

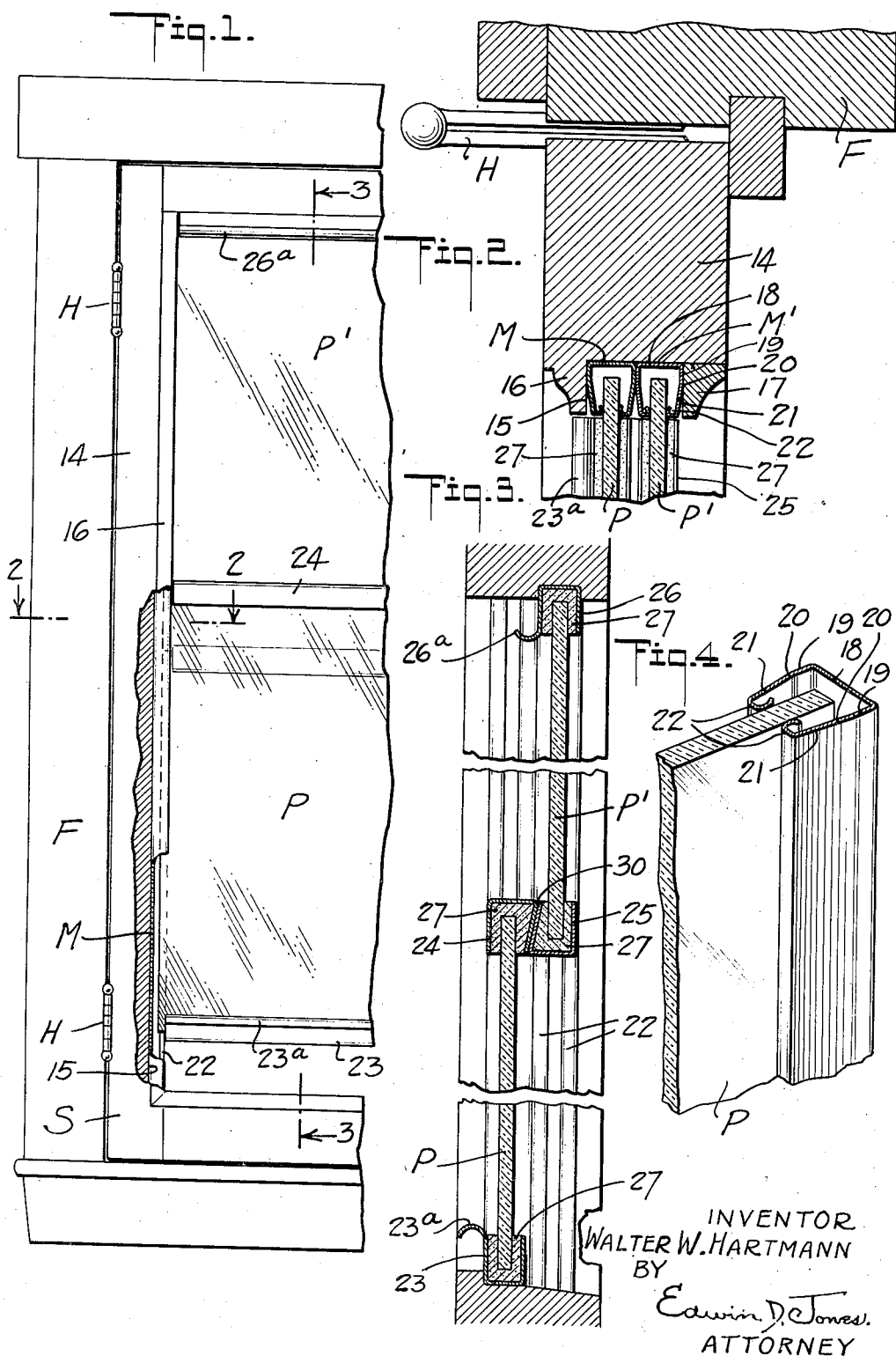
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WINDOW

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WINDOW

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4 Claims. (Cl. 20—51)

My invention relates to windows and it has for a purpose the provision of a window which is characterized by being devoid of sashes and balancing means and the attendant disadvantages thereof, and in substitution thereof mounting the glass panes for sliding movement directly in the window frame in such manner that the panes are capable of easy adjustment and yet frictionally held in any adjusted position, all in a manner to provide a fluid tight seal between the pane and frame to prevent the passage of rain and air between the two.

My invention is readily adaptable with but slight structural modification to casement windows, and in this adaptation a casement window is given the additional advantages of a sliding window.

I will describe only one form of window embodying my invention, and will then point out the novel features thereof in claims.

In the accompanying drawing:

Fig. 1 is a fragmentary view showing in inside front elevation a casement window embodying my invention in a window frame, the lower pane of the window being partly elevated.

Fig. 2 is an enlarged fragmentary transverse sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a vertical sectional view taken on the line 3—3 of Fig. 1 with both panes closed.

Fig. 4 is an enlarged fragmentary view showing in perspective one of the panes and one of the channel members.

In order to simplify both the description and the illustration, I have shown my invention embodied in a casement window, although it is to be understood that the casement can be considered as the frame of a window and my invention applied directly to the frame rather than to the casement.

Referring specifically to the drawing, F designates a window frame in which is hung a casement sash S by means of a pair of hinges H, H. At the inner sides of the vertical portion 14 of the sash S grooves 15 are formed by inner and outer strips 16, 16 and 17, 17 respectively. The strips 16 are formed integral with the sash portions 14 but the outer strips 17 are formed separately from and secured to the sash portions.

Suitably secured within each groove 15 are a pair of channel members M and M' arranged side by side and co-extensive in length therewith. Each member comprises a length of sheet metal or other material possessing the necessary resiliency for the purpose intended. The metal is formed to provide a flat back portion 18 and side

portions 19, 19 which along lines 20 spaced from the back portion, are bent slightly inward so that the two portions converge and provide a pair of converging spring arms 21. The free edges of the arms are bent inwardly to provide ribs 22, 5 and the transverse curvature of these ribs are such that their confronting sides provide relatively narrow bearing surfaces in respect to an object placed therebetween.

As shown in Figs. 1 and 3, lower and upper glass panes P and P' are mounted in the channel members M and M', respectively, in such manner that the vertical marginal edges of each pane are extended between the ribs 22 of the respective members. The spacing of the ribs is such that with the pane between them the arms 21 are spread and thus placed under such tension that the four ribs of the two channel members function to frictionally sustain the pane in any vertical position of adjustment in the window frame and yet permit the pane to be manually raised or lowered to any position desired. Also, because of the pressure with which the ribs engage the pane, the joints between the two are sealed against passage of rain and air, particularly when the pane is in a fully closed position.

The lower pane P is provided along its horizontal edges with rails 23 and 24 preferably of sheet metal, and of U-form in cross section (Fig. 3). Similarly, the upper pane is provided along its horizontal edges with rails 25 and 26 of U-form in cross section and made preferably of sheet metal.

In all instances the rails 23, 24, etc., are secured to the panes by a suitable mastic 27, and each rail is of such length that its ends terminate short of the vertical edges of the pane so as to have sliding contact at their ends with the outer faces of the ribs 22. Such an arrangement causes the rails to coact with the ribs in maintaining the panes centered within the channel members in all positions of adjustment of the panes.

As best shown in Fig. 3 the lower rail 23 seats on a flat surface 28 of the lower cross sash rail 29 when the lower pane is in closed position. At the inner side of this surface 28 a shoulder 30 is formed, at the outer side the sash rail slopes away from such surface.

For raising and lowering the panes the rails 23 and 26 are formed with flanges 23^a and 26^a coextensive in length therewith and shaped to provide finger grips by which the respective panes can be lowered and raised. The rail 26 seats within a groove 31 in the underside of the upper

cross sash rail 32 when the upper pane is in closed position.

5 The rails 24 and 25 at their confronting sides are reversely inclined as indicated at 33 in Fig. 3, so that when the two panes are in closed position the rails meet to form a substantially fluid tight joint between the two.

10 From the preceding description taken in conjunction with the accompanying drawing, it will be manifest that by means of my invention is provided a window pane mounting by which the pane is slidable directly in a window frame to the elimination of sliding sashes and their balancing weights and the expense and operating disadvantages thereof, and yet permitting easy adjustment of the pane and the holding thereof in any position of adjustment. By embodying my invention in a casement window, is given the advantage of permitting either pane to be opened 15 in securing a measured degree of ventilation without the necessity of opening the casement, and which measured degree of ventilation cannot be obtained with the conventional casement.

20 Although I have herein shown and described only one form of window embodying my invention, it is to be understood that various changes and modifications may be made herein without departing from the spirit of my invention and the spirit and scope of the appended claims.

30 I claim:

1. In combination; a window frame; a pane in the frame; spring members in the frame so embracing the vertical edges of the pane that the pane is slidable in the frame and frictionally retained in any vertical position of adjustment; 35

and means on the pane engaging said members for maintaining the pane centered in the members.

2. In combination; a window frame; a pane in the frame; spring members in the frame so embracing the vertical edges of the pane that the pane is slidable in the frame and frictionally retained in any vertical position of adjustment; and rails secured to the horizontal edges of the pane with their ends in sliding contact with said members for maintaining the pane centered in the members. 10

3. In combination; a casement; two pairs of spring members with the members of each pair secured to the inside vertical edges of the casement and coextensive in length therewith; a pair of panes each embraced at its vertical edges by the members of the respective pair so that the pane can be slid vertically in the members and frictionally held thereby in any position of adjustment in the casement; and rails secured to the horizontal edges of the panes with their ends in sliding contact with the members for centering the panes in the members. 15

4. In combination; a casement window having a frame hingedly supported at one of its vertical edges; two pairs of spring members with the members of each pair secured to the inside vertical edges of the frame and co-extensive in length therewith; a pair of panes each embraced at its vertical edges by the members of the respective pair so that the pane can be slid vertically in the members and frictionally held thereby in any position of adjustment. 25

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