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HORIZONTAL SLIDING WINDOW STRUCTURE AND FRAME THEREFORE

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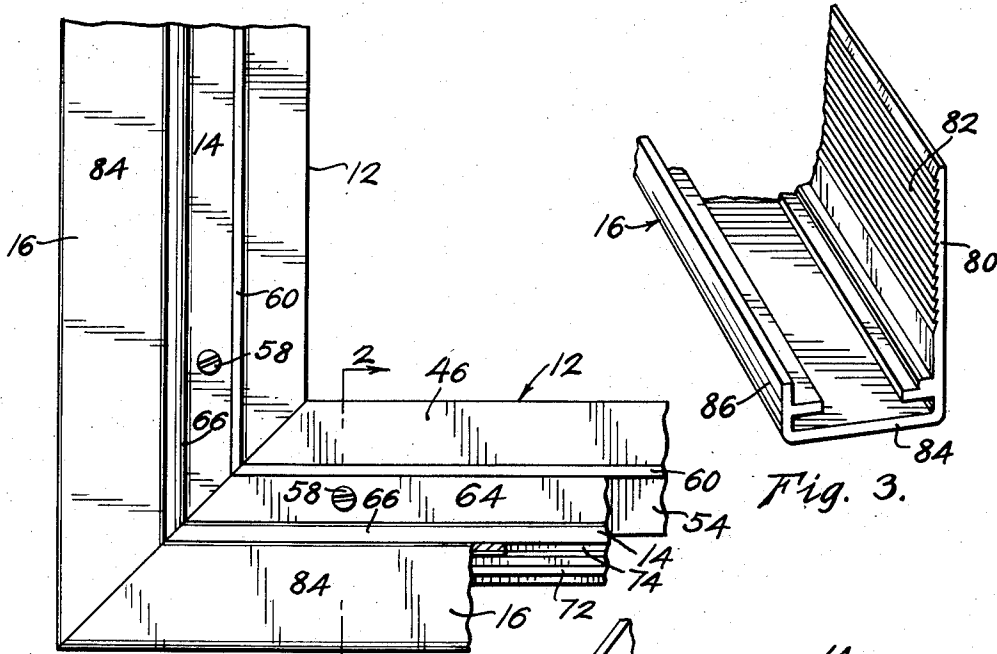


Fig. 1.

Fig. 3.

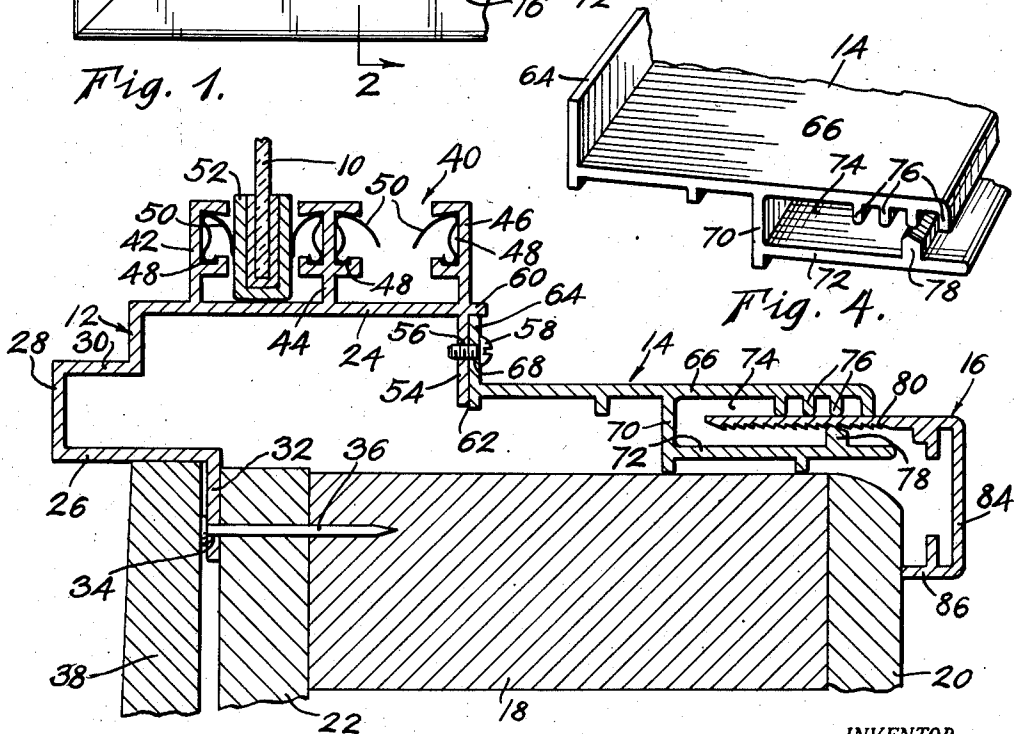


Fig. 2.

Fig. 4.

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HORIZONTAL SLIDING WINDOW STRUCTURE AND FRAME THEREFOR

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7 Claims. (Cl. 189—72)

This invention relates to window frames; and more particularly, to metal horizontal sliding window frames.

In recent years metal horizontal sliding windows have become quite popular. The prior art horizontal sliding windows, however, possess a number of objectionable features which are overcome by the horizontal sliding window frame of the present invention.

The conventional frames consist of rear and forward frame members which lap the stud, plaster and sheathing around the rough opening provided for the window. The thickness of the stud, plaster and sheathing may vary considerably; and, as no provision is usually made for differences in overall wall thickness the frame is not tight and rather large cracks may be left between the rear frame member and the plaster.

A second objection is the fact that the window panels rattle and are not weather-tight within the panel-receiving channels of the forward frame member. This, of course, becomes quite annoying and also results in drafty rooms.

A further difficulty arises in that leakage often occurs between the rear and forward frame members as no provision is made to protect the seam therebetween.

It is, therefore, the principal object of the present invention to provide a metal horizontal sliding window frame which is provided with means for adjusting the frame to accommodate different wall thicknesses.

A second object of the invention is the provision of a horizontal sliding window which is provided with an improved weather-strip which prevents drafts and rattling of the panels within the window frame.

A third object of the invention is the provision of means for protecting the seam between the rear and forward frame members against leakage.

Other objects will be in part apparent and in part pointed out specifically hereinafter in connection with the description of the drawing which follows, and in which:

Figure 1 is a fragmentary rear elevation showing the lower lefthand corner of a metal horizontal sliding window frame constructed in accordance with the present invention;

Figure 2 is a section taken along line 2—2 of Figure 1;

Figure 3 is a fragmentary perspective view of the adjustable frame member; and,

Figure 4 is a fragmentary perspective view of the rear frame member.

In order to facilitate the description of the window frame of the present invention in connection with Figure 2 of the drawing, the following designations will be used in the specification and claims: the left side of Figure 2 will be the "front" or "forward" portion thereof; the right side the "rear" or "rearward" portion; the bottom is the "outside" or "outer" portion thereof; and, the top the "inside" or "inner" portion. Hence, an element extending from right to left would be "forwardly extending," and one extending from left to right "rearwardly extending." In like manner, an element extend-

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ing from the upper portion of the frame to the lower would extend "outwardly," and one extending from the lower to the upper portion "inwardly."

Referring now to the drawing, it will be seen that the metal horizontal sliding window of the present invention consists of four basic elements, namely: the panels 10, one of which is shown in Figure 2; forward frame member 12, rear frame member 14; and, adjustable frame member 16. The window frame is attached within a rough window opening formed in a building wall by a wooden frame member or stud 18, an interior finished wall 20, and sheathing 22 on the exterior of the wooden frame member. The elements of the window frame cover the exposed edges of the sheathing, stud and finished wall in the conventional manner as shown in Figure 2.

Referring in particular to Figure 2 of the drawing where the elements of the window are shown in section, it will be seen that forward frame member 12 is provided with a web 24, a second flange 28 extending outwardly from the forward portion thereof, and a third flange 26 extending rearwardly from the first flange in spaced parallel relation to the web. If desired, the appearance of the forward frame member may be enhanced by forming offset portion 30 in the web 24, as shown. An integral fin 32 projects outwardly from the rear edge of the third flange 26 and provides means for attaching the forward frame member to the sheathing 22. The integral fin is provided with a plurality of openings 34 to receive nails 36. Exterior finished wall 38 covers the integral fin. Two panel receiving channels 40 are formed in the exposed face of the web 24 by forward flange 42, middle flange 44 and rear flange 46. The forward, middle and rear flanges are formed integral with the web in spaced parallel relation to one another and extend inwardly. Opposed grooves 48 are formed in the opposed faces of rear flange 46 and middle flange 44; and, the opposed faces of middle flange 44 and forward flange 42 for the reception of spring weather-strips 50. The weather-strips are placed in the opposed grooves 48, as shown, and engage frame 52 of panel 10 on both the forward and rear faces thereof forming a double seal. The weather-strips also prevent the panels from rattling. Second flange 54 projects outwardly from the rear edge of web 24. The second flange 54 is provided with a plurality of openings 56 to receive screws 58. A fourth flange 60 is formed integral with the forward frame member between rear flange 46 and second flange 54 and forms means for protecting the seam 62 between second flange 54 of the forward frame member and connecting flange 64 of the rear frame member against leakage.

The details of construction of the rear frame member 14 will now be described in connection with Figures 2 and 4 of the drawing. Rear frame member 14 comprises a plate 66 which overlies the exposed edges of stud 18 and interior finished wall 20. The forward edge of plate 66 is provided with an integral connecting flange 64 extending laterally therefrom and adapted to abut second flange 54 of the forward frame member 12, as shown. Connecting flange 54 is provided with openings 68 which register with corresponding openings 56 in the second flange 54. The screws 58 are used to attach the rear and forward frame members together. Plate 66 is provided with an integral intermediate flange 70 which projects outwardly therefrom in the direction of the stud. Channel flange 72 projects rearwardly from the intermediate flange in spaced parallel relation to the plate 66. Thus, a web receiving channel 74 is formed in the rear frame member along the rear edge thereof by the plate, intermediate flange and channel flange. Plate 66 is also provided with two or more spaced ribs 76 which

project into the web receiving channel 74. Locking rib 78 projects from channel flange 72 into the web receiving channel 74 opposite spaced ribs 76 of the plate.

In connection with Figures 2 and 3 of the drawing it will be seen that the adjustable feature of the horizontal sliding window frame of the present invention is accomplished by means of adjustable frame member 16. The adjustable frame member consists of a serrated web 80 which slides within web receiving channel 74 of the rear frame member between spaced ribs 76 and locking rib 78. Spaced ribs 76 prevent the serrated web 80 from tilting within the web receiving channel. The outer face of the serrated web 80 which slides over the locking rib 78 is provided with a plurality of longitudinally extending serrations 82 which act in combination with locking rib 78 of the rear frame member to prevent the adjustable frame member from being withdrawn from channel 74 once it has been properly positioned therein. Trim flange 84 extends outwardly from the rear edge of the serrated web 80 along the interior finished wall surface 20 and forms a decorative trim for the rear face of the frame. Wall engaging flange 86 extends forwardly from the trim flange to the interior finished wall surface 20.

Adjustable frame member 16 makes it possible to vary the distance between the forward edge of wall engaging flange 86 and integral fin 32 to accommodate variations in wall thicknesses. It can easily be seen that once the forward and rear frame members are in place, the adjustable frame member need only be inserted in the web receiving channel 74 of the rear frame member and moved forwardly into the channel 74 until the wall engaging flange comes into contact with the interior finished wall surface 20. Locking rib 78 will be engaged in the serrations 82 of the serrated web 80 to hold the adjustable frame member in this position.

From the foregoing description of the drawing it will be seen that the many useful objects of the metal horizontal sliding window frame of the present invention have been achieved; and therefore, I claim:

1. A metal horizontal sliding window of the type to be fastened within a rough window opening formed in a building wall by wooden frame members, the interior finished wall and sheathing or the like comprising: a forward frame member having a web, a first flange extending outwardly from the forward portion thereof, a third flange extending rearwardly from the first flange in spaced parallel relation to the web, an integral fin extending outwardly from the rear edge of the third flange forming means for attaching the forward frame member to a building wall, a forward, middle and rear flange projecting inwardly from the web in spaced parallel relation to one another and forming therebetween two panel-receiving channels for the reception of sliding window panels, the opposed surfaces of the forward and middle flanges and the middle and rear flanges having opposed grooves formed therein adapted to receive spring weatherstrips for forming a weather-tight seal between the panels sliding therein and the forward frame member, and a second flange extending outwardly from the rear edge of the web; a rear frame member having a connecting flange on the forward end thereof extending laterally and forming means for attaching the rear frame member to the fourth flange of the forward frame member, a plate extending rearwardly from the connecting flange, an intermediate flange extending outwardly from the plate, and a channel flange extending rearwardly from the intermediate flange in spaced parallel relation to the plate forming a channel on the rear end of the rear frame member; and, an adjustable frame member having a web adapted to slide within the channel on the rear

end of the rear frame member forwardly toward the integral fin of the forward frame member, and a trim flange extending outwardly from the rear edge of the web of the adjustable frame member forming means for engaging the surface of an interior finished wall when the web of the adjustable frame member is moved into the channel in the rear frame member.

2. A device in accordance with claim 1 in which a projecting flange extends rearwardly from the forward frame member between the rear flange and the second flange forming a protecting cover for the inner edge of the connecting flange of the rear frame member thereby preventing leakage between the forward and rear frame members.

3. A device in accordance with claim 1 in which the channel flange on the rear frame member is provided with a locking flange projecting inwardly into the channel therein, and the web of the adjustable frame member is provided with longitudinal serrations positioned to engage the locking rib of the rear frame member and hold the adjustable frame member in contact with the interior building wall surface.

4. A device in accordance with claim 3 in which the web of the rear frame member is provided with at least two spaced ribs extending into the channel formed therein opposite the locking rib on the channel web, said spaced ribs forming means for preventing tilting of the adjustable frame member sliding within the channel.

5. A frame member for use with horizontal sliding windows comprising: a web; and integral first flange extending outwardly from the forward portion of the web; a third flange extending rearwardly from the first flange in spaced parallel relation to the web; an integral fin extending outwardly from the rear edge of the third flange, said fin forming means for attaching the frame member to a building wall; a forward, middle and rear flange projecting inwardly from the web in spaced parallel relation to one another and forming therebetween two panel-receiving channels for the reception of sliding window panels, the opposed surfaces of the forward and middle flanges and the middle and rear flanges having opposed grooves formed therein adapted to receive spring weatherstrips for forming a weather-tight seal between sliding window panels and the frame member; and, a second flange extending outwardly from the rear edge of the web.

6. A frame member comprising: a plate, a first flange extending laterally along one edge of the plate, a second flange projecting from one side of the plate intermediate the edges thereof, a third flange projecting from the second flange in spaced relation to the plate forming a channel therewith opening away from the first flange, and a rib extending from the third flange and projecting into the channel.

7. The frame member of claim 6 including at least two spaced ribs depending from the plate and extending into the channel on opposite sides of the rib extending from the third flange.

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