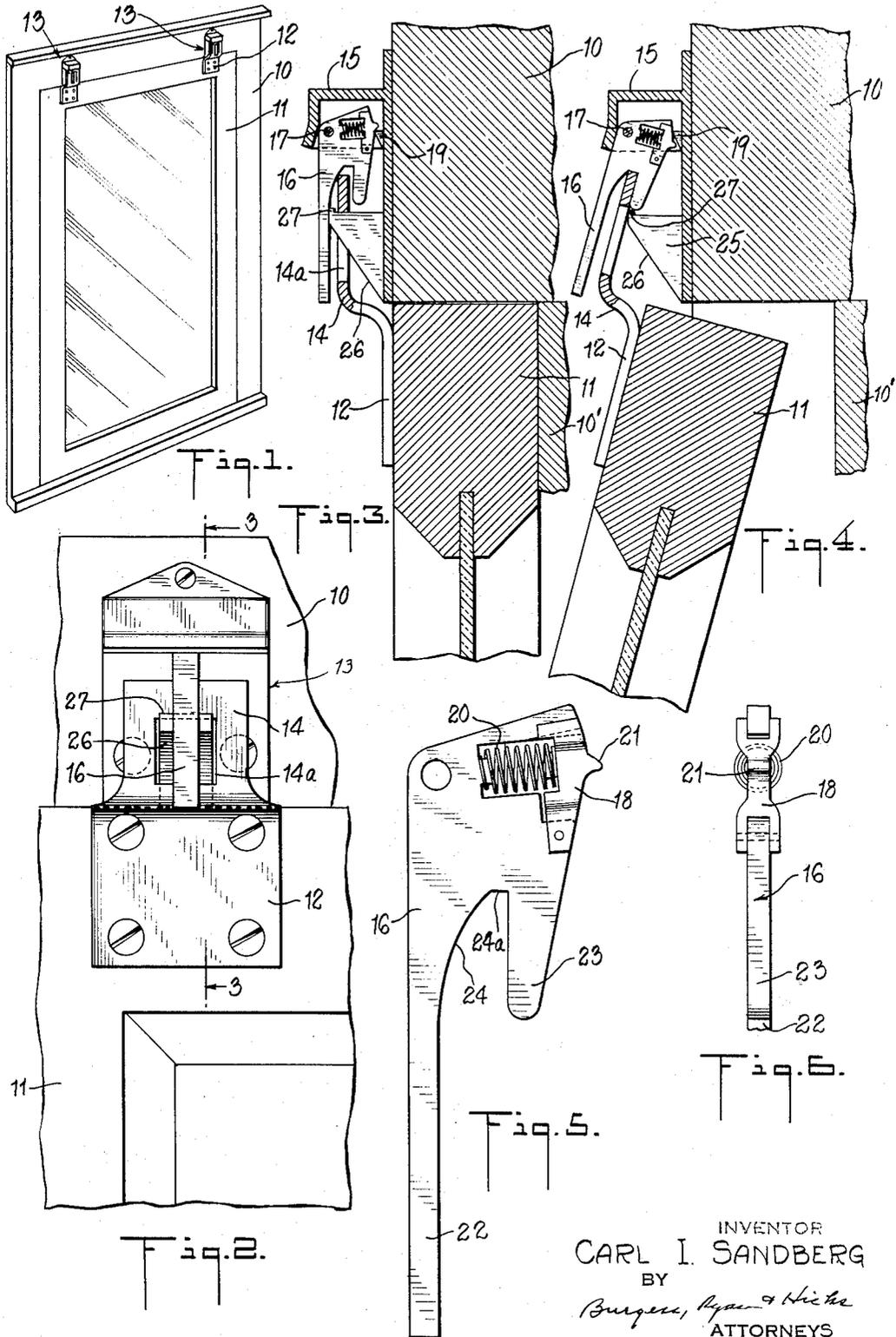


June 12, 1956

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HANGER FOR STORM SASH  
Filed July 3, 1953

2,749,569



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2,749,569

**HANGER FOR STORM SASH**

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Application July 3, 1953, Serial No. 365,824

11 Claims. (Cl. 16—177)

The present invention relates to improvements in hangers for storm sash or window screens and relates, more particularly, to a hanger for automatically locking a storm sash in place.

An object of the present invention is to provide a hanger for storm sash which permits the storm sash to be installed or removed from a window without lifting the sash from the window frame and which does not require manual manipulation of the hanger to secure or release the storm sash. When using a hanger embodying the present invention, storm sash can be installed in a window frame by pushing the storm sash upwardly with the top edge thereof being supported at all times until the hangers are properly engaged and then moving the bottom of the sash inwardly or toward the window frame. The removal of the storm sash is accomplished by the reverse operation. Such an arrangement eliminates the risks and hazards that are involved in attempting to lift a storm sash to engage or disengage it from the usual type of hook or hanger.

Other objects and advantages of the present invention will be apparent and best understood from the following description and the accompanying drawing in which:

Fig. 1 is a perspective view of a window with a storm sash installed therein on hangers embodying the present invention;

Fig. 2 is a fragmentary front view of a portion of the window shown in Fig. 1 on an enlarged scale;

Fig. 3 is a section view taken along the line 3—3 of Fig. 2;

Fig. 4 is a section view corresponding to Fig. 3 but showing the storm sash in position for engagement with the hangers;

Fig. 5 is a side view of an element of the hanger on an enlarged scale; and

Fig. 6 is a view as seen from the right of the element illustrated in Fig. 5.

Referring to the drawing in detail, there is a window frame 10 which has an opening therein and the usual window sash (not shown).

A storm sash 11 fits into the opening in the window frame and has a pair of spaced brackets or supporting members 12 projecting from its top edge which engage with a pair of hangers 13 to support the storm sash in the window frame. The brackets 12 which are of a conventional type, are secured to the top of the storm sash and have offset portions 14 extending beyond the top edge of the storm sash. The offset portions 14 of the brackets 12 have openings 14a therein which engage with the hangers, as will be described hereinafter, when the sash is installed in the window frame.

Each of the hangers 13 consists of a protective housing or cover 15 and an operating member or lever 16 is pivotally mounted on a shaft 17 inside of the housing. The lever 16 is L-shaped and carries a floating cam 18 on one arm thereof which is spring biased to engage with a latch 19 projecting from the inner face at the rear of the housing. As shown best in Figs. 5 and 6, the floating cam 18

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is pivoted on the lever 16 and is urged outwardly and into engagement with the latch 19 by a spring 20. The spring 20 is located in a recess in the camming lever with one end thereof being seated on the lever and the other end thereof bearing against the floating cam so as to press the cam outwardly.

The lever 16 is movable between an open position, as shown in Fig. 4, and a closed or latched position, as shown in Fig. 3 and is held in these positions by the engagement of the cam 18 with the latch 19. In movement of the lever from an open to a closed position, the lower face of the latch 19 and the upper portion of a cam surface 21 on the cam 18 are in engagement and these surfaces are so shaped that the movement of the lever 16 to its latched or closed position requires relatively little force.

When the lever is moved from its latched position to its open position, the top of the latch engages with the lower segment of the cam surface 21 and these surfaces are so shaped that a positive force of a considerable amount is required to move the lever to its open position. This prevents the lever from becoming unlatched accidentally.

The lower end of the lever 16 is provided with two depending guides or legs 22 and 23 which are joined by a curved surface 24 terminating in a seat 24a. The seat 24a is arranged to receive the upper end of one of the brackets 12 on the storm sash as the sash is being installed. This occurs when the storm sash is in an inclined position relative to the window frame and the pressure exerted on the lever 16 by pushing upwardly on the storm sash will cause the lever 16 to be swung to its latched position.

For the purpose of supporting the storm sash after the lever is moved into its latched position, a fixed support 25 is provided on the inner face of the housing in a position to project through the opening in the bracket on the storm sash when the lever is in latched position. The support 25 has an inclined ramp 26 on its lower surface along which the top of the bracket 12 slides and is guided into engagement with the lever 16 as the storm sash is being installed.

The fixed support 25 may also be provided with an upstanding lip or flange 27 at the outer end of its upper surface. The lip 27 engages with the bracket 12 and is an added precaution against the possibility of sliding the bracket off of the support by pushing outwardly on the top of the sash. Ordinarily in removing the storm sash, the bottom of the storm sash will be swung outwardly from the window frame and the lip on the support can be readily cleared by the bracket under such conditions.

The installation or removal of storm sash in or from a window equipped with hangers of the type described is extremely simple and provides the maximum safety and comfort to the operator. In installing the storm sash, the lever 16 is in its open position as shown in Fig. 4. The upper edge of the storm sash is then placed in the opening in the window frame at a slight angle (about 10 degrees) with its top edge resting on the sash guide strips (10') that normally form a part of the window frame. With the sash in this position, the operator can grasp the lower edge of the sash comfortably in a position directly under the center of gravity of the sash. The operator then merely pushes upwardly against the bottom of the sash so that it will slide upwardly along the sash guides 10' until the top ends of the brackets reach the ramps 26 on the supports 25. Continued upward movement of the sash causes the brackets to ride up on the ramps until the brackets engage the seats in the levers 16, as shown in Fig. 4. When the sash is in this position, a final firm upward push will cause the lever to be rotated to its latched position and the fixed support will then project

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through the openings in the brackets as the lower end of the sash is swung into the opening in the window frame. This entire procedure can be carried out without lifting the storm sash away from the window frame at any time.

In releasing the storm sash from the hangers, the sash is first freed of any hooks or other securing means that may be used to hold it against swinging outwardly and the lower end of the sash is then swung outwardly from the window frame until the brackets strike the outer legs of the levers. The continued movement of the sash in this direction will then require the exertion of a positive force in order to move the floating cams over the latches so that the levers can be swung to their open positions. When the camming levers are in their open positions, the upper ends of the brackets can then be slid down over the ramps on the fixed supports until the top of the sash reaches the sash guides on the window frame. Thus, the removal of the storm sash may also be accomplished without lifting the storm sash.

It will be noted that a limited angular movement (about 7 or 8 degrees) can take place before the brackets strike the outer legs on the camming lever. This permits the storm sash to be opened to a limited extent, if desired, for ventilation.

It will be understood that various modifications and changes may be made in the embodiment of the invention illustrated herein without departing from the scope of the invention as defined by the following claims.

I claim:

1. In a hanger for a storm sash, the combination of a supporting member adapted to be secured to a storm sash, a lever adapted to be pivotally mounted on a window frame, said lever being positioned for engagement with the supporting member on the storm sash and being movable between an open and a closed position by movement of the storm sash relative to the window frame, latch means adapted to be connected to the window frame and a floating cam carried by the lever and yieldably engaging with said latch means to hold the lever in either of said positions.

2. In a hanger for a storm sash, the combination as defined in claim 1 wherein the floating cam and the latch means have engaging surfaces which are shaped to offer greater resistance to the movement of the lever from the closed to the open position than in the opposite direction.

3. In a hanger for a storm sash, the combination as defined in claim 1 which includes a fixed support projecting from the window frame, said support being positioned to engage with the supporting member on the storm sash upon movement of the lever to the closed position thereof.

4. In a hanger for a storm sash, the combination of a housing, a lever pivotally mounted in the housing, said lever having a free end and being movable between an open and a closed position by the exertion of force against said free end, a latch carried by the housing and a floating cam carried by the lever and yieldably engaging with said latch to hold the lever in its open and its closed positions.

5. In a hanger for a storm sash, the combination of a housing, a lever pivotally mounted in the housing, said lever having a free end and being movable between an open and a closed position by the exertion of force against said free end, a latch carried by the housing, a floating cam carried by the lever and yieldably engaging with said latch to hold the lever in its open and its closed positions and combined support and guide means on said housing for guiding a storm sash supporting member into engagement with the lever and for receiving and support-

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ing said member thereon upon the movement of the lever to the closed position thereof.

6. In a hanger for a storm sash, the combination as defined in claim 5 wherein the combined guide and support means comprises a wedge-shaped member projecting outwardly from the inner face of the housing at the free end of the lever, said member having a lip extending upwardly from the outer end thereof and a lower surface sloping inwardly and downwardly toward the housing.

7. A hanger for automatically securing and supporting a storm sash in the window frame comprising a supporting member adapted to be secured to a storm sash, a lever adapted to be pivotally mounted on a window frame and having an end thereof positioned for engagement by the supporting member on the storm sash, said lever being movable between an open and a closed position by the exertion of force on the end thereof resulting from movement of the storm sash relative to the window frame, latch means adapted to be connected to the window frame, a cam carried on said lever and yieldably engaging with said latch means for holding the lever in the open and closed positions thereof, and means on the window frame for guiding the supporting member on the storm sash into engagement with the end of the lever and for supporting the storm sash upon movement of the lever to the closed position thereof.

8. A hanger for supporting a storm sash in a window frame as defined in claim 7 wherein the cam and the latch means have engaging surfaces which are shaped to offer greater resistance to movement of the lever from the closed to the open position thereof than to movement of the lever in the opposite direction.

9. A hanger for automatically securing and supporting a storm sash in a window frame comprising supporting means adapted to be secured to a storm sash a lever adapted to be pivotally mounted on a window frame with one end thereof positioned for engagement by the supporting means carried on the storm sash, said lever being movable between an open and a closed position by the exertion of a force on the said end thereof resulting from movement of the storm sash relative to the window frame, latch means adapted to be connected to the window frame, a cam carried on said lever and yieldably engaging with said latch means for holding the lever in the open and closed positions thereof and a fixed support on the window frame for engaging with the supporting means on the storm sash and supporting the storm sash in the window frame thereby, said fixed support having a lower surface sloping downwardly and inwardly, said surface being positioned to guide the supporting means on the storm sash into engagement with the lever in the open position thereof.

10. A hanger for supporting a storm sash in a window frame as defined in claim 9 wherein the fixed support has an upwardly projecting lip at its outer end, said lip engaging with and preventing lateral movement of the supporting means on the storm sash relative thereto.

11. A hanger for supporting a storm sash in a window frame as defined in claim 9 wherein the cam and the latch means have engaging surfaces which are shaped to offer greater resistance to movement of the lever from the closed to the open position thereof than to movement of the lever in the opposite direction.

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