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E. ADAMS

CASEMENT WINDOW

Filed June 27, 1925

*Fig. 1.*

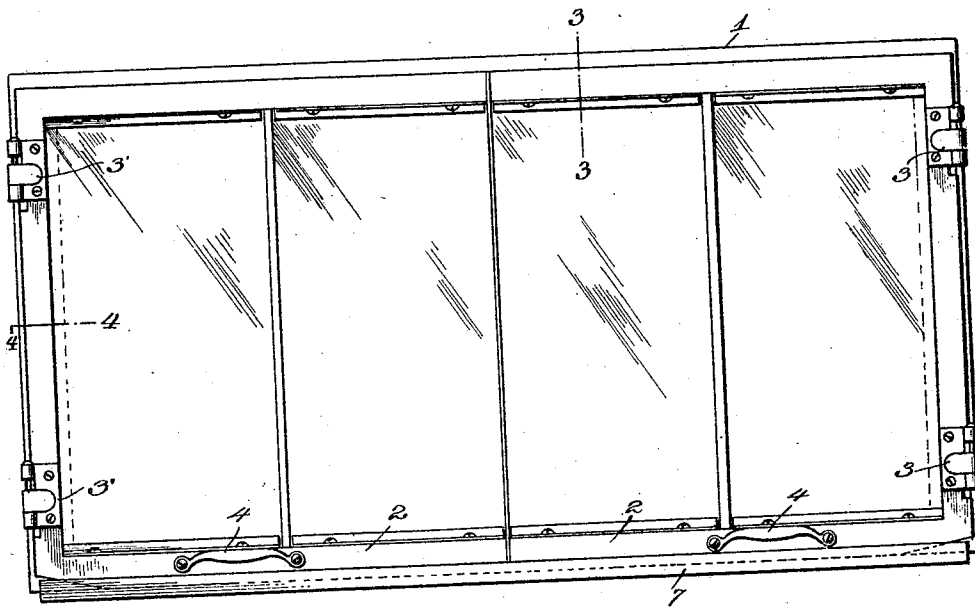


*Fig. 4.*

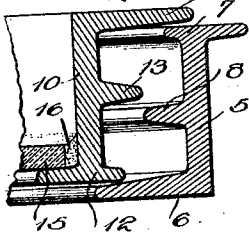


*Fig. 2.*

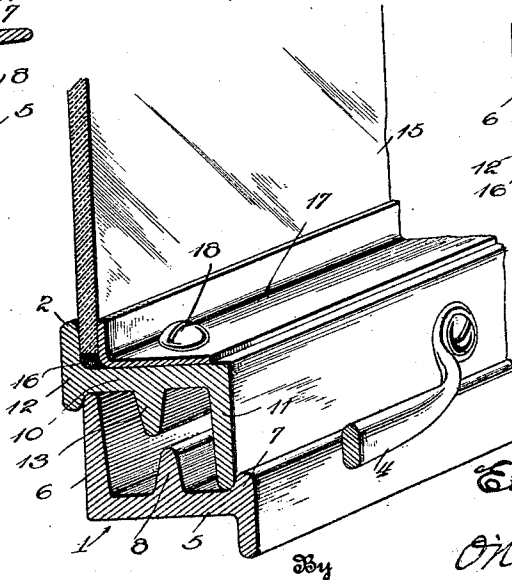
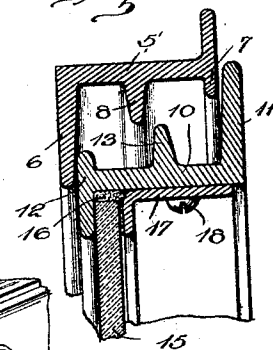


*Fig. 3.*



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## UNITED STATES PATENT OFFICE.

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## CASEMENT WINDOW.

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The invention relates to casement windows including a sash of the swing and lift type, in which the sash is automatically locked within the frame when the window is closed, the elements of the frame and the sash being so constructed and arranged as to provide a substantially weather-proof joint between the sash and frame at all points, both the frame and the sash being formed of specially shaped steel bars to effect this object and also to provide a strong, durable and light construction of casement window that is not liable to damage or derangement of any of its parts.

The invention is illustrated in the accompanying drawing, in which:

Fig. 1 is a front elevation of the casement window.

Fig. 2 is an enlarged vertical section of the lower part of the window in perspective.

Fig. 3 is a cross section on line 3—3 of Fig. 1.

Fig. 4 is a section on line 4—4 of Fig. 1.

Referring to the drawings, 1 indicates the frame of the casement window, which, as usual, is of generally rectangular shape and of any desired horizontal and vertical dimensions, within which frame are pivoted two lift and swing sash members 2 and 2', which are respectively connected to the vertical side members of the frame by sets of hinges 3 and 3', the respective members of each hinge being capable of relative longitudinal movement in the direction of the axis of the connecting pin, as is usual in this type of hinge which permits of a swinging and lifting movement of the sash. Each swinging sash member is provided with a bail or handle 4 on its lower rail to facilitate the lifting and swinging movement of the sash.

The frame 1 is formed of shaped angle bars, preferably of rolled steel, and, generally speaking, the cross section of each bar is L-shaped, that is to say with a relatively high right-angled or normal flange along one edge and a low right-angled or normal flange on the opposite edge. As indicated more particularly in Figs. 2, 3 and 4, each member of the frame comprises a web 5, a high normal flange 6 and a low normal flange 7 and, preferably, a medium longitudinal flange 8, which is higher than flange 7 and lower than flange 6. The top and side bars of the frame are so connected that the flanges on the respective edges form continuous rim-like projections extending inwardly of the frame and in continuous alignment. The bottom bar, which constitutes the sill of the window frame, is, however, offset outwardly so that its flanges 6 and 7 are spaced forwardly of the corresponding flanges of the top and side members a distance approximately equal to the thickness of the flanges.

Each sash member 2 and 2' is constructed of similar L-shaped bars, where the rails and stiles of the sash engage the frame. When the window includes a single swinging sash, both rails and both stiles of the sash would preferably comprise these L-shaped bars, each consisting of a web 10, a high normal flange 11 along one edge and a relatively low normal flange 12 along the other edge with a mid flange 13 of intermediate height. The L bars, constituting the sash structure, are, however, disposed oppositely to the L bars constituting the frame, so that, when the window is closed, the low flanges 12 of the sash will engage the high flanges 6 of the frame and the high flanges 11 of the sash will engage the low flanges 7 of the frame, forming a practically weather-tight joint. The relation of the top rail of the sash and the top bar of the frame, when the window is closed, is illustrated in Fig. 3 and, similarly, the relation of the side members of the sash and frame are shown in Fig. 4. Fig. 2 clearly illustrates the relation of the bottom rail of the sash and the bottom bar or sill of the frame, when the window is closed, namely, with the high flange 11 of the sash engaging behind the shoulder of the low flange 7 of the frame, and the high flange 6 of the frame engaging the angle between the low flange 12 and the web 10, so that the sash is securely locked in position against movement in any direction until it is lifted by the bail 4 and swung outwardly, the extent of the lifting movement being sufficient to clear flanges 7 and 11 and 6 and 12 on the bottom rail of the sash and the sill of the frame, respectively. Sufficient clearance is left between the sides and top of the sash and frame, respectively, to permit the sash to swing freely in its opening and closing movements. The median flanges 8 and 13 on the elements of the frame and sash, respectively, are designed to strengthen the structures of the

frame and sash and also to provide additional weather guards to prevent the entrance of air or the seepage of water, when the window is closed.

5 As a matter of convenience and to avoid the necessity of manually lifting the sash in the closing movement thereof, the lower corner of the sash may be beveled, as indicated in Fig. 1, or alternatively the ends of  
10 the sill 7 may be beveled outwardly and downwardly, so that, when the sash is swung in its closing movement, it will be automatically lifted by the beveled or inclined surface, sufficiently for the lower edge of  
15 the bottom rail of the sash to clear the corresponding flanges on the sill.

The sash may be provided with a glass light 15, which is preferably secured in place by angle clips 17 secured by screws  
20 18, the joints between the glass and the sash being sealed by putty, cement, or the like 16.

The casement window construction as described is especially adapted to basements or  
25 other situations subject to strenuous conditions, such as usage and weather, and the particular construction and arrangement of the engaging portions of the sash and frame not only enable the sash to be securely locked  
30 within the frame, when the window is closed, but effect a practically air and waterproof seal between the sash and the frame at all points.

What I claim is:

35 1. A casement window comprising a frame formed of L bars, and a lift and swing sash formed of similar bars oppositely arranged with respect to those in the frame; whereby  
40 the high flange of each member will slidably engage the side of the low flange of the other member when the window is closed.

2. A casement window comprising a frame  
45 formed of shaped bars having a high flange and a low flange on opposite edges and the same side, and a lift and swing sash formed

of similarly and oppositely disposed bars; whereby the high flanges of each member will slidably engage the sides of the low flanges of the other member when the window is closed.

3. A casement window comprising a frame  
50 formed of flanged bars, the flanges of the bars forming the top and sides of said frame, being in continuous alignment and the flanges of the bar forming the bottom of  
55 said frame being offset with respect to the flanges of the bars forming the sides of said frame, and a sash formed of bars having flanges adapted to co-operate with the outer faces of the flanges of the top and side bars  
60 of the frame and the inner faces of the flanges of the bottom bar of the frame in closed position.

4. A casement window comprising a frame  
65 formed of flanged bars, the flanges of the bar forming the base or sill of the frame being offset with respect to the flanges of the other bars, and a lift and swing sash formed of bars having flanges co-operating  
70 with the flanges of the frame bars in closed position to positively hold the sash against movement away from the frame in closed position.

5. A casement window comprising a frame  
75 formed of flanged bars, the flanges of the bar forming the base or sill of the frame being offset with respect to the flanges of the other bars, and a lift and swing sash formed of bars having flanges adapted to slidably engage and lock with the flanges  
80 of the frame bars in closed position, said sash being provided with means co-operating with the offset base or sill of said frame to automatically raise said sash with respect to  
85 said frame during closing movement of the sash to bring said flanges into co-operating locking engagement.

In testimony whereof I affix my signature.

EUGENE ADAMS.