Sept. 1, 1953 R. A. OLSON 2,650,847

LATCH FOR CASEMENT WINDOWS

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FIG. 1.

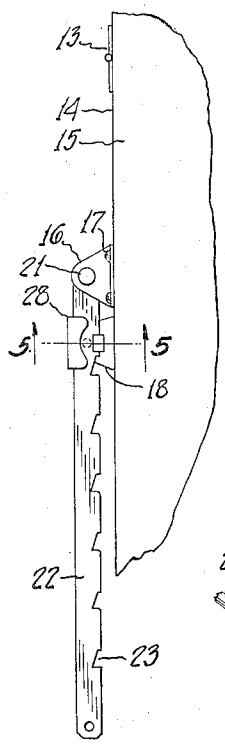


FIG. 2.

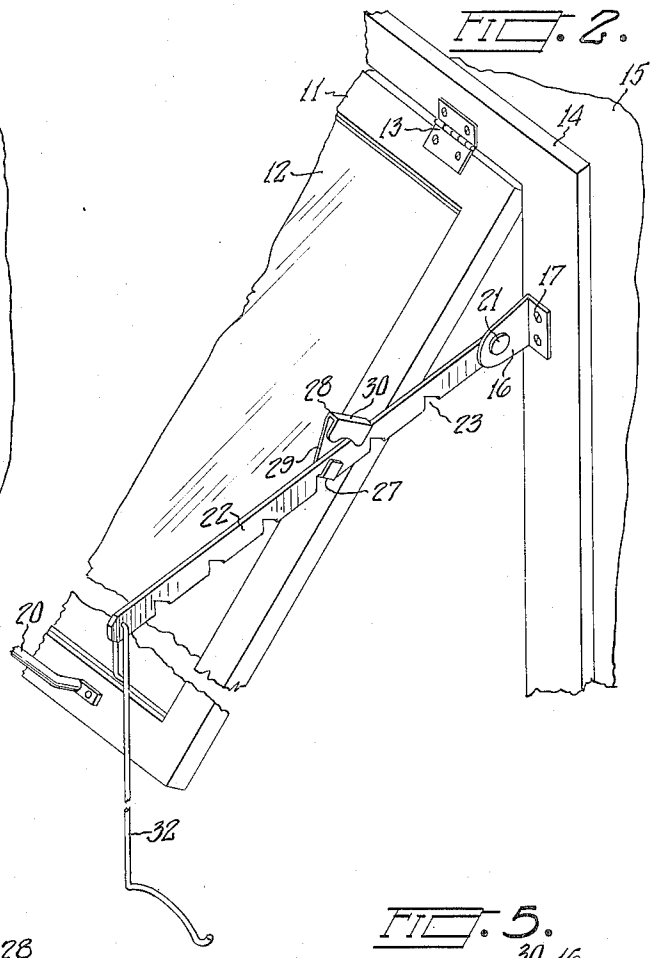


FIG. 3.

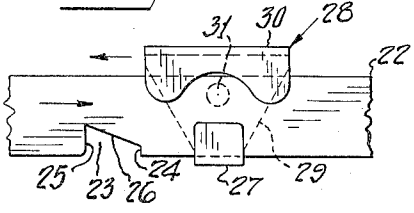


FIG. 4.

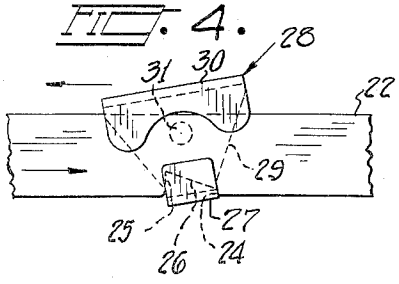
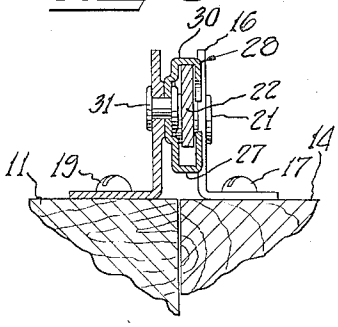


FIG. 5.



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LATCH FOR CASEMENT WINDOWS

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By "casement window" is meant any type of closure for an opening where the closure is hinged to the frame of the opening at any side of the opening.

This invention relates generally to devices for adjusting and holding a casement window to any desired degree of open position but as particularly illustrated and described the invention is shown as applied to a casement window having the window sash hinged to the window frame at the top of the window opening whereby the force of gravity on the hinged sash tends to return the sash to its closed position. However, it is to be understood that the invention is adapted to application to a casement window hinged on any side provided the window is biased toward its closed position by any means whether the biasing means be the force of gravity, a counterweight, spring hinges, or other means.

It is the principal object of this invention to provide, for a window biased to closed position but opened to a desired position against the biasing force, automatic means for latching the window in its desired position of opening, and means for releasing the latching means to allow the window to return to its closed position at a desired speed controlled by the unlatching means.

It is a second object of this invention to provide such a latching means which is simple in operation, economical in production, rugged in construction, and pleasing in appearance.

It is a third object of this invention to provide such a latching means comprising a notched latch bar with a latch slidable therealong together with a pair of brackets to one of which the latch bar is pivotally secured and the other of which the latch is pivotally secured whereby the latching means can be readily applied by securing one of the brackets to the window and securing the other of the brackets to the window frame.

It is a fourth object of this invention to provide such a latching means applicable to one wall side of a window frame and to the same wall side of a window whether the window opens towards that wall side of the frame or away from that wall side of the frame.

It is a fifth object of this invention to provide such a latching means so adapted that if the window opens inwardly of the wall side of the frame to which the latching means is applied, the latch bar bracket is secured to the window frame and the latch bracket is secured to the window.

How these and other objects are attained will

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be understood from the following description referring to the attached drawing in which:

Fig. 1 is a side elevation of my latching means as applied to an inwardly opening window hinged at the top.

Fig. 2 is a view in perspective of the mechanism of Fig. 1 showing the window latched in a desired position of opening.

Fig. 3 is a fragmentary side elevation of the latch bar and latch of this invention with the latch bar being carried on the latch as it would be when the window is being opened and the latch is between the notches on the latch bar.

Fig. 4 is the same as Fig. 3 but with the latch traversing a notch in the latch bar.

Fig. 5 is a section along the line 5—5 of Fig. 1.

Referring now to the drawings, there is shown a window sash 11 carrying a window pane 12. The sash 11 is carried on hinges 13 anchored to window frame 14 mounted in a wall 15. Secured to sash 11 is a handle 20 by which the window may be opened to a desired position.

Latch bar bracket 16 is shown secured to frame 14 by screws 17 and latch bracket 18 is shown secured to sash 11 by screws 19.

Freely pivoted to bracket 16 by pin 21, as shown, is latch bar 22 having a series of notches 23 formed on its under edge. Edges 24 and 25 of notches 23 are formed transversely of the bar, and edge 26 joins the inner ends of notches 24 and 25. The outer end of edge 24 forms a relatively sharp right angled corner with the lower edge of bar 22, while the outer end of edge 25 is joined to the lower edge of bar 22 with an arc of a circle to which the two edges are tangential, the radius of the circle being at least equal to the length of edge 24 which is approximately equal to the thickness of the metal of which latch lug 27 is made.

Latch 28 is formed of a rear plate member 29 joining back member 30 to lug member 27 and is freely pivoted to latch bracket 18 by pivot pin 31 through latch plate 29.

Now assuming that the window is closed and latch bar 22 is hanging vertically downward suspended on bracket 16 by pivot pin 21 as shown in Fig. 1, and it is desired to open the window to a desired position and latch it there, as shown in Fig. 2, it is only necessary to grasp handle 20 and lift inwardly and upwardly. While this is being done latch bar 22 rides along on lug 27 of latch 28, as shown in Fig. 3, until lug 27 arrives at and enters one of the notches 23 in bar 22. Further opening of the window tilts latch 28, as shown in Fig. 4, until the forward edge of lug 27

clears the radius corner of notch edge **25** at which time latch **28** proceeds along bar **22** taking the position shown in Fig. 3 until it comes to the next notch **23**.

Assuming that the desired window opening corresponds with the latch positioned in the third not **23**, as shown in Fig. 2, then when lug **27** engages this notch the raising effort on the window handle is reduced and the window is allowed to start to close under the pull of gravity. Latch **28** then tries to slip back along bar **22** but is restrained by notch edge **24** and latch **28** tilts around pin **31** until latch back **30** strikes the upper side or edge of bar **22**. Bar **22** is then automatically locked between latch back **30** and latch lug **27**, as shown in Fig. 2. Edge **26** of notch **23** is formed to be approximately parallel to the bottom of lugs **27** when the latch and bar are locked.

Then to close the window it is merely necessary to lift up on the outer end of bar **22**, picking up the window's weight on bar **22** through latch **28** and latch bracket **16**, then lowering the outer end of bar **22**, whereupon the window rides closed without a jar as latch **28** slips along on bar **22**.

Extension **32** is merely one possible form of termination for latch bar **22** and would be useful in closing the window in case the window were unusually high off the floor as some cellar windows might be.

Having thus recited the purpose of my invention, described the construction of a preferred form which my invention may take and explained its operation, I claim:

1. The combination of an elongated latch bar, a latch, and means for slidably securing said latch to said latch bar, said latch bar being formed with two parallel sides and two parallel edges, one of said edges being continuous in a plane, the other of said edges being formed with a series of notches therein, said latch comprising a back member adjacent said planar edge of said latch bar and a lug member adjacent said notched edge of said bar, each of said notches being of greater width than said lug member, each of said notches being formed with one edge of shorter depth perpendicular to said notched edge of said bar and with one edge of greater depth perpendicular to said notched edge of said bar, said shorter edge of each of said notches meeting said notched edge of said bar in substantially a right angled corner, and said longer edge of each of said notches meeting said notched edge of said bar in an arc of a circle to which the two edges are tangential, the radius of the circle being approximately equal to the depth of the shorter edge of said notch, whereby when said latch is slid along said bar with said back member of said latch resting on said planar edge of said bar said latch is freely slidable along said bar in either longitudinal direction of said bar, but when said notched edge of said bar is resting on said lug member of said latch and said latch is slid along said bar in one longitudinal direction of said bar said lug will rock freely through said notches, and when said latch is slid along said bar in the other longitudinal direction said bar will be locked between said lug member and said back member when said lug member engages one of said notches.

2. A latching mechanism for a top hinged vertically swingable closure for an opening formed in a wall, said mechanism comprising a latch bar pivoted at one end to said wall to swing in a vertical plane, a latch pivoted to said closure to swing in a vertical plane, said latch including a lug positioned on one side of its pivot axis and a back member positioned on the other side of its pivot axis, said lug being adapted slidably to support said latch bar as said closure is opened, said latch bar being adapted slidably to engage said back member and support said closure through said latch as said latch bar is lifted to initiate the closing of said closure, said latch bar being formed with a notch on one edge thereof, said notch being formed to pass said lug as said closure is moved in an opening direction and said latch bar is resting on said lug and to prevent the passing of said lug as said closure is moved in a closing direction and said latch bar is resting on said lug, whereby said closure can be opened to said notch and released to be latched in that position of opening and whereby said latch bar can be lifted to unlatch said lug and allow said closure to slide closed along said latch bar.

3. A latching mechanism for a top hinged vertically swingable closure means for the opening in a wall formed with said opening therein, said mechanism comprising a latch bar pivoted at one end to said wall to swing in a vertical plane, a latch pivoted to said closure to swing in said vertical plane, said latch including a lug member positioned on one side of its pivot axis and a back member positioned on the other side of its pivot axis, said latch bar being formed with a notch on one edge thereof, said lug means being adapted slidably to support said latch bar as said closure is opened, said latch bar being adapted slidably to engage said back member and support said closure as said latch bar is lifted to initiate the closing of said closure, said lug, said back member and said notch being adapted to cooperate to pass said lug rockingly through said notch as said closure is moved in an opening direction while said latch bar is resting on said lug and to lock said latch bar between said lug and said back member at said notch when said lug meets said notch as said closure is moved in a closing direction while said latch bar is resting on said lug, whereby said closure can be opened to said notch and released to be latched in that position of opening and whereby said latch bar can be lifted to unlatch said lug and allow said closure to slide closed along said latch bar.

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