

May 31, 1960

A. T. HAGERTY

2,938,247

WINDOW

Filed July 20, 1956

2 Sheets-Sheet 1

*Fig-1*

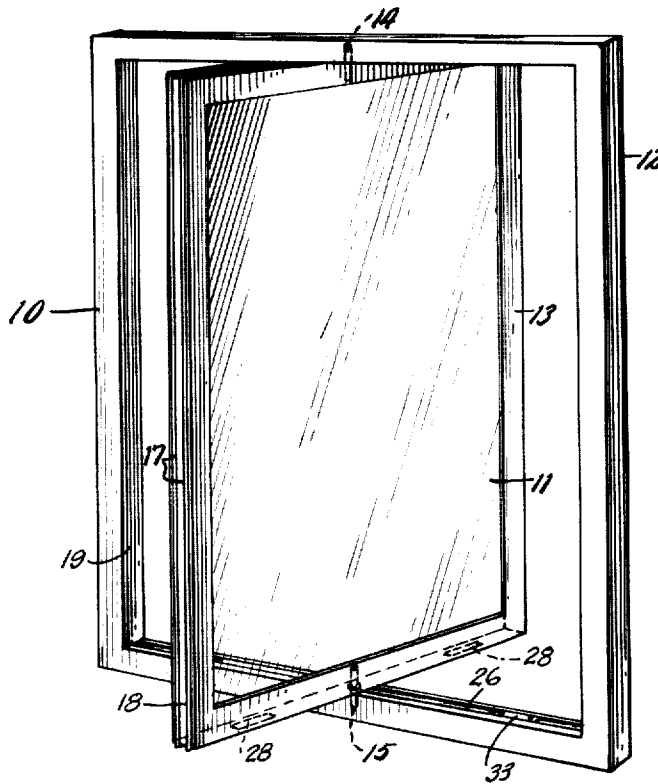
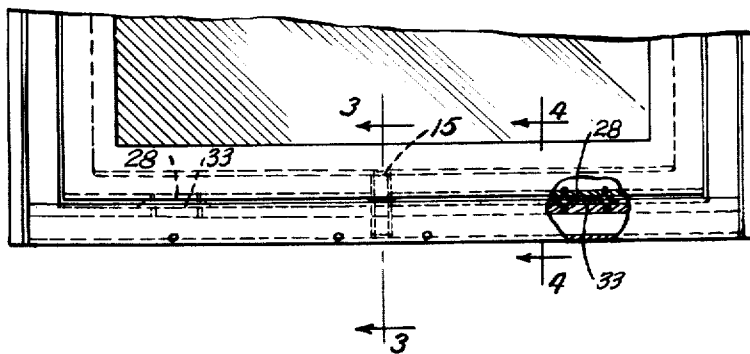


*Fig-2*



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Fig. 3

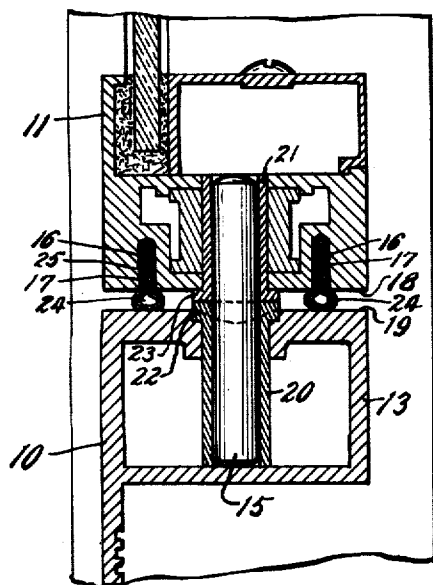


Fig. 4

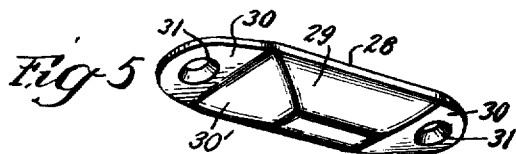
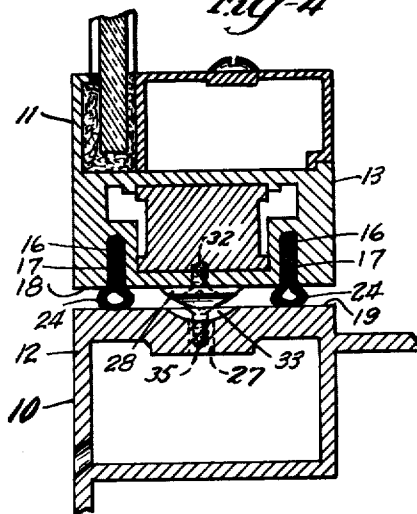
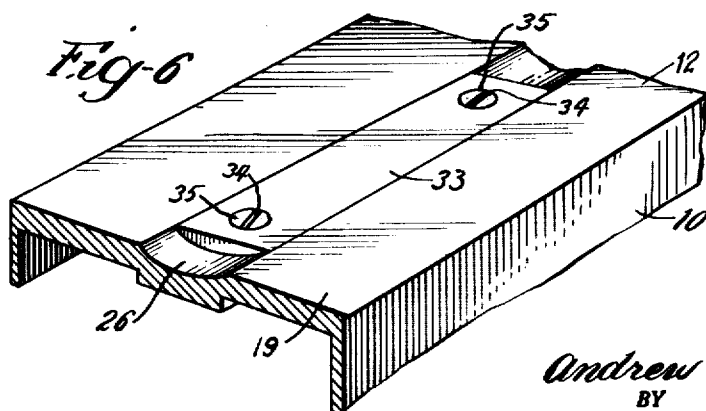


Fig. 6



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2,938,247

## WINDOW

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Filed July 20, 1956, Ser. No. 599,154

6 Claims. (Cl. 20—53)

This invention has to do with windows of the type in which the sash is pivotally mounted in a frame and is sealed in its closed condition by a continuous sealing gasket located in the space between the outer periphery of the sash and the inner periphery of the frame.

It is a general object of the invention to provide in a window of the type described a supporting means between the lower rail of the sash and the bottom rail of the frame which is laterally spaced from the bottom connecting pivot and which in the closed position of the sash will provide a support for the portion of the same which is remote from the pivotal connection and relieve the strain on the latter, thereby preventing sag of the sash while it is closed.

It is a further object of the invention to provide a window having a rectangular sash mounted within a surrounding frame on vertically aligned pivots and having a compressible sealing strip around the periphery of the sash in the space between the confronting surfaces of the sash and the frame wherein a supporting block is provided on the bottom face of the lower rail of the sash which is in laterally spaced relation relative to the pivot and which is adapted to engage upwardly facing portions of the lower rail of the frame and thereby support the sash in proper squared up position within the frame while relieving the sash of any tendency to sag when in the closed position.

It is a further object of the invention to provide in a window of the type which comprises a rectangular sash mounted on vertically aligned pivots in a surrounding rectangular frame with the outwardly facing peripheral edge of the sash spaced from the inwardly facing confronting edge of the frame by a compressible sealing gasket and cooperating block members of relatively non-compressible material arranged on the confronting faces of the bottom rail of the sash and the bottom rail of the frame in laterally spaced relation to the lower pivot and aligned for engagement with each other to hold the sash in non-sagging relation within the frame when the sash is in the closed position.

These and other objects and advantages of the invention will be apparent from a consideration of the window construction which is shown by way of illustration in the accompanying drawings wherein:

Figure 1 is a perspective view of a window constructed in accordance with the invention, the sash being shown in open or angular relation relative to the frame;

Figure 2 is a partial elevation, to an enlarged scale, of the lower portion of the window with the sash in closed position relative to the frame;

Figure 3 is a cross section, on the line indicated at 3—3 in Figure 2, to a still larger scale;

Figure 4 is a cross section taken on the line indicated at 4—4 in Figure 2, to an enlarged scale;

Figure 5 is a perspective view of the supporting block member which is adapted to be attached to the sash; and

Figure 6 is a perspective view of a portion of the bottom rail of the frame showing the filler block carried

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thereby in proper position for mounting within the drainage gutter in the frame member.

Referring to the drawings, the window includes an outer stationary frame 10 of generally rectangular form, which frame is adapted to be anchored and sealed in any suitable manner in an opening in the wall of a building. The frame 10 surrounds and fits closely about a glazed sash 11 with the same general rectangular form. The rail members 12 of the frame 10 and the rail members 13 of the sash 11 are both preferably constructed of extruded aluminum but either or both may be constructed of any other suitable material.

The sash 11 is pivotally connected, preferably midway between the side edges, to the frame 10, the pivotal connection being effected by aligned top and bottom pivot pins 14 and 15. The sash 11 is provided about its outer periphery with a pair of laterally spaced, continuous outwardly opening grooves or recesses 16 (Figures 3 and 4), preferably of generally rectangular cross section, in each of which a continuous sealing member 17 is partially housed. The grooves or recesses 16 open outwardly of the edge face 18 of the sash rails 13 in confronting relation with the inwardly facing periphery 19 of the frame 10. The recesses 16 are located near the outer edges of the sash rails 13 and on opposite sides of the supporting pins 14 and 15 which are located in the center intermediate the side edges of the same.

The pivot pins 14 and 15 are mounted in a similar manner in the sash and frame rails, being secured in a sleeve 20 which is in turn secured in the bottom sash rail 13 and projecting into the bearing sleeve 21 in the bottom rail 12 of the frame 10. The sleeves 20 and 21 have confronting flange or shoulder formations 22 and 23 which project somewhat from the faces of the respective rails and form a spacer between the sash 11 and the frame 10.

The weatherstrip or sealing member 17 is preferably of the construction which is described in my copending application Serial No. 599,119, filed July 20, 1956, now Patent No. 2,888,721, issued June 2, 1959. It is arranged to provide a continuous seal extending between the confronting faces 18 and 19 of the sash 11 and the frame 10 and comprises a generally tubular section 24 which is distortable or compressible and which spans the space between the sash and the frame. The tubular section 24 projects from a holder member 25 which is seated in the recess 16.

The bottom rail of the frame 10 is provided with the usual drainage channel 26 (Figures 3, 4, and 6) having openings 27 at longitudinally spaced intervals which permit any moisture collecting therein to drain off into the interior of the frame from which it is conveyed by suitable passageways to the exterior of the building in which the frame 10 is mounted. The sash 11 is provided on the bottom face of the lower rail thereof with a pair of combination spacer and supporting blocks 28. Each block 28 (Figure 5) is formed of a relatively hard, substantially non-compressible material which provides a surface having a low friction characteristic, preferably nylon plastic or the like. It is relatively short in length with a generally rectangular cross section, the side edge portions being beveled or rounded at 29 to give the one face thereof a somewhat convex surface. The end portions 30 of the block 28 are cut away to reduce the thickness and screw receiving apertures 31 are provided therein with appropriate countersinking to receive attaching screws 32 (Figure 4) by means of which the block is attached to the downwardly facing surface of the bottom sash rail 13. A tapered portion 30' connects each end portion 30 with the thicker intermediate portion of the block. The blocks 28 are spaced on opposite sides of the lower pivot 15 adjacent the corners of the sash 11 and are secured inter-

mediate the weatherstrips 17 with the curved face of each block projecting downwardly so that it will engage with the uppermost face of the lower rail 13 of the frame 10 when the sash 11 is closed.

In order to provide a bearing surface in the drainage channel or gutter 26 for the blocks 28 when the sash is in the fully closed position, filler members or blocks 33 are provided which are apertured at 34 at opposite ends to receive suitable fastening screws 35 for attaching the blocks 33 in proper position in the drainage channel 26. The blocks 33 are located in the same relation to the bottom pivot 15 as the bearing blocks 28 and are aligned with the latter so that they provide a bridge across the drainage channel or gutter 26 when the sash 11 is moved into fully closed position in the plane of the frame 10, the bearing blocks 28 rest on the filler blocks 33 and retain the sash 11 in squared up or non-sagging relation within the frame 10. The filler blocks 33 are preferably formed of aluminum or similar material. They may, however, be formed of plastic of a character similar to that employed for the blocks 28.

While specific materials and particular details of construction have been referred to in describing the illustrated form of the invention, it will be understood that other materials and other details of construction may be resorted to within the spirit of the invention.

I claim:

1. In a window of the type which includes a rectangular sash, a rectangular fixed frame surrounding the sash with the confronting edge faces of the sash and frame in spaced relation, pivotal connections between the sash and the frame, and a sealing gasket having a compressible portion in the space between said edge faces, with said frame having a drainage gutter intermediate the side edges of the upper face of the lower rail thereof; the improvement which comprises providing a combination supporting and spacing block which is secured on the bottom edge face of the sash and which projects into the space between the lower rail of the sash and the lower rail of the frame, and a filler member in said drainage gutter, said supporting and spacing block and said filler member being aligned for engagement with each other when the sash is in the closed position and being positioned at a point adjacent the lower corner of the sash in spaced relation to the lower pivotal connection to prevent sag of the sash.

2. In a window of the type which includes a rectangular sash, a rectangular fixed frame surrounding the sash with the confronting faces of the sash and frame in spaced relation, upper and lower pivotal connections between the sash and the frame, and a sealing gasket having a compressible portion in the space between said confronting faces, said frame having a drainage gutter intermediate the side edges of the upper face of the lower rail thereof; the improvement which comprises providing a spacing block on the lower edge surface of the sash, and a filler member mounted in the drainage gutter in the frame, said spacing block and filler member being aligned for engagement with each other in the closed position of the sash and being located intermediate the pivotal connection and a corner of the sash to prevent sag of the sash when it is in the closed position.

3. In a window as recited in claim 2, and said filler member and spacing block being formed of a relatively hard, substantially non-compressible, non-metallic material.

4. In a window which is characterized by a rectangular sash, a rectangular fixed frame surrounding the sash, upper and lower vertically aligned pivotal connections between the sash and the frame for permitting the sash to be swung on a vertical axis from a closed position where it is in the plane of the frame into an open position where it is in angular relation to the frame, said sash and frame having outer and inner edge faces, respectively, which are

in confronting relation when the sash is in closed position and which are arranged to provide a clearance space therebetween, said frame having an elongate upwardly facing recess in the upper face of the lower rail which is intermediate the side edges thereof, and a compressible sealing strip in the space between the sash and frame edge faces: the improvement which comprises providing a combination spacing and supporting block member of substantially non-compressible non-metallic material which is secured in fixed relation on the lower edge face of the sash intermediate the side edges of said face and intermediate the lower pivotal connection of the sash and a lower corner of the sash, a cooperating block member seated in said recess in the top face of the lower rail of the frame, said block members being vertically aligned and the block member which is secured to the sash projecting between the confronting edge faces of the sash and the frame a distance approximately equal to the thickness of the clearance space between the sash and frame edge faces so that when the sash is moved to closed position, the block members are slidingly engaged whereby to support the sash against sagging and frictionally hold the same within the frame when said sash is in closed position.

5. In a window as recited in claim 4, and the block member which is secured to the sash being formed of a "nylon" plastic material having its outer side edges cut away to provide a substantially convex outer face for sliding frictional engagement with the upper face of the block member in the frame.

6. In a window which is characterized by a rectangular sash, a rectangular fixed frame surrounding the sash, upper and lower vertically aligned pivotal connections between the sash and the frame for permitting the sash to be swung on a vertical axis from a position in the plane of the frame into an angular position relative thereto, said sash and frame having a clearance space between the outer edge of the sash and the lower edge of the frame, and a sealing strip mounted on the edge of the sash and having a resilient compressible portion in the clearance space between the sash and the frame; the improvement which comprises a combination spacer and supporting block member which is formed of relatively hard and substantially non-compressible plastic material and which is mounted in non-movable relation on the bottom edge face of the lower rail of the sash, said block member being relatively short in length with the side edges cut away to provide a generally convex bottom surface which projects downwardly of the bottom edge face of the lower rail of the sash, said block member being secured adjacent a lower corner thereof and being spaced a substantial distance from the lower pivotal connection of the sash, said block member having a thickness corresponding approximately to the depth of the clearance space between the bottom edge face of the lower rail of the sash and the confronting upper edge face of the lower rail of the frame and being positioned so that its bottom face engages in sliding relation with the upper face of the lower rail of the frame when the sash is moved into the plane of the frame whereby to frictionally hold the sash in closed squared-up relation in the frame and support the same so as to remove the strain from said lower pivotal connection and avoid undue pressure on the sealing strip.

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