April 23, 1940. G. M. GRADY ET AL 2,198,161

LOCK FOR DOUBLE-HUNG WINDOWS

Filed Feb. 18, 1938

Fig-1

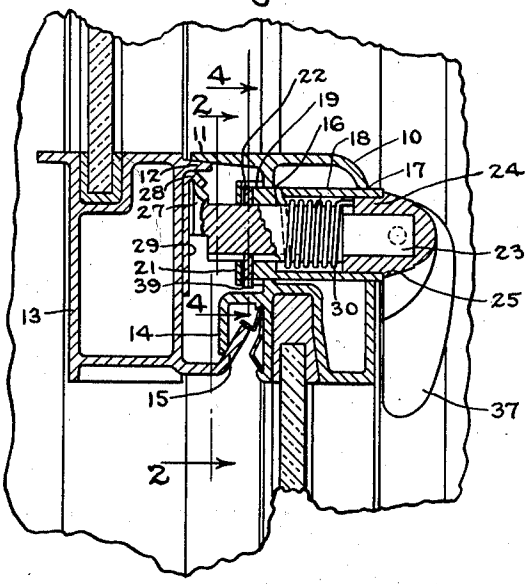


Fig-2

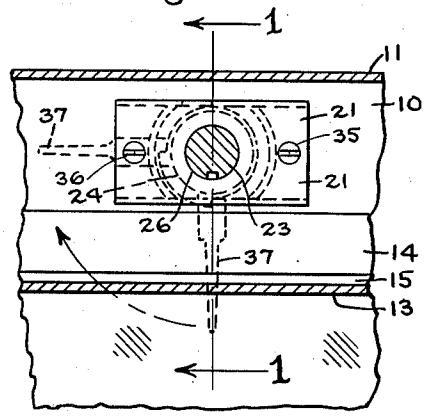
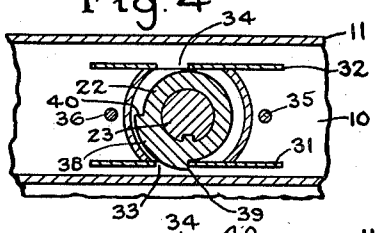


Fig-4



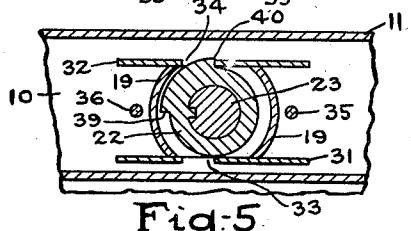


Fig-5

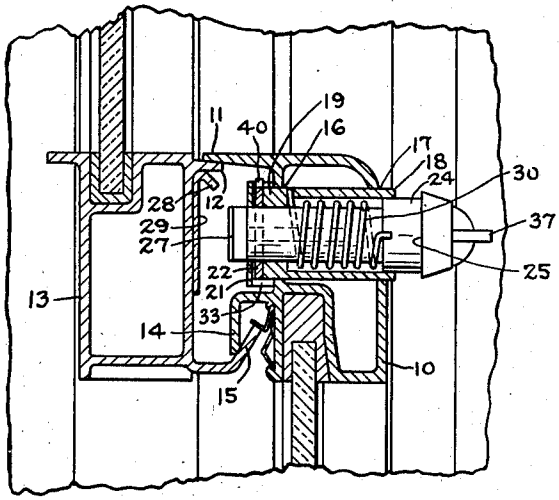


Fig-3

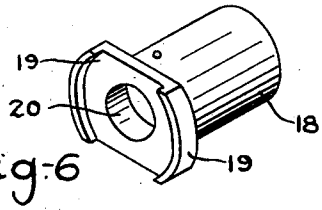


Fig-6

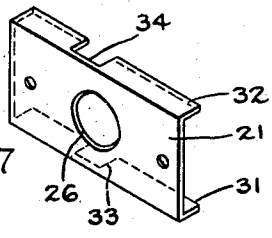


Fig-7

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LOCK FOR DOUBLE-HUNG WINDOWS

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2 Claims. (Cl. 292—62)

Our invention relates to locks for double-hung windows, and has for its object to provide a locking device which shall be at the same time burglar-proof, fully protected from rain or sleet or any other adverse weather condition, and which shall be entirely removed from the top surface of the cross sash rail, or check rail.

It is a further object of our invention to provide a lock of the above type wherein the lock may become effective only when the check rails are in proper position, and in which the condition of the rail when it is unlocked will be visually indicated by the locking handle.

It is a further object of our invention to provide locking means having the operative parts thereof enclosed within a recess formed in the upper top check rail of the lower sash and in which the operating parts shall extend through the side of said check rail.

It is a further object of our invention to provide a rotary locking device extending horizontally through the side of the top check rail and having thereon a handle which will be held in the horizontal position when the check rails are not locked together, which always will return to horizontal position when locking has not been effected, and which will remain in a vertical position when the lock has been set, thus indicating visually the fact of whether or not the lock has been properly set.

It is a further object of our invention to mount and arrange the locking members relative to one another so that they never can contact or jam when the sash rails are brought past one another in raising or lowering either of the sash.

The full objects and advantages of our invention will appear in connection with the detailed description thereof and its novel features are particularly pointed out in the claims.

In the drawing, illustrating an application of our invention:—

Fig. 1 is a longitudinal sectional view taken on line 1—1 of Fig. 2. Fig. 2 is a transverse sectional view taken on line 2—2 of Fig. 1. Fig. 3 is a view similar to Fig. 1 with the parts shown in unlocked position. Fig. 4 is a transverse sectional view taken on line 4—4 of Fig. 1. Fig. 5 is a view similar to Fig. 4 with the parts held in unlocking position. Fig. 6 is a perspective view of the frame member mounted in the check rail for supporting the locking device. Fig. 7 is a perspective view of the front plate or keeper member which surrounds the front of the locking member.

As illustrated, the top check rail 10 of the inner sash has a lip 11 adapted to engage a projecting lip 12 on the bottom check rail 13 of the upper sash. The check rail 10 also has a projecting flange member 14 adapted to engage an angularly-disposed flange member 15 on the bottom check rail 13.

Mounted within openings 16 and 17 in the top check rail member 10 is a tubular supporting device 18 which is formed with a head 19 and a central opening 20, as clearly shown in Fig. 6. Mounted upon head 19 is a keeper plate 21, shown in detail in Fig. 7. This keeper plate extends outside of a catch member 22 which is splined to move with a shaft 23 journaled in the aperture 20 of holding piece 18 and having a tubular head 24, Figs. 1 and 2, secured thereto by a screw or other device. The keeper plate 21 on shaft 23 and the shoulders 25 on head 24 hold the shaft 23 positioned within the piece 18 and with its end projecting through an opening 26 in keeper plate 21. Upon this projecting end of shaft 23 is positioned a locking lip 27 which is adapted upon rotation of shaft 23 to take under a flange lip 28 on a locking plate 29 fast on the lower check rail 13 of the upper sash, as clearly shown in Figs. 1 and 3. A coiled spring 30 surrounds the shaft 23 within the holding piece 18 and operates as both a torsion spring tending to rotate shaft 23 and a compression spring tending to move it outwardly. The keeper plate 21 has side flanges 31 and 32, as clearly shown in Figs. 4, 5 and 7, and these side flanges are provided with cut-out portions 33 and 34 as shown in Figs. 4, 5 and 7. The catch member 22 is held between the head 19 on shaft 23 and the keeper plate 21, and the shaft 23 is capable of sliding movements through said catch member 22. The plate 21 is held in position by means of screws 35 and 36. A handle 37 is secured to the head 24 by means of which the shaft 23 may be projected inwardly against the compression of spring 30 and be turned axially against the torsion force of spring 30. The catch member 22 is provided with a projecting portion 38 formed with lips 39 and 40. The lip 39 is adapted to engage through the notch 33 of side flange 31 to hold the parts in normal inoperative position as in Fig. 3, while the lip 40 is adapted to engage the edge of the notch 34 to check the parts when brought into the operative position of Fig. 1.

The operation of our locking device is as follows: With the parts in non-locking position as shown in Fig. 3, the check rails 10 and 13 are free to move away from each other either by lowering of the upper sash or raising of the lower

sash, the spring 30 having at the same time rotated the locking lip 27 and projected shaft 23 and parts assembled thereon outwardly, all as clearly shown in Fig. 3. When the two check rails are brought together so that lip 11 contacts lip 12 and depending flange member 14 contacts obliquely-disposed lip 15, the check rails are normally drawn into closing relation. The operator then pushes in on handle 37 in the position of Fig. 3 until it engages the locking plate 29, and at the same time rotates the shaft 23 so as to force the locking lip 27 under the depending locking flange 28 on locking plate 29. When this has been accomplished the window is locked and the parts will be held by frictional engagement in the position of Fig. 1 with the handle 37 turned down. If the parts are not properly brought together so that the locking lip 27 cannot be forced under the locking flange 28, immediately upon releasing handle 37 it will by spring 30 be restored to the inoperative position of Fig. 3 wherein the handle 37 is horizontal, indicating that the lock has not caught. If, however, the parts are properly positioned so that the locking lip 27 takes under the locking flange 28, the pressure exerted in forcing these parts together by means of handle 37 will produce such frictional engagement as to hold the parts in position with the locking handle 37 down, which gives visual indication that the window at the check rails is locked.

The advantages of our invention have appeared in connection with the detailed description thereof. The locking device leaves the top check rail of the lower sash entirely free from any obstructions where it can be easily kept clean. The cavities through which the locking member extends through the side of the top check rail are entirely enclosed against weather by the engagement of the depending flange member 14 with the obliquely-disposed flange member 15 so that water or snow cannot get in to the inside locking cavity formed by the two cooperating check rails. The handle 37 can be down or in a vertical position only when the check rails of the window are properly locked together. Always if the window is not locked an easily recognizable indication of that fact is given by the horizontal position of the handle 37.

We claim:

1. In combination with the check rails of double-hung windows, a lock comprising a rotatable shaft on one rail having a handle and a locking lip, a flange adapted to interlock therewith on the other rail, a spring associated with said shaft and operative simultaneously to hold it outwardly so the lip and flange cannot be engaged and to hold it rotated so the handle will occupy a horizontal position below the top of the check rail, a pair of stationary stops, and cooperating stops operable to engage the fixed stops in any longitudinal position of the shaft and rotatable therewith to limit the rotative movement of the shaft and cause the handle to be held fixed in non-locking and locking positions, said last-named stops being mounted on the shaft to permit longitudinal movement of the shaft relative to the stops.

2. In combination with the check rails of double-hung windows, a lock comprising a rotatable shaft on one rail having a handle and a locking lip, a flange adapted to interlock therewith on the other rail, a housing about said shaft provided with oppositely disposed openings forming shoulders, a stop washer splined on said shaft having portions adapted to extend through said openings and engage one or the other of said shoulders to limit rotative movement of the shaft, said shaft being mounted to be projected longitudinally through said washer so that rotation thereof will bring the lip on the shaft under the flange on the check rail, and a spring for returning the shaft to initial position after the lip and flange have been disengaged, said position being fixed by engagement of a stop portion within the opening against one of said shoulders.

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