

Sept. 18, 1956

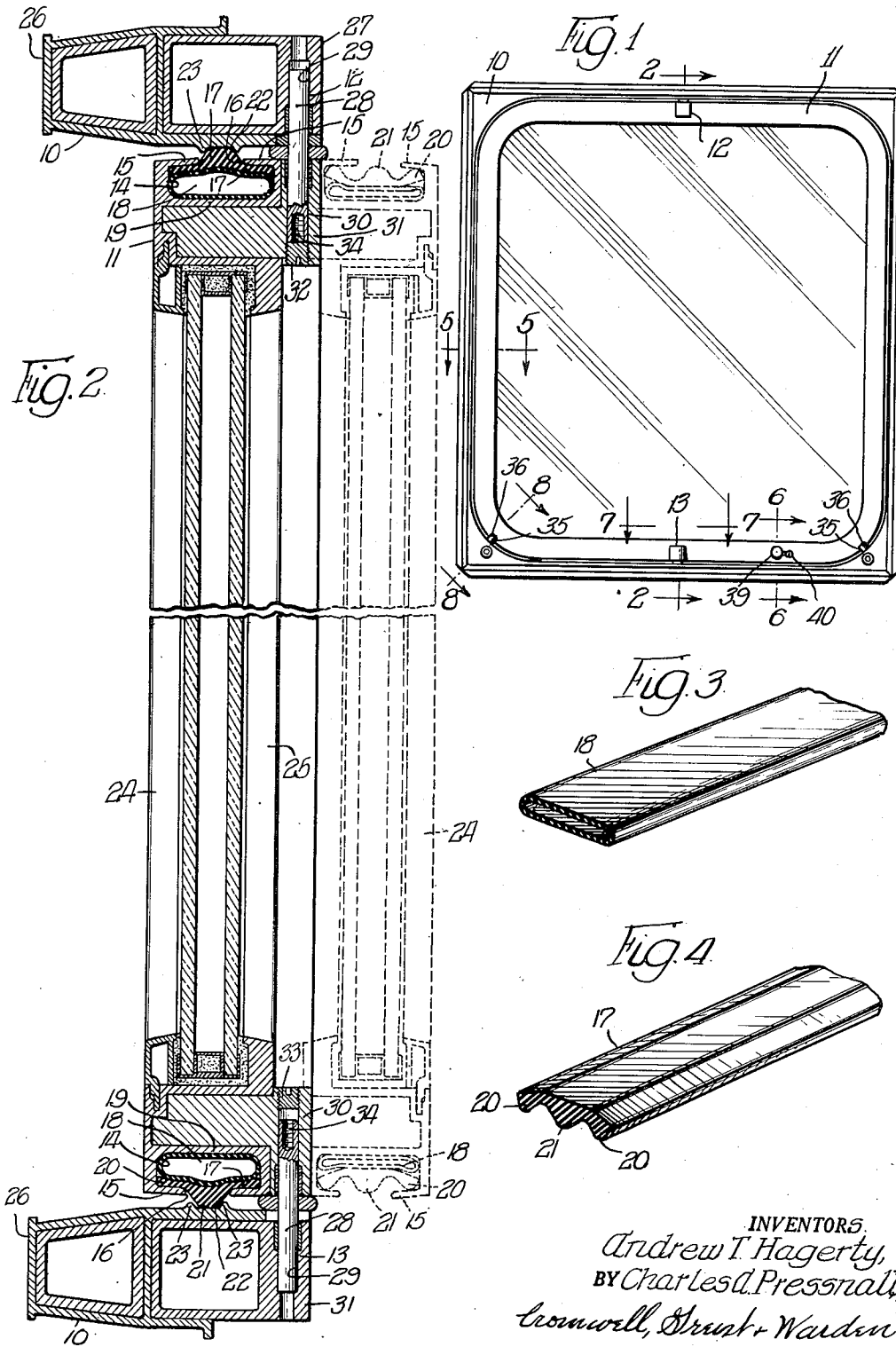
A. T. HAGERTY ET AL

2,763,038

WINDOW STRUCTURE

Filed May 13, 1952

2 Sheets-Sheet 1



INVENTORS
 Andrew T. Hagerty,
 BY Charles D. Pressnall,
 Cromwell, Bristol & Warden
 attys.

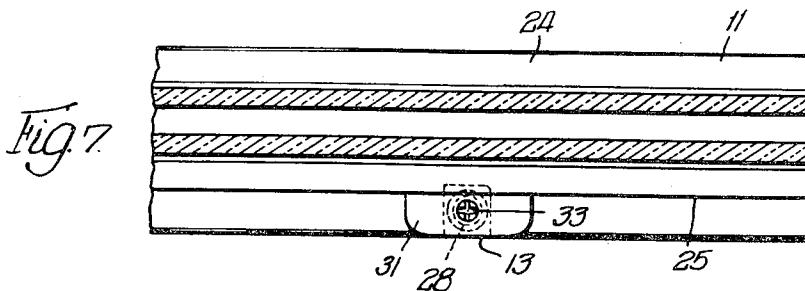
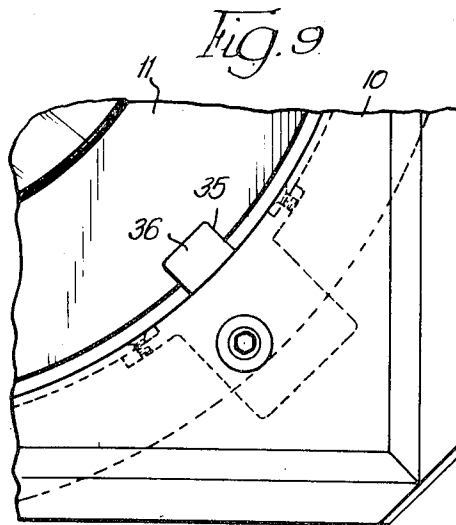
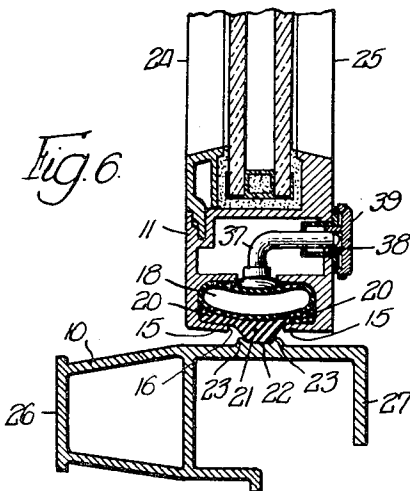
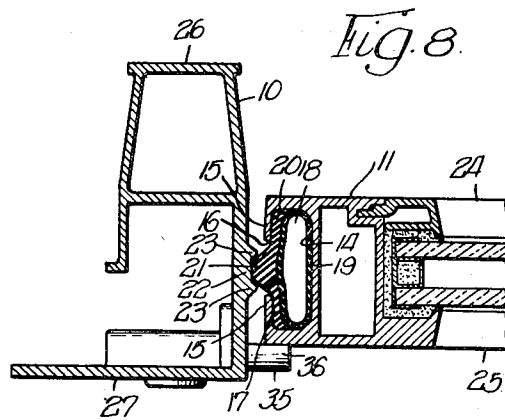
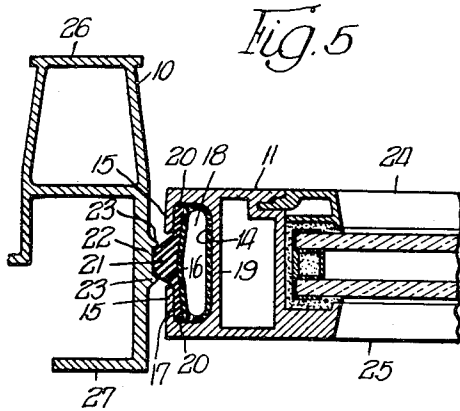
Sept. 18, 1956

A. T. HAGERTY ET AL
WINDOW STRUCTURE

2,763,038

Filed May 13, 1952

2 Sheets-Sheet 2



INVENTORS.
Andrew T. Hagerty,
BY Charles A. Pressnall,
Cromwell, Christ & Warden
attys.

1

2,763,038

WINDOW STRUCTURE

Andrew T. Hagerty and Charles A. Pressnall, Elkhart, Ind., assignors to The Adlake Company, Elkhart, Ind., a corporation of Illinois

Application May 13, 1952, Serial No. 287,560

2 Claims. (Cl. 20—69)

This invention has to do with windows of the type in which a sash is pivotally mounted in a frame and is sealed in its closed position by pneumatically operated gasketing means located between the outer periphery of the sash and the inner periphery of the frame, as in the window disclosed in Kessler and Hagerty application Serial No. 264,132, filed December 29, 1951, which became Patent No. 2,629,905 on March 3, 1953.

One of the objects of the invention is to provide, in a window of the type described, new and improved pneumatically operated gasketing means between the sash and the frame in the form of a solid resiliently yieldable band-like strip in combination with a separate inflatable tube behind the same, which strip has a rib-like locking and sealing portion which is adapted to be projected across the clearance space present between the sash and the frame, and which tube is adapted to effect such projection.

Another object of the invention is to provide, in a window of the type described, a new and improved pivot mounting for the sash in the form of an inwardly offset pivotal connection, which pivotal connection is preferably spaced midway between the side rails of the sash and so positioned with respect to the location of the gasketing means on the sash and the inner face of the frame as to expose and render readily accessible the gasketing means throughout its entire length upon the sash being swung through 180° into a reversed position.

Still another object is to provide, in such a window, new and improved means for both positively locking the sash in its closed position and for holding it against return movement in its reversed position.

While the foregoing statements are indicative in a general way of the nature of the invention other more specific objects and advantages will be apparent to those skilled in the art upon a full understanding of the construction and operation of the new window organization.

A preferred embodiment of the invention is presented herein by way of exemplification but it will of course be appreciated that the invention is susceptible of incorporation in other structurally modified forms coming equally within the spirit of the invention and the scope of the appended claims.

In the accompanying drawings,

Fig. 1 is an inside face view of a window constructed in accordance with the invention;

Fig. 2 is a vertical partially broken away section through the window, taken on the line 2—2 of Fig. 1, showing in dotted lines the position which the sash assumes when swung through 180° into its reversed position;

Fig. 3 is a perspective view of a section of the inflatable tube which is used to project the band-like locking and sealing strip;

Fig. 4 is a perspective view of a section of the locking and sealing strip;

Fig. 5 is a fragmentary section through the window, taken on the line 5—5 of Fig. 1;

2

Fig. 6 is another fragmentary section, taken on the line 6—6 of Fig. 1, at the location of the air valve;

Fig. 7 is a fragmentary horizontal section, taken through the sash on the line 7—7 of Fig. 1, at the location of the lower pivotal connection;

Fig. 8 is another fragmentary section, taken on the line 8—8 of Fig. 1, at the location of one of the locks; and

Fig. 9 is a fragmentary inside face view of one of the corners of the window, showing one of the locks.

Referring in more detail to the drawings, it will be observed that the window comprises a frame 10 and a sash 11 which is pivotally mounted in the frame. The inner periphery of the frame 10 is rounded at the corners, and the outer periphery of the sash 11 is correspondingly rounded at the corners. The sash 11 is shown as being pivotally mounted on a vertical axis, but it may if desired be mounted on a horizontal axis. In either case the pivotal connections, shown at 12 and 13, are preferably located midway of the sash and frame.

The sash 11 is provided about its outer periphery with a continuous outwardly facing generally rectangular channel 14, which channel is preferably wide and shallow and is provided with intumed side flanges 15 which present between the confronting edges of the same a relatively narrow outwardly opening slot 16.

The channel 14 has removably positioned therein a solid resiliently yieldable band-like strip 17 and an inflatable tube 18. The tube 18, which is preferably made of synthetic rubber, is in its deflated condition of approximately the same width as the channel 14 and is positioned against the bottom 19 of the channel behind the side flanges 15 and in inwardly spaced relation to such flanges. The strip 17, which is preferably made of natural tough cured rubber, is also of approximately the same width as the channel 14, and is positioned against the outer face of the tube 18 with its side margins 20 confined behind the side flanges 15 between the tube and the flanges. That portion of the strip 17 which spans the slot 16 is shaped on its outer surface to provide an outwardly tapering rib-like portion 21, which portion is solid and is of substantially increased thickness relative to the thickness of the adjacent portions of the side margins 20.

In the deflated condition of the tube 18 the center portion 21 of the strip 17 assumes under its own inherent resiliency a somewhat retracted position relative to the slot 16 between the side flanges 15 (as shown in dotted lines in Fig. 2), but when the tube 18 is inflated under substantial air pressure the center portion 21 of the strip 17 is flexed with respect to the side margins 20 and is projected outwardly through the slot 16 into locked and sealed engagement with an opposed complementary groove 22 in the inner periphery of the frame 10 (as shown in full lines in Figs. 2, 5, 6 and 8), which groove opens toward the channelled outer periphery of the sash 11 and is formed continuously about the inner periphery of the frame, preferably between two small side ribs 23 on the frame.

The projected rib-like center portion 21 of the strip 17 thus serves to both lock and seal the sash in the frame. It is preferably located midway between the outer and inner faces 24 and 25 of the sash, also a substantial distance from both the outer and inner faces 26 and 27 of the frame, and the clearance space between the sash and the frame is preferably only sufficient to permit of the sash being swung, with the result that the portion 21 of the strip 17 in its locked and sealed condition is both concealed and protected.

The pivotal connections 12 and 13 between the sash and the frame are located midway of the top and bottom

3

rails of the sash adjacent the inner faces of both the sash and the frame, and are offset indoorwards from the slot 16 in the outer periphery of the sash far enough to completely expose the slot beyond the inner face of the frame when the sash is swung through 180° into the reversed parallel position shown in dotted lines in Fig. 2. In this reversed position the outer face of the glass in the sash can be cleaned from the inside of the building with safety and ease, and the strip 17 and tube 18 can also be readily removed from the channel 14 through the slot 16 if and when repair or replacement of the same becomes necessary.

The particular pivotal connections shown consist of pins 28, which pins fit into bores 29 in the frame and into aligned bores 30 in bosses 31 mounted on the inner face of the sash. The pins 28 can be withdrawn from the bores 30 and 31 if removal of the sash for any reason is desired by merely unscrewing plugs 32 and 33 in the ends of the bores 30 and screwing a suitable pulling tool into tapped sockets 34 provided for that purpose in the ends of the pins.

When the sash 11 is in its closed position the strip 17 under the pressure thereagainst of the tube 18 will securely maintain the sash in that position independently of any other locking means, but two locks 35 may also advantageously be provided, not only to prevent unauthorized opening of the sash but also to hold the latter against movement in its reversed position. These locks, which are preferably located in the lower corners of the frame 10, each includes a projectable and retractable key controlled bolt 36. The bolts 36 are adapted to engage with both lower corners of the inner face of the sash 11 when the sash is closed and are also adapted to engage with the opposite lower corners of the outer face of the sash when the latter is reversed in position.

The tube 18 is adapted to be inflated or deflated through an L-shaped valve stem 37 which connects with the tube and projects through a hole 38 in the inner face of the sash. The valve stem 37—when not being used to inflate or deflate the tube 18—is closed over by a flat screw plate 39, which plate to prevent unauthorized removal may be secured in its closed position by any suitable key controlled locking device 40. If desired, however, the screw plate 39 may be set substantially flush with the inner face of the sash and located opposite one of the corner locks 35, directly behind the bolt 36 of that lock when the bolt is in its projected position, thus requiring but a single device to lock both the sash 11 and the air valve cover plate 39.

For inflating and deflating the tube 18 a special pump

4

(not shown) is preferably employed, which pump is capable of either forcing air into the tube or of drawing air out of the tube, as required.

We claim:

1. In a window of the type characterized by a sash, a frame surrounding the sash, an outwardly opening continuous channel about the outer periphery of the sash, a groove in the inner periphery of the frame opposite the channel, and continuous sealing means removably supported in the channel in the sash, which sealing means is projectable from the channel into the groove in the frame to seal the sash with respect to the frame in the closed position of the sash; the provision of a pivotal connection between the center of the sash and the center of the frame for permitting the sash to be swung open from and reversed with respect to its closed position, into a position directly to the rear of its closed position, which pivotal connection is offset indoorward of the median plane of the sash a distance far enough to expose the channel in the outer periphery of the sash beyond the inner face of the frame when the sash is swung into a reversed position in spaced parallel relation to its closed position, whereby to render the sealing means in the channel accessible throughout its entire length for removal or replacement without demounting the sash.

2. In a window of the type characterized by a sash, and a frame surrounding the sash; the provision of a pivotal connection between mid-portions of the sash and the frame, which connection is offset inwardly with respect to the median plane of the sash in substantially the plane of the inner face of the sash to permit the sash to be swung through 180° into a reversed position in inwardly spaced parallel relation to its closed position, and projectable locking elements carried by the frame, which elements are also offset inwardly with respect to the median plane of the sash and are disposed at opposite sides of and in substantially the same plane as the inwardly offset pivotal connection, for engagement with the inner face of the sash when the latter is closed and for engagement with the same face of the sash when the latter is reversed.

References Cited in the file of this patent

UNITED STATES PATENTS

45	2,260,534	Masters	Oct. 28, 1941
	2,551,750	Liskey, Jr.	May 8, 1951
	2,629,905	Kessler et al.	Mar. 3, 1953

FOREIGN PATENTS

50	512,255	Great Britain	Aug. 31, 1939
----	---------	---------------	---------------