

May 31, 1960

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2,938,246

HINGED WINDOW ASSEMBLY

Filed Nov. 27, 1957

3 Sheets-Sheet 1

Fig. 1

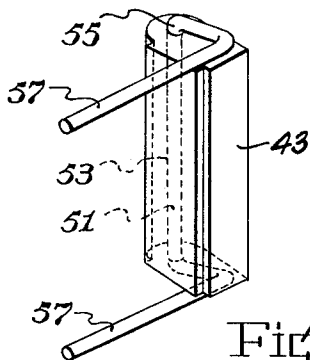
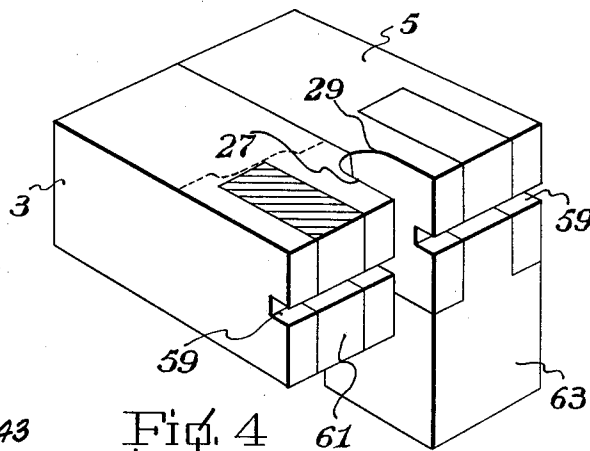
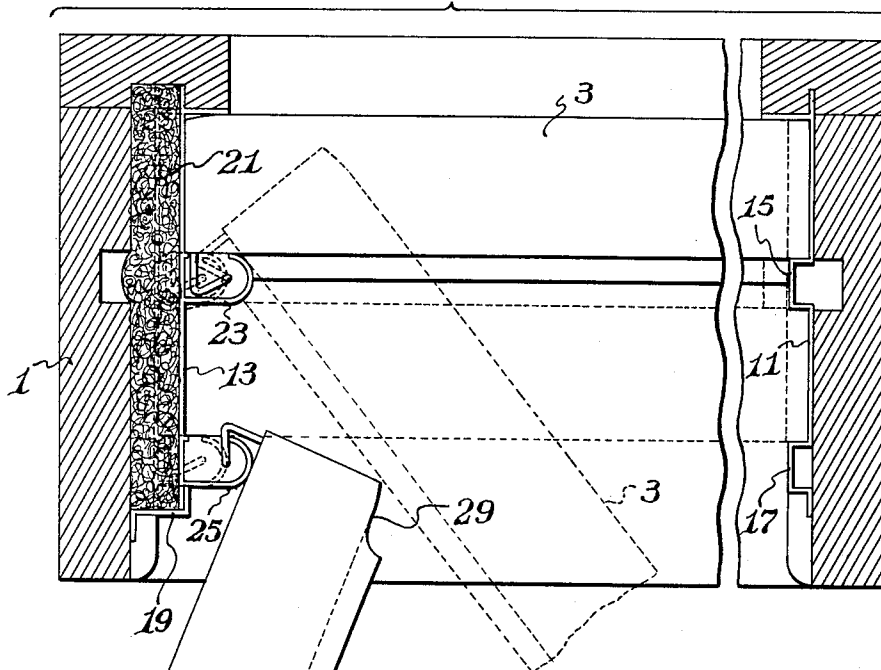


Fig. 4

Fig. 5

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3 Sheets-Sheet 2

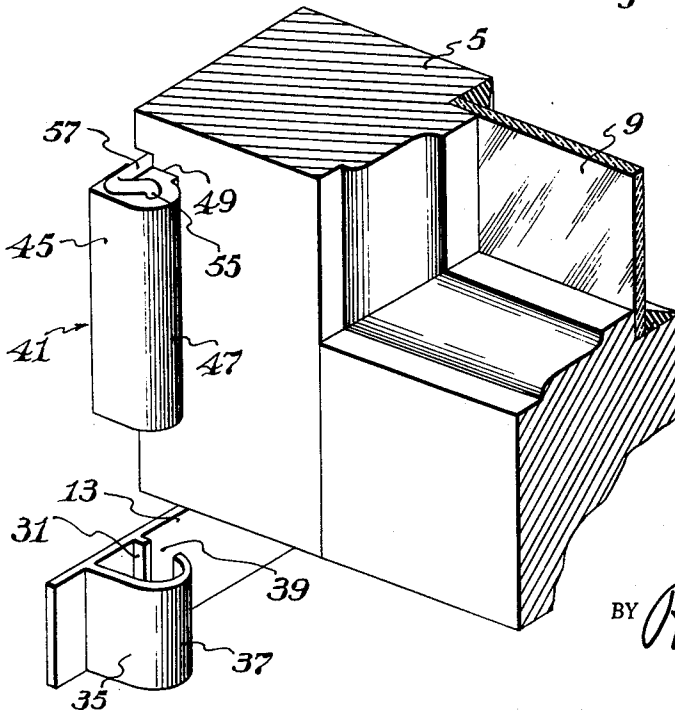
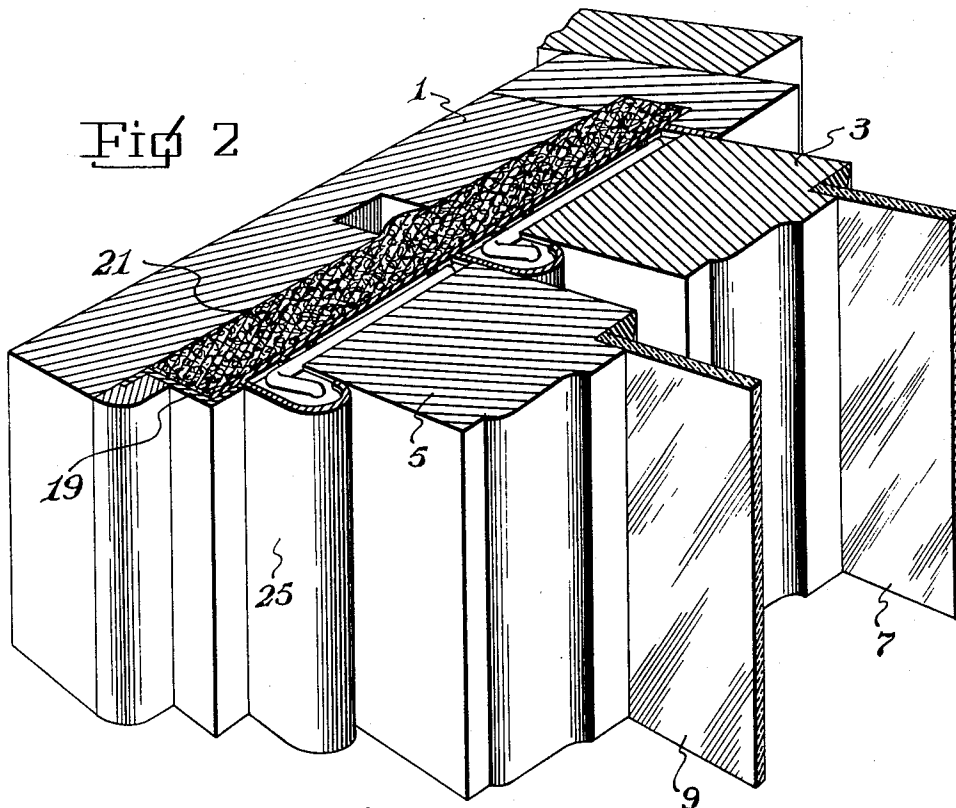


Fig. 3

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3 Sheets-Sheet 3

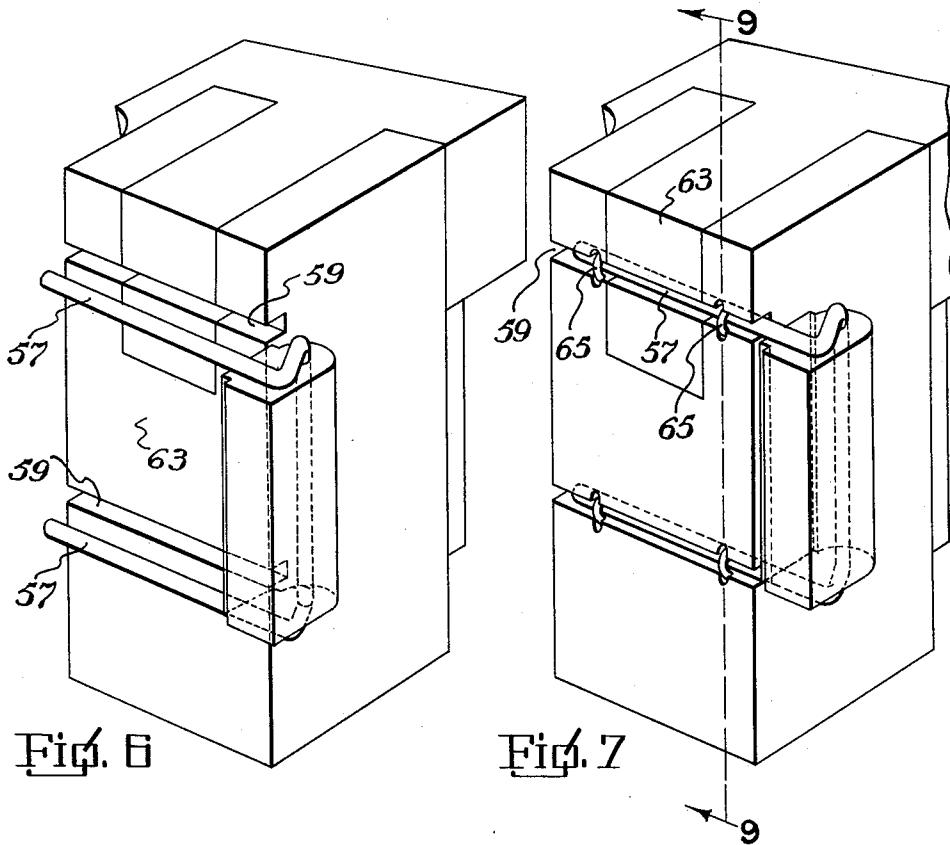


Fig. 6

Fig. 7

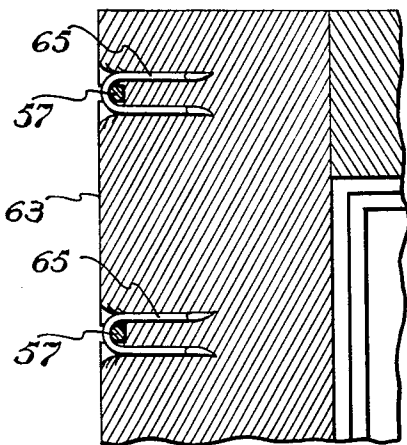


Fig. 9

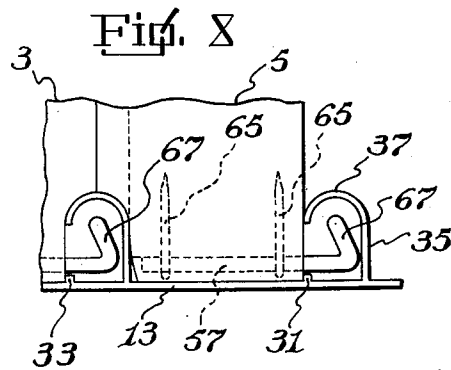


Fig. 8

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HINGED WINDOW ASSEMBLY

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Filed Nov. 27, 1957, Ser. No. 699,224

3 Claims. (Cl. 20—42)

The present invention relates to hinged window assemblies, and more particularly to window assemblies in which the sashes are mounted for vertical sliding movement and for horizontal swinging movement about vertical axes.

Accordingly, it is an object of the present invention to provide hinged window assemblies in which the sashes are mounted for rectilinear sliding movement and for swinging movement in a direction perpendicular to the direction of sliding movement.

Another object of the present invention is the provision of hinged window assemblies which will be weather-tight and freely slidable in ordinary use, but which may be readily swung inwardly for cleaning and for other purposes.

Still another object of the invention is the provision of hinged window assemblies having hinged means which will not block or jam in use.

A further object of the present invention is the provision of hinged window assemblies so constructed and arranged that the sashes will not sag and jam during rectilinear sliding movement.

The present invention also contemplates hinged window assemblies having rectilinearly slidable sashes which may be swung through a considerable arc in any position of sliding movement thereof.

Yet another object of the present invention is the provision of hinged window assemblies which may be readily installed in connection with conventional window frames.

Finally, it is an object of the present invention to provide hinged window assemblies which will be relatively inexpensive to manufacture, easy to install, simple to operate, and rugged and durable in use.

Other objects and advantages of the present invention will become apparent from a consideration of the following description, taken in conjunction with the accompanying drawings, in which:

Figure 1 is a plan view of a hinged window assembly according to the present invention, with a central portion thereof broken away and with various positions of the window sashes shown in full line and in phantom line.

Figure 2 is a fragmentary isometric view of a portion of a hinged window assembly according to the invention, with the sashes disposed for rectilinear sliding movement.

Figure 3 is a view similar to Figure 2 but showing a fragment of the lower sash just prior to the completion of assembly thereof.

Figure 4 is a perspective view, with parts broken away, of a lower portion of the upper sash and an upper portion of the lower sash, showing the juxtaposed relationship of these parts.

Figure 5 is a perspective view from the rear or frame side of hinge means according to the present invention.

Figure 6 is a perspective view of an upper portion of the lower sash, showing the hinge means just prior to installation thereon; and

Figure 7 is a view similar to Figure 6 but showing the hinge means after assembly.

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Figure 8 is a fragmentary plan view showing portions of the invention in assembled relationship; and

Figure 9 is a fragmentary front cross-sectional view taken on the line 9—9 of Figure 7.

Referring now to the drawings in greater detail, there is shown a generally conventional window frame 1 having a broadly conventional arrangement of a vertically slidable upper sash 3 and lower sash 5 mounted therein, the sashes having panes of glass 7 and 9, respectively.

Mounted on opposite sides of window frame 1 are opposed first and second vertical guide strips 11 and 13, which in the illustrated embodiment are extruded metallic sections. Strip 11 has a medially disposed protrusion 15 which serves as a parting strip and which runs full length thereof and a laterally disposed longitudinally extending protrusion 17 that serves as a box trim.

Strip 13 has a configuration roughly similar to that of strip 11, but instead of being fixedly secured to frame 1 is retained at one lateral edge by the frame and at the other or inner lateral edge by a Z-shape 19 relative to which strip 13 has limited movement in a direction perpendicular to the plane of strip 13. A strip of matted fiberglass 21 is disposed between strip 13 and the major adjacent portion of frame 1 and performs the dual function of serving both as a resilient compression spring for urging strip 13 toward strip 11 and as an insulative packing for reducing heat loss past the associated edges of the sashes.

There is thus provided an opposed pair of elongated guide strips for the window sashes, one fixedly mounted on one side of the frame and the other mounted on the other side of the frame and yieldably urged toward the fixedly mounted strip.

Strip 13 has a pair of guideways 23 and 25 formed integrally on the sash side thereof and extending longitudinally full length thereof. Guideway 23 serves in effect as a parting strip and guideway 25 serves in effect as a box trim. The lower cross piece of upper sash 3 and the upper cross piece of lower sash 5, which are extended toward each other in a conventional manner to provide a seal when the window is fully closed, are provided with grooves 27 and 29, respectively, in their ends adjacent guideway 23 for the accommodation of guideway 23 between the sashes in any closed position of rectilinear movement thereof, as best seen in Figures 1 and 4.

Each guideway 23 and 25 includes a short rib 31 and 33, respectively, extending longitudinally full length thereof. Spaced from ribs 31 and 33, each guideway includes a flat portion 35 in a plane perpendicular to the major portion of strip 13, each flat portion 35 extending at its outer end in a curved portion 37 which terminates in a direction extending toward the associated rib 31 or 33 thereby to define a slot 39 between the terminal edge of curved portion 37 and the associated rib 31 or 33.

In each of guideways 23 and 25 is slidably disposed a spaced pair of guide blocks 41 which may be of wood, hard rubber, fiber or plastic or the like so as to prevent galling when in slidable contact with the metallic surfaces of guideways 23 and 25. Each block 41 has an outer contour complementary to the inner contour of guideway 23 or 25, so that the block fills the inner contour of the guideway and extends into a slot 39 until it is flush with the outer contour of the guideway. Thus, the guideways enclose a major portion of the guide blocks. Thus, each block 41 has a flat base 43 joined to a perpendicular flat portion 45 on the side thereof opposite the sash, flat portion 45 extending into a curved portion 47 which continues around to the sash side of the block and terminates in a projecting portion 49 designed to protrude into slot 39 and to render blocks 41 more stable in the guideways. It should be particularly noted that the purpose of ribs 31 and 33 is to prevent twisting of the guide blocks in the

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guideways, and that for this purpose the ribs need be only quite short, projecting portions 49 assuring that blocks 41 will remain in such orientation that the ribs can perform their function.

Extending vertically through each guide block 41 and parallel to strip 13 and the associated guideway is a hinge bar hole 51 in which is rotatably disposed a vertical straight medial portion 53 of a vertical axis hinge bar 55 having straight horizontal ends 57 lying in planes perpendicular to portion 53.

Each sash adjacent its top and bottom is provided with four horizontal grooves 59 in the vertical edges 61 and 63 thereof adjacent strip 13, that is, adjacent the inner or frame side of the sash frame. The grooves are parallel to each other and are arranged two adjacent the top and two adjacent the bottom of each sash.

Referring now to Figures 6, 7, 8 and 9, it will be seen that in order to assemble the sashes and hinge means, the straight horizontal ends 57 are disposed in grooves 59, and staples 65 are driven thereabout to secure ends 57 rigidly to edges 61 or 63.

By comparison of Figures 1 and 8, it will be seen that medial portions 53 and ends 57 are interconnected by diagonally inclined intermediate portions 67 which extend toward strip 13 and away from the associated sash, so as to provide an increased arc of swinging movement of the sash.

With the hinge means and sash secured together as seen in Figures 7 and 9, the assembly is then slid into strip 13 endwise as shown in Figure 3 and the strip 11 and strip 13 with attached sashes are mounted on the window frame in the position shown in Figure 1.

Thereafter, to raise or lower the sashes, it is merely necessary to slide them vertically in the same manner as any conventional window assembly. In order to swing the sashes inward, it is necessary only to push the sash assembly to the left to a position shown in phantom line in Figure 1, until the free swinging ends of the sashes clear parting strip 15 and box trim 17 of strip 11, whereupon the sashes may be swung about vertical axes defined by holes 51. To close the sashes from their inwardly swung position, it is necessary only to push strip 13 again to the left as seen in Figure 1 until the sashes clear the corresponding parts of strip 11 and return to their seats therein. At all times, fiberglass 21 resiliently urges the hinged window assembly to the right as seen in Figure 1.

From a consideration of the foregoing, it will be apparent that all of the initially recited objects of this invention have been achieved.

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Although the present invention has been described in connection with preferred embodiments, it is to be understood that modifications and variations may be resorted to without departing from the spirit of this invention, as those skilled in this art will readily understand. Such modifications and variations are considered to be within the purview and scope of the present invention and the appended claims.

What is claimed is:

1. A hinged window assembly comprising in combination an elongated guide strip adapted to be mounted vertically on a window frame, at least one guide block, a guideway on and extending lengthwise of the guide strip enclosing the guide block on all sides and limiting movement of the guide block to rectilinear sliding movement, the guideway having a slot therethrough extending longitudinally thereof, the slot having a width substantially less than the thickness of the guide block in a direction parallel to the width of the slot, the guide block having an opening therethrough parallel to the direction of movement of the guide block, and hinge means having a pair of legs interconnected at their ends by a cross member, the cross member being disposed in said opening and the adjacent ends of the legs being disposed one above and one below the guide block, the legs being rotatable together as a unit relative to the guide block and extending through the slot and being adapted to be fixedly secured to a window sash, the legs being of a thickness substantially less than the width of the slot to permit substantial swinging movement of the legs in the slot.

2. A hinged window assembly as claimed in claim 1, the hinge means being a unitary member, and the cross member of the hinge means being mounted for rotation relative to the guide block in said opening.

3. A hinged window assembly as claimed in claim 1, said slot being disposed on a side of the guideway adjacent the guide strip, and the legs of the hinge means extending from the cross member in a direction toward the guide strip and away from the slot and the window sash when the window sash is closed.

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