted in the same for sliding movement are upper and lower sashes 41 and 42 respectively. Such sashes include meeting rails comprising the lower rail 43 of the upper sash and the upper rail 44 of the lower sash.

On the opposing faces of such rails are mounted weather strips 30a and 31a of the construction above described in connection with Fig. 3. These strips are mounted in the identical manner described, their beads 35 being embedded in the rails 43 and 44 respectively. The strips being secured in place by screws 45 or the like air may

not pass between the strips and the rails to which they are mounted.

Additionally when the sashes are closed the smaller radiused channels 33 are locked snugly in the larger radiused channels 34 providing an air tight construction. With the double hung window it is not necessary to bevel the opposing faces of the meeting rails 43 and 44 since any relative movement of the sashes takes place vertically so that the strips 30a and 31a readily clear one another.

The weather strip 21 is also useable in double hung window construction and may be used between the top rail of the upper sash and the frame although in the drawing it is only shown as applied between the bottom rail 46 of sash 42 and the sill 47 of the frame. This construction is shown in the lower portion of Fig. 5 and there it is noted that the strip 21 has its base plate 22 disposed against the upper surface of the sill 47 and has its lip 23 embedded in the sill.

In its lower face rail 46 is cut away and is provided with a groove 48 to receive the channel 25 of the strip 21. The channel has a snug fit in said groove and thus it will be seen that the contact between the channel and groove prevents movement of air between the weather strip 21 and the rail 46 while the lip 23 being embedded in the sill prevents air from blowing under the weather strip or between such strip and the sill.

Preferably the lower surface 49 of the rail 46 outwardly of the groove 48 is beveled or inclined to correspond with the bevel or incline of the upper surface 50 of the sill 47. It is also noted with reference to the rail 46 that when the sash 42 is fully closed as in Fig. 5 such rail is not in engagement with the base plate 22 of the weather strip but is spaced somewhat above the same. With this arrangement any water dripping from the rail 46 onto the sill will not freeze between the rail and the sill in a manner to seal the rail to the sill and interfere with the opening of the window.

It will now be clear that the weather stripping of the invention is not restricted in its application to hinged closures but is readily applicable to sliding closures such as double hung windows and the like.

Having thus set forth the nature of my invention what I claim is:

1. In a window construction, a frame including a jamb, a sash including a rail hinged to said jamb, a metal weather strip on said jamb and including a base plate secured to the jamb and extending longitudinally thereof, a lip along one longitudinal edge of the base plate and embedded in the jamb, an arm integral with and supported from the other longitudinal edge of the base plate by an open curved portion of the metal of said strip whereby the arm is yieldingly supported in spaced relation to the base plate, said arm inclining outwardly from the open curve at an acute angle to said base plate, a bead on the outer longitudinal edge of said arm, said rail cut out at a corner through a side and an edge to receive said arm when the sash is closed, and said rail having a groove in the bottom of the cut out through its edge and receiving said bead when the sash is closed.

2. In a double hung window construction, a frame including a sill and a stool, a sash slidable in said frame, a metal weather strip on said sill and comprising an elongated base plate secured to the sill, an arm integral with and supported

from a longitudinal edge of the base plate by an open curved portion of the metal of the strip with said open curved portion located in the corner formed by the sill and the outer edge of the stool whereby said arm is yieldingly supported in spaced relation to the upper side of said base plate, said arm inclining outwardly from said open curve at an acute angle to said base plate, a bead on the outer longitudinal edge of said arm,

5 said sash including a lower rail adapted to engage said weather strip when the sash is closed, said rail cut away at its inner lower corner portion through both its bottom edge and its inner side to receive said strip when the sash is closed, and said rail having a groove in the bottom of the cut out through its lower edge and receiving said bead when the sash is closed.

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