July 29, 1952 P. A. KROCKER 2,604,673

WINDOW CONSTRUCTION

Filed Aug. 4, 1949 3 Sheets-Sheet 1

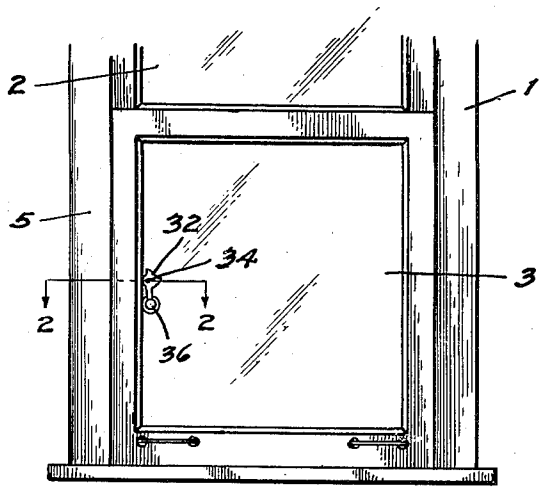


Fig 1

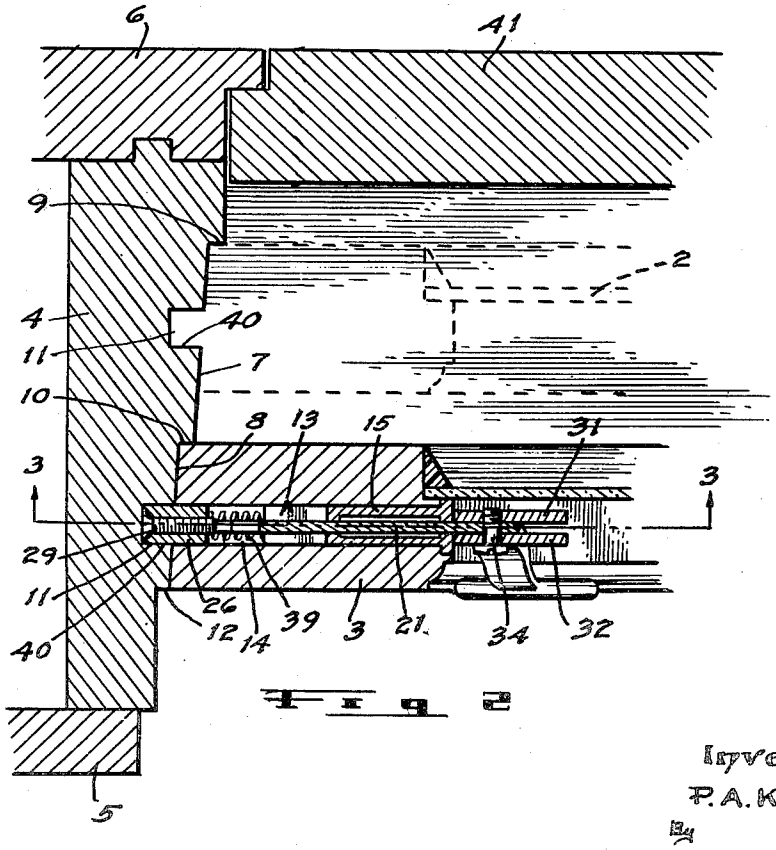


Fig 2

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WINDOW CONSTRUCTION

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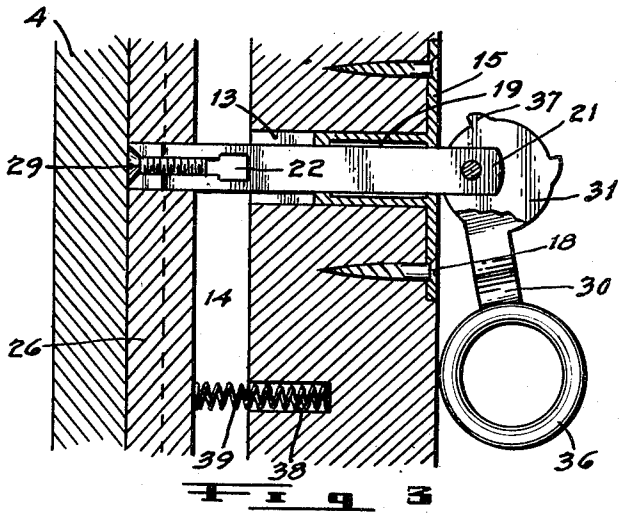


Fig 3

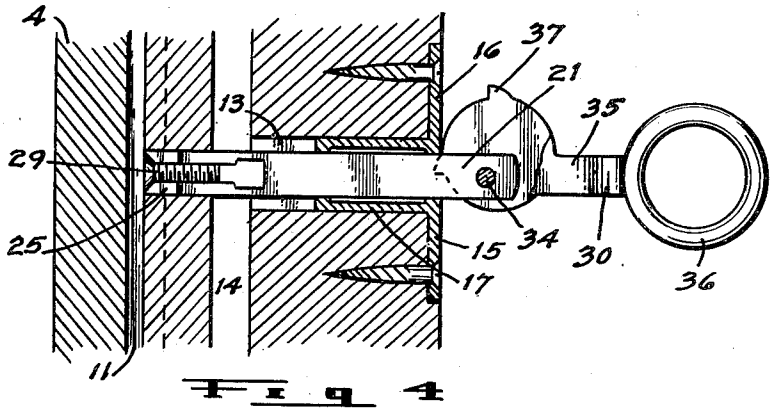


Fig 4

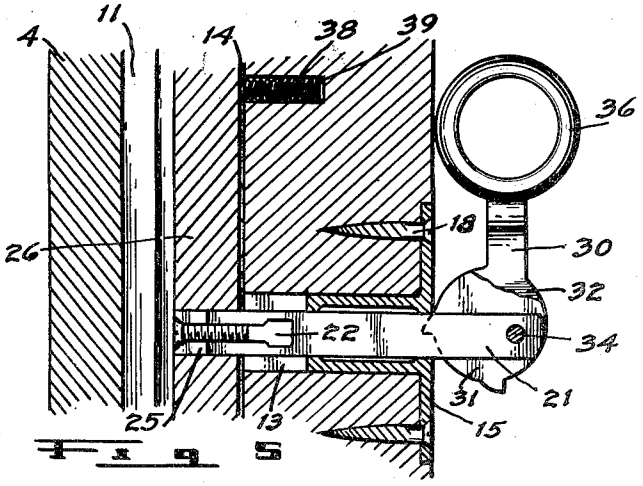


Fig 5

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WINDOW CONSTRUCTION

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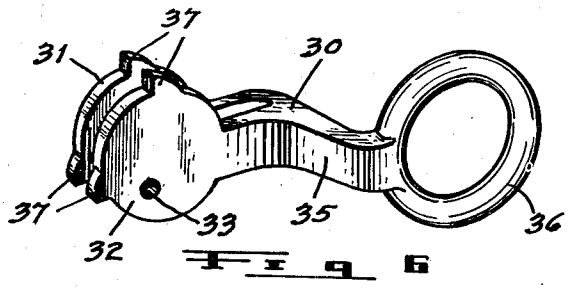


Fig 6

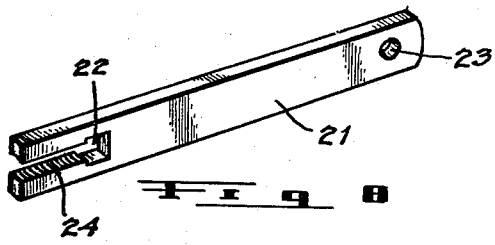


Fig 8

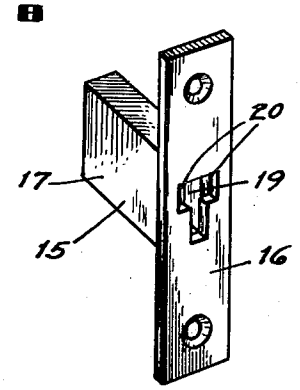


Fig 7

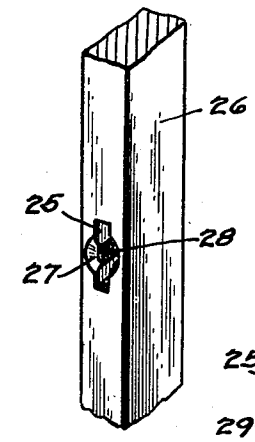


Fig 9

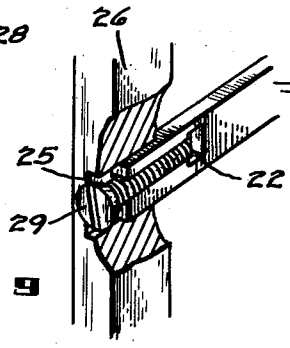


Fig 10

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2,604,673

UNITED STATES PATENT OFFICE

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WINDOW CONSTRUCTION

Peter Abraham Krocker, Piney, Manitoba, Canada

Application August 4, 1949, Serial No. 108,494

1 Claim. (Cl. 20—52.2)

1

The invention is an improvement on my United States patent application for Window Construction, filed September 7, 1948, under Serial No. 47,971, series of 1948, and which has become abandoned.

Like the above mentioned application, this application relates to a check type of window for use in residences and does not employ the usual slats and molds, such as parting strips, window stops, check blocks, et cetera. In the construction of standard windows, although the sash are both mounted for vertical sliding movement, the upper sash are usually locked by check blocks so that they become fixtures and cannot be opened for the escape of hot air. Further, while the lower sash can be raised and storm windows passed therethrough and fastened by hooks and eyes, this does not permit a tight fit to the frame. Both my previous application and this one permit both sash to move for proper ventilation while they can both be removed entirely from the frame for cleaning both sides of the window panes, the firm securing of storm windows, or for human escape in case of fire.

The principal object of the present invention is to improve the shape of the frame jambs for simplicity of sash removal and to secure a snugger fit of the sash with the jambs when in operable position.

A further object of the invention is to provide a single control operating mechanism of a much simpler form which can be easily attached to the sash for locking the same, release it for sliding movement or for withdrawal.

A further object of the invention is to design the control mechanism such that only a plain single mortise is required through the sash to reduce the cost of sash manufacture and simplify the installation of said control mechanism.

A further object of the invention is to construct a simple control mechanism which can be manually and easily operated, will be held in the various operated positions, and can also be used as hand grips for manual movement of the sash.

A further object of the invention is to lock the sash against movement by resilient frictional pressure.

A still further object of the invention is to provide a novel adjustment between the operating mechanism and the locking member for the correct operating position of said parts.

With the above important and other minor objects in view, which will become more apparent as the description proceeds, the invention consists essentially in the construction and arrangement of the various parts now to be described, reference being had to the accompanying drawings in which:

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Figure 1 is an inner face view of a window with my new construction.

Figure 2 is an enlarged horizontal sectional view taken on the line 2—2, Figure 1.

Figure 3 is a vertical section taken on the line 3—3, Figure 2, and showing the sash locked.

Figure 4 is the same as Figure 3 but with the locking bar released for sliding movement of the sash.

Figure 5 is the same as Figure 3 but showing the locking bar completely released for removal of the sash.

Figure 6 is an enlarged perspective view of the control lever.

Figure 7 is a perspective view of the guide member.

Figure 8 is a perspective view of the pitman.

Figure 9 is a partial perspective view of the locking bar showing the special slot therethrough.

Figure 10 is a partial perspective view of the locking bar and pitman connected together and with the locking bar broken away to show the method of connection.

In the drawings like characters of reference indicate corresponding parts in the several figures.

A window frame is indicated at 1 in Figure 1 and receives the upper and lower sash 2 and 3 therebetween. These sash overlap each other in a check at the centre of the frame (not shown) so that the sash are tight when closed and can slide past each other in the usual manner when being opened. The invention now to be described resides in the shape of the frame jambs and the method of mounting the sash therein, including the controls, as will hereinafter be described.

The frame of the window comprises jambs 4, inner facing boards 5 and outside casing 6. By observing Figure 2, it will be seen that the jamb 4 is flat on the outside but tapers inwardly at 7 and 8 on the inner faces where the sash 2 and 3 ride, the edges of the sash or stiles being finished at a corresponding angle. It will also be noted that the face 7 is stepped back at 9 and the face 8 is stepped back at 10 from the face 7 to form walls against which the sash can slide in their vertical movement. Each of the faces 7 and 8 are also provided with plowed grooves 11 which extend the length of the jamb. A further step 12 is provided on the jamb in front of the face 8.

Referring to Figures 3, 4 and 5; a rectangular-shaped hole 13 is mortised through the stile of the sash 2 and 3 approximately at a central location and connects with a vertical rabbet 14 plowed vertically up the edge of the stile. The hole 13 receives a guide member 15 which is fully shown in perspective in Figure 7. This guide member is of a relative T-shape, the top of the T being in the form of a plate 16 while the base 17 is rectangular and neatly fits the mortised hole 13

when pressed therein. The inner face of the stile is cut away to receive the plate 16 in flush relation while a pair of flat-headed screws 18 pass through the plate into the stile to hold the guide member firmly. A rectangular-shaped hole 19 passes through the centre of the guide member, but at the plate 15, the upper part is widened out to form side pockets 20 for a purpose later described.

A pitman 21 slidably passes through the guide member 15. This pitman is shown in perspective in Figure 8 and comprises a metal strip having a T-shaped slot 22 at one end and a hole 23 therethrough at the other end. Each side of the slot 22 is threaded, as shown at 24. The slotted end of the pitman projects outwardly from the hole 13 and is snugly received within a rectangular-shaped slot 25 of a vertical locking bar 26, slidably mounted in the plowed groove 11 of the jamb and the rabbet 14 of the sash. This locking bar is preferably of metal. The opposite end of the bar 26 is centrally countersunk, as shown at 27 in Figure 9, and the side walls are partially threaded, as at 28, so that a flat-headed screw 29 can be screwed therein, the threads meshing with the side threads 28 while at the same time meshing with the threads 24 of the pitman 21 (see Figure 10). The screw 29 accordingly, firmly secures the end of the pitman to the locking bar. If adjustment is required, the screw is unscrewed until it leaves the threads of the pitman. The pitman is then moved in relation to the locking bar to the required position and the screw 29 is threaded up again while the two are held in this position. In this manner, adjustments can be made between the two the distance of one or more threads of the screw.

A control lever 30 is pivotally connected to the pitman 21 at the hole 23. This lever is shown in perspective in Figure 6 and comprises a pair of spaced discs 31 and 32 which receive the end of the pitman therebetween. Each of the discs are provided with an eccentric hole 33, both being aligned and one threaded. A screw pin 34 passes through the first eccentric hole, through the hole 23 in the pitman and screws into the other eccentric hole 33 for the pivot connection. Each disc is connected by a forked arm 35 of a Z-shape horizontally and which terminates in a ring 36 for manual operation of the control lever. The peripheries of the discs are adapted to ride on the face of the plate 16 of the guide member 15 and each is provided with a pair of spaced integral catches 37 which are selectively adapted to drop into the side pockets 20 of the guide member in the rotation of the discs.

Suitable holes or wells 38 are formed in the sash stiles, within the rabbets 14 and on each side of the holes 13, for the reception of coil springs 39. When the sash are assembled, these springs are compressed between the locking bar 26 and the stile so that the pressure exerted by the springs tend to draw the pitman through the guide member and holds the peripheries of the discs 31 and 32 firmly thereagainst.

When the control lever is in the position shown in Figure 3, the springs force the locking bars outwardly in the rabbets 14 of the sash and completely fill the groove 11 of the jamb so that the friction against the bottom of the grooves holds the sash against movement. At the same time, the edges 40 of the grooves 11 are at a slight inward taper so that the outer edges of the sash

will be pressed firmly against the walls 9 and 10 for draft exclusion. When the control lever is moved to the position shown in Figure 4, the eccentric pin 34 draws the locking bars away from the bottom of the grooves 11, against the pressure of the springs 39, while the first catches 37 drop into the side pockets 20 to hold the control lever in the position shown. The release from the taper at 40 permits the sash to move back from the walls 9 and 10 for clearance. The sash can then be lifted or lowered by using the control levers as manual hand grips, while at the same time, the sash is guided by the locking bars in the grooves 11. The locking bars move with the sash as they are held in the rabbets 14 by the pitmans. When the control lever is to be moved to the position shown in Figure 5, it is first manually pulled out to clear the catches 37 from the pockets 20 and then rotated. The eccentric pin 34 will draw the locking bar completely free of the groove 11 and farther into the rabbet 14 of the sash, the springs 39 will be confined in the wells 38, while the control lever is vertical and held there by the second set of catches 37 dropping into the pockets 20. The sash can then be bodily removed from the frame by manual support of the control levers, and due to the taper of the jamb, no binding occurs in this withdrawal. In the same way, the jamb tapers facilitate the reinsertion of the sash.

The adjustability of the pitman with the locking bar is necessary as the sizes of the frames may vary slightly as well as the depth of the grooves in the jambs. The removable feature of this sash permits the ready cleaning of both sides of the glass panes or the insertion of a new one, if broken. The quick removal also permits the full window opening for manual escape in case of fire while the storm window, indicated at 41, can be readily positioned and securely fastened from the interior, or cleaned.

What I claim as my invention is:

A locking means between a window frame and a sliding sash therein wherein the edge of said sash and the sash meeting surface of the jamb of said frame are each provided with a lengthwise groove and both grooves are aligned with each other: a locking bar slidably receivable in said grooves; resilient means on said sash normally pressing said locking bar toward said jamb; a pitman carried by said sash and manually and adjustably end movable therein from one end thereof; the opposite end of said pitman slidably receivable in said locking bar with a centrally threaded hole at said end; said locking bar having a threaded hole therein in alignment with the threaded hole in said pitman; and a screw member receivable by the threaded holes of both said locking bar and said pitman for adjustment of said pitman in relation to said locking bar.

PETER ABRAHAM KROCKER.

REFERENCES CITED

The following references are of record in the file of this patent:

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440,947	Early	Nov. 18, 1890
729,665	Robbe	June 2, 1903
1,570,351	Hultin	Jan. 19, 1926