Dec. 22, 1953 W. J. WOODHAMS 2,663,587

LATCHING ASSEMBLY FOR WINDOWS AND THE LIKE

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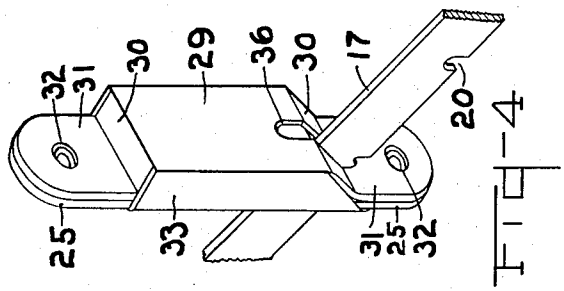


FIG-4

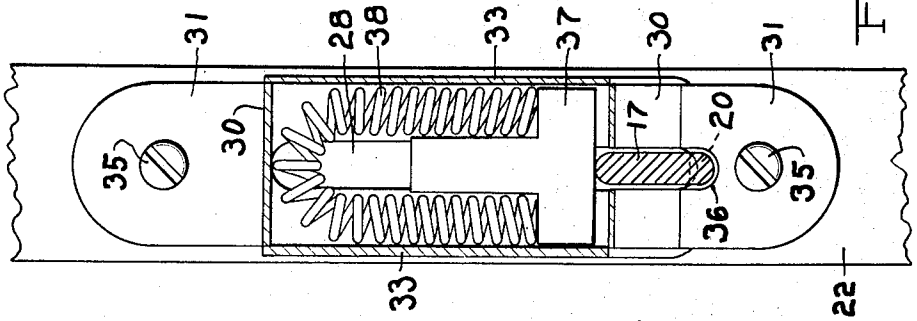


FIG-2

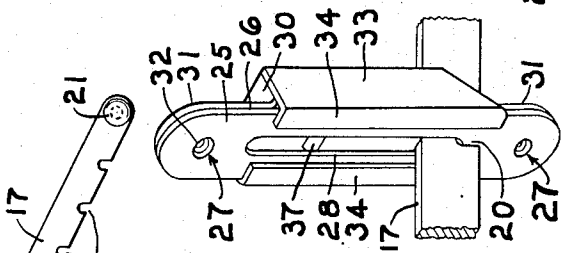


FIG-3

FIG-1

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LATCHING ASSEMBLY FOR WINDOWS AND THE LIKE

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6 Claims. (Cl. 292—266)

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This invention relates broadly to a window opening and holding assembly, and in its specific phases has special reference to a window stay and latch therefor.

Windows in house trailers, in the past, have been conventionally hinged at the top edge and controlled with an operating arm having a notched lower edge freely engageable with the bottom of a slit in a wall cross bar through which the operating arm passed. That type of construction gave trouble in puffy-wind weather due to the operating arm unlatching and allowing the window to move about its pivotal edge. Such mechanism, moreover, was limited to use on windows which were hinged along their upper edge. It was a recognition of this situation, and a knowledge that there was nothing on the market which would overcome these shortcomings, which led to the conception and development of the present invention.

Accordingly among the objects of this invention is the provision of a novel and improved assembly which includes a pivotally mounted window having an operating arm or stay and a holding or latching means for releasably securing said arm in adjusted position.

Another important object of the invention is to provide a novel device of this character which is equally effective in operation with the window supported at a side edge or at the top or bottom edge.

Further the invention has for one important object the provision of a spring-operated holding or latching means arranged to releasably secure the operating arm in its adjusted position no matter whether the arm is connected to the window sash by a pivot having a horizontal axis or by a pivot having a vertical axis.

Still another important object of the invention is to provide a novel spring actuated latch particularly adapted for use and operation with the other elements of this assembly.

Yet further the invention has for an object the provision of a novel spring arrangement for a latch of the kind herein used.

Still further objects and advantages of this invention will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, the invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims, the annexed drawing and the following description setting forth in detail certain means for carrying out the invention, such disclosed means illustrating, however, but one of various ways in which the principle of the invention may be used.

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In the annexed drawing:

Figure 1 is a vertical section through a window sash and the opening or frame for the sash, the present invention being shown as applied thereto.

Figure 2 is an enlarged front view of the latch or holding mechanism with the front wall of same removed and the side and top wall shown in section.

Figure 3 is a perspective view showing the rear face of the latching device and a portion of the operating arm.

Figure 4 is a perspective view similar to Figure 3 but showing the front of the latching device.

In the embodiment of the invention as here shown, there is illustrated a wall or frame 10 having a window opening 11 provided therein. A sash 12 is of proper size and shape to effect closing of the opening 11, and this sash is connected along one edge to the wall or frame 10 by hinges, one of which is shown at 13, securely screwed to the wall and sash.

A channel bar 14 is provided with flattened ends 15 which are secured to opposite portions of the sash 12 by screws 16, the bar thus extending across the sash perpendicularly to the hinged edge. At 17 is an operating or opening arm having a curved end 18 fitting between the flanges of the channel 14 and pivotally connected thereto by a rivet 19 somewhat spaced from the hinged edge of the sash. Along the edge remote from the hinged edge of the sash the arm 17 is provided with a series of spaced notches 20 and the free end of the arm is provided with a knob 21 which serves both as a convenient hand grip and, as will be presently explained, as a limit stop.

Across the opening 11 extends a channel bar 22 having flattened ends 23 secured to the wall by screws 24. The latch mechanism, which is shown best in Figures 2, 3, and 4, has an elongated back plate 25 having parallel side edges 26. This back plate has a screw-receiving opening 27 at each end and also has one elongated slot 28 on its center between the openings 27. Mounted on this back plate is a housing, which may be stamped from sheet metal, formed with a front wall 29 and end walls 30 extending from the ends of the front wall to the back plate 25 to hold the wall 29 spaced from the plate 25. The end walls 30 are each provided with an outwardly extending foot 31 having a screw opening 32 registering with a respective opening 27 in back plate 25. The housing side walls 33 also extend over the edges 26 of the back plate 25 and are there bent to form flanges 34 fitting

against the back face of the back plate. Screws 35 extend through the screw openings 27 and 32 and hold the latch structure to the channel bar 22. One end wall 30 of the housing, its front wall 29 and foot 31 are provided with a slot 36 aligned in front of the slot 28 in back plate 25, this end of the housing being that remote from the edge of the opening 11 adjacent which the hinges 13 are mounted. The channel bar 22 is provided with a slot registering with the slot 28, and the operating arm 17 extends through the channel bar 22 and slots 28 and 36. Knob 21 prevents the withdrawal of the arm 17 through the slots and thus acts as a limit stop to the movement of the operating arm. When the operating arm is thus extended through these slots the ends of the slots 28 and 36 remote from the hinges may be selectively engaged in one of the notches 20.

In order to provide against accidental disengagement of the bar notches 20 from the end of the slot, there is fitted slidably in the housing a substantially T-shaped keeper 37 the head of which engages against the unnotched or back edge of the operating arm 17. Also, there is fitted in the housing a compression spring, preferably in the form of a coiled compression spring 38 bent longitudinally to U-shape having leg portions of equal length engaging against and retained by the side walls 33 and in curved portion or bight engaging against the end wall 30 remote from that having the slot 36 therein. This spring is of such length that its extremities engage the arms of the keeper 37 and thus force it into engagement with the operating arm 17 thereby holding said arm firmly against accidental disengagement of the engaged notch 20.

While the window is closed the notched end portion of the arm 17 will depend, due to the curvature of its pivoted end, along the bar 22 and be engaged by the hook portion of the hook bracket 39, which is conventionally joined to channel bar 22 as by means of a screw 40. Upon it being desired to open the window, the knob 21 is grasped, the arm 17 disengaged from hook bracket 39, and swung away from the bar 22 and pushed outwardly through the housing until the sash is in desired position. The raising of the arm 17 during this procedure moves the keeper 37 and compresses the spring 38 so that notches 20 do not engage the bottom edge of slots 28 and 36. When the window is sufficiently open the upward biasing stress on arm 17 is relaxed and the arm moved slightly in a longitudinal manner whereupon a notch 20 will engage on the slot ends and the sash will be releasably latched securely in position.

Obviously the latching spring will effect proper action upon the arm 17 whether the sash be mounted so as to be hinged at its top, its bottom, or a side.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:

1. In a window assembly of the class wherein there is a window opening and a window sash having one edge portion hinged to the wall at one edge of said opening, a cross bar connecting the hinged edge portion of said sash with the opposite edge portion of said sash, a second cross bar connecting wall portions at like portions of said window opening, and an operating arm having one end pivoted to said first bar and having spaced notches along one edge, the combination with such window and its operating arm of a housing mounted on said second cross bar and having an opening therein through which said arm passes, said housing being engageable by the notches of said operating arm selectively at one end of said opening for positive anchoring of said arm, and a keeper in said housing, said keeper urging said arm into notch engaging position.

2. In a window assembly of the class wherein there is a window opening and a window sash having one edge portion hinged to the wall at one edge of said opening, a cross bar connecting the hinged edge portion of said sash with the opposite edge portion of said sash, a second cross bar connecting wall portions at like portions of said window opening, and an operating arm having one end pivoted to said first bar and having spaced notches along one edge, the combination with such window and its operating arm of a housing mounted on said second cross bar and having an opening therein through which said arm passes, said housing being engageable by the notches of said operating arm selectively at one end of said opening for positive anchoring of said arm, a keeper in said housing, said keeper urging said arm into notch engaging position, and spring means in said housing urging said keeper against the edge of said arm opposite its notched edge.

3. In a window assembly of the class wherein there is a window opening and a window sash having one edge portion hinged to the wall at one edge of said opening, a cross bar connecting the hinged edge portion of said sash with the opposite edge portion of said sash, a second cross bar connecting wall portions at like portions of said window opening, and an operating arm having one end pivoted to said first bar and having spaced notches along one edge, the combination with such window and its operating arm of a housing mounted on said second cross bar and having an opening therein through which said arm passes, said housing being engageable by the notches of said operating arm selectively at one end of said opening for positive anchoring of said arm, a keeper in said housing, said keeper urging said arm into notch engaging position, and spring means in said housing urging said keeper against the edge of said arm opposite its notched edge, said keeper being substantially of T-shape with its head engaging said arm and said spring means pressing approximately equally against both arms of the head of said keeper opposite the side thereof in contact with said arm.

4. In a window assembly of the class wherein there is a window opening and a window sash having one edge portion hinged to the wall at one edge of said opening, a cross bar connecting the hinged edge portion of said sash with the opposite edge portion of said sash, a second cross bar connecting wall portions at like portions of said window opening, and an operating arm having one end pivoted to said first bar and having spaced notches along one edge, the combination with such window and its operating arm of a housing mounted on said second cross bar and having an opening therein through which said arm passes, said housing being engageable by the notches of said operating arm selectively at one end of said opening for positive anchoring of

said arm, a keeper in said housing, said keeper urging said arm into notch engaging position, and spring means in said housing urging said keeper against the edge of said arm opposite the notched edge of same, said keeper being substantially of T-shape with its head engaging said arm at the edge thereof opposite said notches and the spring means pressing approximately equally against both arms of the head of said keeper opposite the side thereof in contact with said arm, said spring means consisting of a coiled compression spring bent into U-shape with approximately equal length legs, the legs of said spring fitting and being supported between the sides of said housing and the bight of said spring fitting against and being supported by one end of said housing.

5. Latching means for a window including an operating arm having one of its edges notched and the opposite edge unbroken, said means comprising a housing provided with side and end walls, said housing having an opening therethrough between said side walls for the passage of said arm, the notches of said arm being selectively engageable with said housing at one end of said opening for positive anchoring of said arm, a substantially T-shaped keeper slidably fitted in said housing between its side walls, the head of said keeper being adapted to engage and press against the unbroken edge of said arm, and spring means engaging against each arm of the T-head of said keeper to urge same against the unbroken edge of said arm to normally maintain the latter in notch engaging position.

6. Latching means for a window including an operating arm having one of its edges notched and the opposite edge unbroken, said means comprising a housing provided with side and end walls, said housing having an opening therethrough between said side walls and extending completely through one of said end walls for the passage of said arm, the notches of said arm being selectively engageable with said housing at the end of said opening extending through said end wall for positive anchoring of said arm, a substantially T-shaped keeper slidably fitted in said housing between its side walls, the head of said keeper being adapted to engage and press against the unbroken edge of said arm, and spring means engaging against each arm of the T-head of said keeper to urge same against the unbroken edge of the said arm to normally maintain the latter in notch engaging position, said spring means consisting of a single coiled compression spring bent substantially into U-shape to fit around the end of the stem of said keeper with its end between the stem and side walls of said housing and bearing against the arms of said T-head keeper, the bight of said spring bearing against an end wall of said housing.

WALTER J. WOODHAMS.

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