June 3, 1952 E. PEREMI 2,599,196

WINDOW CONSTRUCTION

Filed May 20, 1947 2 SHEETS—SHEET 1

FIG.1.

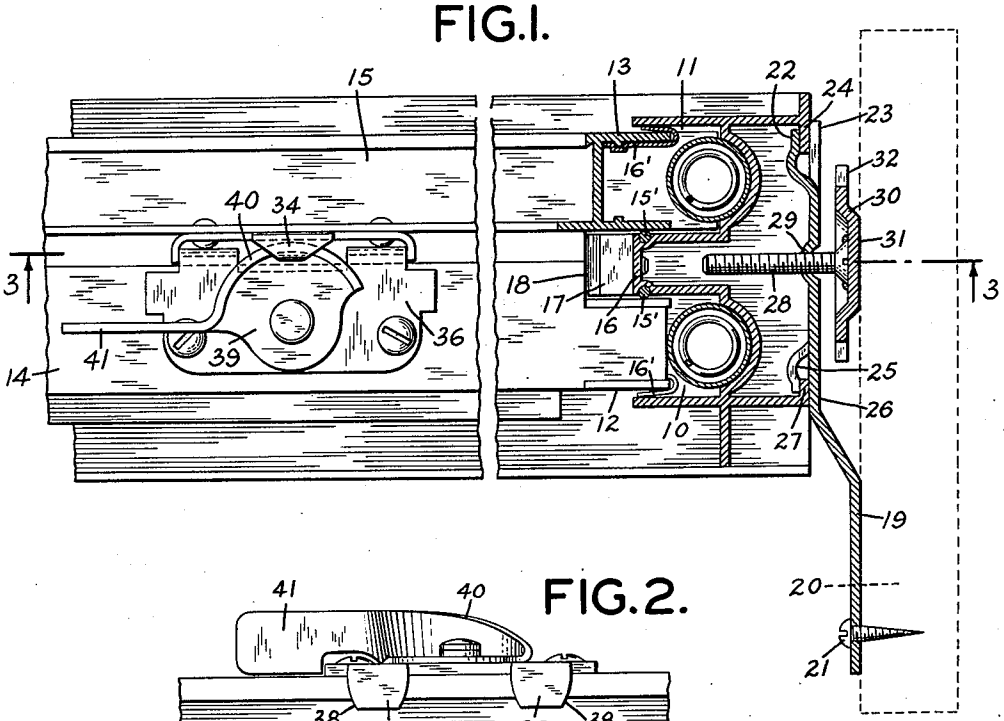


FIG.2.

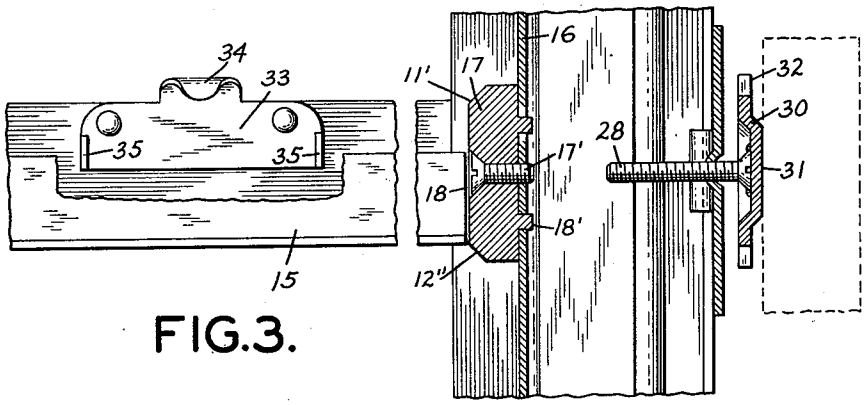


FIG.3.

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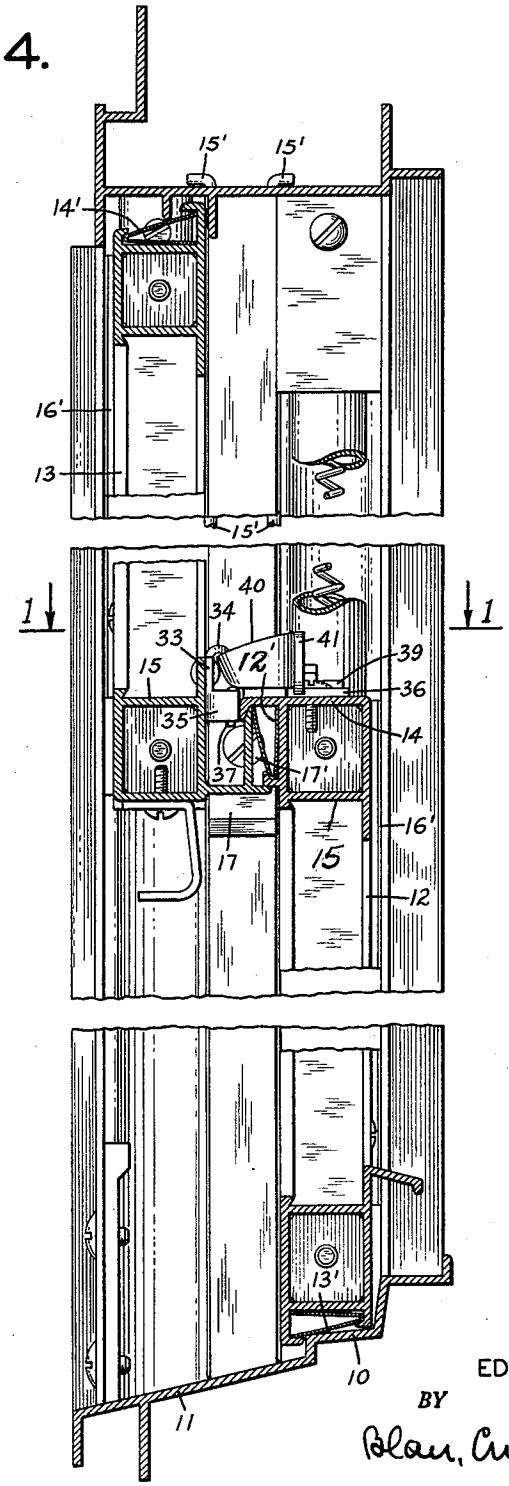
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FIG.4.



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WINDOW CONSTRUCTION

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1 Claim. (Cl. 189—73)

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An object of the invention resides in the provision of a window construction which includes a frame and vertical slidable sashes in such manner that the sashes and frame may be adjusted so that they will be in an efficient operative alignment with each other to insure the proper operation of the sashes as they are raised and lowered, to center the sashes when they are closed with the meeting rails of the sashes in alignment with each other.

It is a further object of the invention to provide for the sealing of the spaces between the sashes and the window frame and between the meeting rails of the sashes against weather leakage when the sashes are in their closed positions.

A still further object of the invention resides in the provision in such a device as above described of means which will permit the refloating sash movements as they are raised or lowered.

Further it is an object of the invention to provide the sashes with cooperative window locking and aligning means which, when the sashes are moved to their closed positions, will align the sashes with each other both vertically and horizontally and in relation to the window frame.

With these and other objects in view, such as will appear as the description of the invention progresses, the invention resides in the combination and arrangement of parts illustrated in the drawing, described in the specification and recited in the claim.

In the drawing:

Figure 1 is a horizontal sectional view of a fragment of a window construction illustrating an embodiment of the invention;

Figure 2 is a fragmentary elevational view showing the sash centering and locking device;

Figure 3 is a vertical sectional view 25 on line 3—3 of Figure 1; and

Figure 4 is a vertical sectional view through the sashes and frame showing the relation of the same and the weather stripping arrangement.

Referring, now, to the structure illustrated in the drawing, and particularly to Figures 1 and 3, a vertical frame member of a metallic window frame is illustrated. This includes (as does also the opposite vertical frame member) spaced channels 10 and 11, in which the side rails 12 and 13 of the respective lower and upper sashes are slidably mounted.

At each side of the window frame the parting bead 16 carries a self lubricating metallic filler block 17 that fills the notches in the upper rail of the lower sash 14 and the lower rail of the upper sash 15, one of these notches, i. e., the

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notch in the upper rail of the lower sash being shown in Figures 1 and 3 at 18.

These blocks 17 are secured to the parting bead 16 by countersunk screws 17' and are prevented from having rotative movement by lugs 18' that engage with complemental openings in the parting bead. These blocks serve to prevent air leakage through the said notches in the upper and lower sashes and assist in properly locating the sashes in the frame when the sashes are in closed positions.

The side rails of the upper and lower sashes carry resilient metallic weather stripping 16', as illustrated in Figure 1, which cooperates with self lubricating inserts 15' in the parting bead 16 to seal the space between the side rails and the frame.

The upper rail of the upper sash carries a somewhat similar resilient metallic weather stripping 14' while the lower rail of the lower sash carries a resilient weather stripping 13' similar to the metallic weather stripping 14', the stripping 13' cooperating with the sill member of the frame to seal the space between the lower rail of the lower sash and the sill and the stripping 14' cooperating with the header of the frame to seal the space between the upper rail of the upper sash and the header. The upper rail 15 of the lower sash carries a resilient weather stripping 12' which cooperates with the lower rail of the upper sash to seal the space between these meeting rails.

A combined anchor and adjuster is associated with each vertical jamb of the window frame, one of the same being illustrated in Figures 1 and 3.

In this construction an anchor plate 19 is provided, which plate is secured to the window opening framing 20 by suitable means such as a screw 21, and is attached to the adjacent window frame jamb by ears 22 and 23, which embrace a flange 24 on the jamb and by ear 25 which cooperates with a portion 26 of the anchor plate to embrace another flange 27 on the jamb.

An adjuster is mounted on the anchor plate 19. This adjuster comprises a screw member 28 that is adjustably engaged in a threaded opening 29 in the plate 19. A bearing head 30 is rigid with the screw member 28 and has a bearing face 31 that is adapted to engage and foot against the adjacent face of the window opening framing 20 so that, when the screw is adjusted, the adjacent window frame jamb may be adjusted between its ends where it meets the header and sill to force the jamb inwardly and to relieve it of any out-

ward bowing that it may possess and to, also, move the filler block 17 inwardly into proper position to substantially fill the spaces 18 heretofore referred to.

This adjustment of the screw 28 may be accomplished by rotating the head 30 by means of a tool, such as a screw driver, that may be engaged in notches 32 in the periphery of the head 30.

The lower rail of the upper sash 15 is provided with a plate 33 which is secured thereto and which carries a fastener hook member 34 which opens downwardly. A pair of spaced projections 35 protrudes from the face of the plate 33 inwardly for a purpose which will be described.

The upper rail of the lower sash 14 has a plate 36 rigidly attached thereto, and from this plate cam members 37, having cam faces 38, extend outwardly and downwardly. These cam members 37 are so located that, when the sashes are closed, they will extend between the projections 35, and they are so spaced that the cam faces 38 are capable of engaging the projections 35 to align and position the sashes with respect to each other.

This plate 36 carries also a cam lock 39 having a cam member 40 for engagement with the hook member 34 to lock the sashes together, which engagement may be accomplished through a finger piece 41.

With this construction it is possible to so adjust the window frame jambs and filler blocks 17 as well as the sashes that a proper cooperative relationship between these elements will be established to produce a properly operating and functioning window construction.

It will be understood that, when the sashes are closed, there should be a relatively weather tight joint between the side rails of the sashes and the jambs of the window frame which of course requires a proper relative positioning of the usual weather stripping and also the substantial filling of the notches, such as 18, in the meeting rails of the sashes, by the blocks 17. Moreover, the sashes should be so positioned laterally with relation to each other that the full benefit of the proper functioning of the weather stripping of both sashes will be attained.

The adjuster, the sash centering device and the blocks heretofore described cooperate with each other to attain the above results and advantages.

When the window frame jambs are bowed outwardly, or require inward adjustment, this may be accomplished by the adjuster heretofore described. Such adjustment will properly correlate the jamb members with the vertical rails of the sashes and the cooperating weather stripping between said rails and window frame. Furthermore, such adjustment will properly position the blocks 17 so that, when the sashes are closed, they effectively will fill the notches in the meeting rails of the sashes sufficiently to form weather seals at these points.

However, to perfect the operation of the sashes and the weather sealing of the window, one or the other of the cam faces 38 on the cams 37 will engage the adjacent projection 35 as the sashes are being closed, with the result that the sashes will be given relative lateral movement to properly adjust each with respect to the other and with respect to the window frame and filler blocks.

Moreover, the filler blocks 17 are provided, as illustrated in Figure 3, with cam faces 11' and 12'' so that when the lower sash is lowered from a raised position the edge of the notch 18 therein will engage the cam face 11' in case the sash

is closer to one frame jamb than to the other and upon further movement will move the sash laterally into its proper position. When the upper sash is raised from a lowered position the cam face 12'' of the block 17 will be engaged by the edge of the notch corresponding with the notch in the lower rail of the upper sash and will coact with the upper sash in the manner just described in connection with the movement of the lower sash.

Thus it will be seen that when the upper and lower sashes are moved from open positions to closed positions after the blocks 17 have been properly positioned by means of the adjusters heretofore described, the said blocks will coact with the meeting rails of the sashes to assist in centering the sashes in the frame. As the cam members 37 engage the projections 35 the sashes will be horizontally and vertically aligned with each other and when the cam 40 is engaged with the hook member 34 the meeting rails of the sashes will be drawn together and through the weather stripping 12' will seal the joint between these rails. Moreover, this cam action will force the upper weather stripping 14' into engagement with the head of the frame and at the same time will force the lower weather stripping 13' into engagement with the sill member of the frame. Additionally, in drawing the meeting rails of the sashes together this cam member 40 will also contact the side rails of the sashes with the self lubricating inserts 15', at which time the resiliency of the weather stripping 16' will maintain a seal between the jamb of the frame and the side rails of the sashes.

Thus the blocks, the window locking member, the adjuster and the weather stripping will cooperate to properly position the jambs of the frame, align the sashes with each other and seal the spaces between the sashes and the frame and between the meeting rails of the sashes, with the result that the sashes may easily be raised and lowered and when in closed position will be effectively sealed and locked against weather infiltration into the room.

In window frames which are constructed of metal such as relatively thin extruded aluminum, before the frames are set in the building the jambs ofttimes bow outwardly between their ends so that the frame is no longer a true rectangle. It is, therefore, desirable to provide means for adjusting the jambs so that the frame will be restored to its original condition, i. e., to a rectangular form, for otherwise the sashes will not properly slide within the channels.

In this type of window where weather stripping is provided for the upper, lower, vertical and meeting rails of the sashes it is not possible to provide this weather stripping at the ends of the horizontal rails where they align with the parting beads and so it has been the practice to notch these ends as at 18 in Figure 1 and provide filler blocks such as 17 for preventing the infiltration of air through the window at these points when the sashes are closed. However, it is necessary to provide some space between the faces of the filler blocks 17 and the adjacent edges of the meeting rails of the sashes so that there will not be a drag between the two pieces of aluminum.

In order that the two sashes may have their side vertical rails aligned with each other as they are being closed so that they will both closely align with the adjacent faces of the blocks 17 the meeting rails of the sashes are provided with the cooperating cams 35 and 37, the latter having

the cam faces **38** which ride upon the cam projections **35** as the two rails are being brought into alignment with each other with the result that the sashes will be adjusted laterally to align their side rails vertically and properly space them in respect of the filler blocks **17** and the jambs. In this way the sides of the sashes where they engage with the jambs will be sealed against air infiltration. Then when the cam shaped lock **39** is engaged with the hook member **34** the sashes will be moved apart vertically to seal the upper and lower rails within the header and sill and at the same time because of the eccentric cam portion **40** the meeting rails will be drawn together to seal them against the weather strip that is interposed therebetween.

Thus with this adjustment of the jamb members the cooperation of the cam elements **35** and **37** and the cooperation of the lock elements **34** and **39**, the top and bottom and the sides of the sashes and the meeting rails are sealed. In order to get this seal it is of course necessary when the jambs are sprung outwardly to adjust them inwardly for otherwise there would be no proper seal at the filler blocks **17**.

While a particular construction has been illustrated and described, this has been for the purpose of disclosing an embodiment of the invention and it is to be understood that changes in details of construction may be made without departing from the spirit of the invention or exceeding the intent and scope of the claim.

What is claimed is:

In a metallic window construction which comprises a frame having vertical jambs with sash-receiving channels therein between which is arranged a parting bead and a pair of vertically slidable sash members mounted for movement in said channels, the upper rail of the lower of which sashes and the lower rail of the upper of which sashes are provided with complemental openings adjacent said parting bead, the improvement which includes a filler block carried by said parting bead and aligned with the upper rail of said lower sash and the lower rail of said upper sash when the sashes are closed and located in said recesses and substantially filling the same, a pair of downwardly converging cam members carried by the lower rail of the upper sash, a pair of projections on the upper rail of the lower sash having their inner faces separated a distance substantially equal to the distance between said cams at their greatest point of divergence and between which said cams are adapted to move when the lower rail of the upper sash and the upper rail of the lower sash are brought into alignment, and a screw device for adjusting the position of said filler block transversely of the window and in respect of the recesses in the rails thereof whereby in operation, when the sashes are closed, they will be aligned into a substantially continuous rectangular form and the recesses in the rails thereof will be substantially filled by the filler blocks.

EDMUND PEREMI.

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