May 24, 1927.

J. T. WILLIAMS

1,630,153

SASH FASTENER

Filed Jan. 13, 1925

2 Sheets-Sheet 1

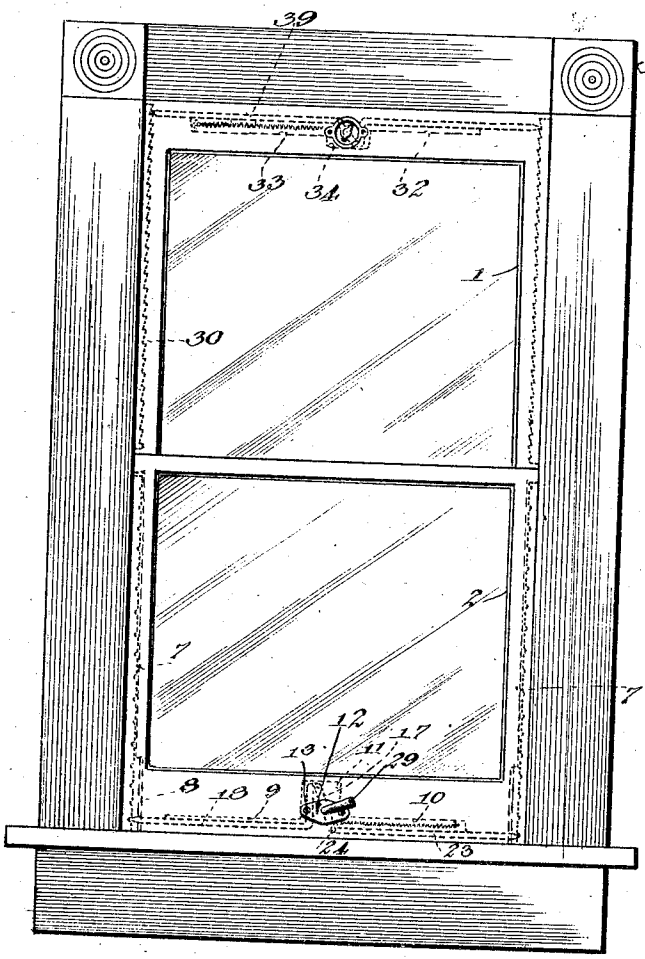


Fig. 1.

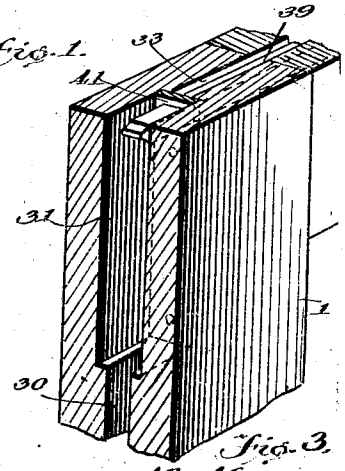


Fig. 3.

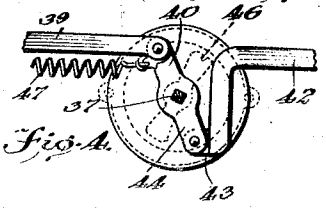


Fig. 4.

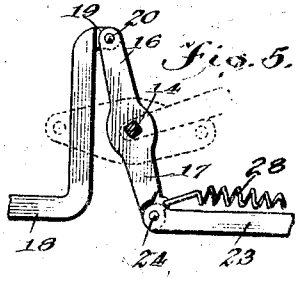


Fig. 5.

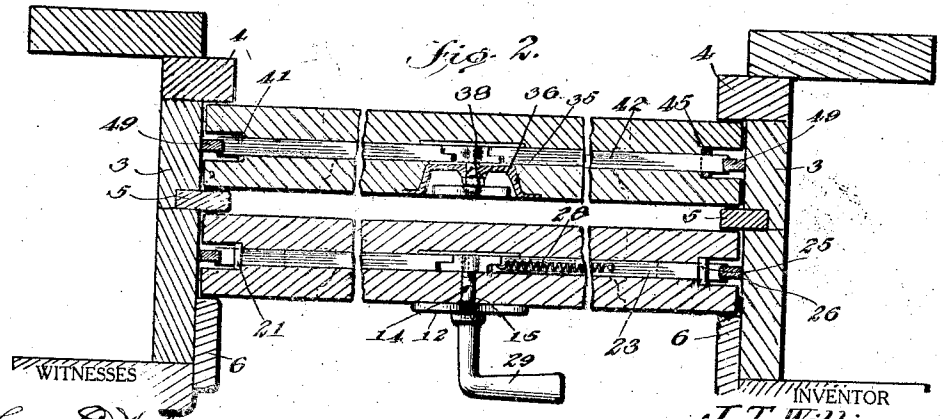


Fig. 2.

WITNESSES

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Fig. 6.

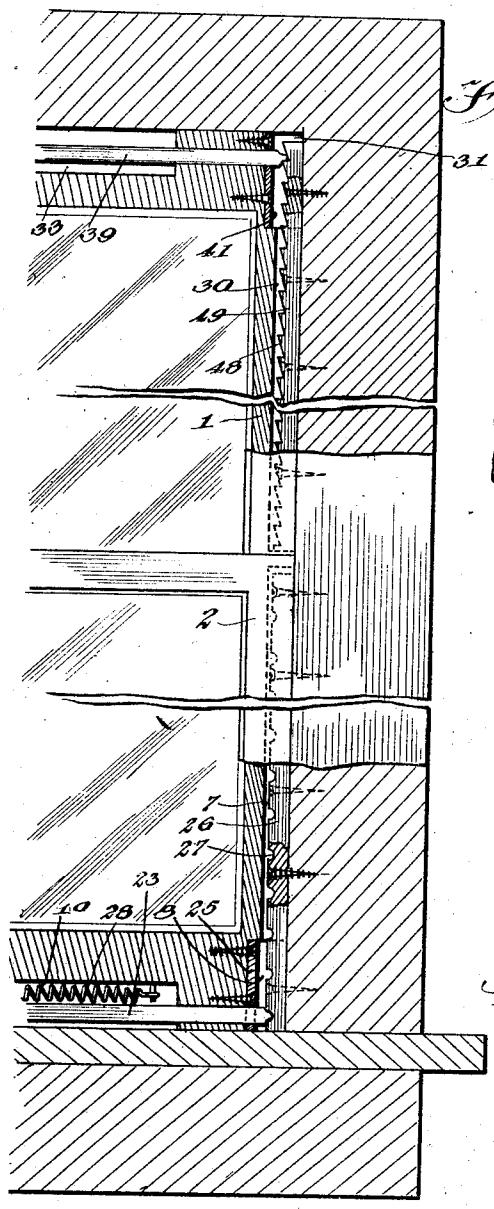


Fig. 7.

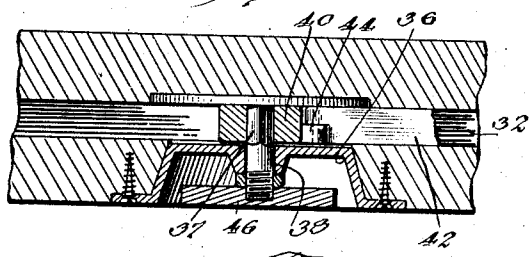


Fig. 8.

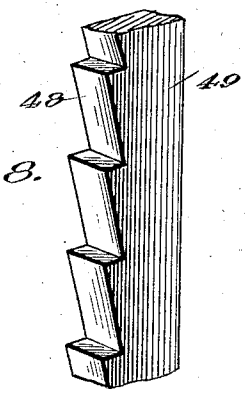
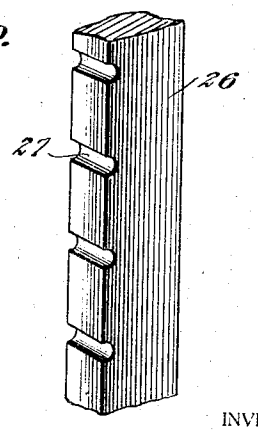


Fig. 9.



WITNESSES

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UNITED STATES PATENT OFFICE.

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SASH FASTENER.

Application filed January 13, 1925. Serial No. 2,205.

My invention is an improvement in sash fasteners, and it consists in the combinations, constructions and arrangements herein described and claimed.

An object of the invention is the provision in a window having vertically slidable sashes of means whereby the sashes will be held releasably in the various positions to which they can be moved without the use of the usual sash weight, pulley and cord arrangements.

A further object of the invention is the provision in a window of latching means acting automatically to hold the lower sash releasably against vertical movement from any position to which it has been moved in its slideway and other latching means acting automatically to hold the upper sash releasably against vertical movement downward in its slideway, the latching means being operable only from the inner side of the window, whereby the window can not be opened from the outer side thereof.

Other objects and advantages of the invention, considered in conjunction with the accompanying drawings, forming a part of this application, in which

Figure 1, is an elevation of the inner side of a window, equipped with a practical embodiment of the invention.

Figure 2, is a horizontal section through the window, the view being taken through the upper rail of the upper sash and through the lower rail of the lower sash.

Figure 3, is a fragmentary perspective sectional view of an upper corner portion of the upper sash.

Figure 4, is a face view of a portion of the latch mechanism for the upper sash, with certain of the elements thereof indicated in dotted lines.

Figure 5, is a view similar to Figure 4. showing certain elements of the latch mechanism of the lower sash.

Figure 6, is a view of the inner side of a portion of the window, with parts thereof broken away and other parts shown in section.

Figure 7, is an enlarged horizontal section through the middle portion of the top rail of the upper sash and through the latch mechanism which is mounted therein.

Figure 8, is a perspective view of a portion of the ratchet bar for the upper sash, and

Figure 9, is a view similar to Figure 8, showing a portion of the ratchet bar for the lower sash.

A window equipped with the invention comprises the usual vertically slidable upper and lower sashes 1 and 2, respectively. The upper sash 1 is retained between the vertical side members or stiles 3 of the window frame by the usual vertical outer stop strips 4 and the parting strips 5, the vertical edge portions extending into vertical guideways which are defined by the outer stop strips 4 and the parting strips 5 in conjunction with the portions of the side frame members 3 which extend between adjacent strips 4—5.

The lower sash 2 has the vertical edge portions thereof received in guideways which are defined by the parting strips 5 in conjunction with inner stop strips 6 and the portions of the side frame members which extend between adjacent strips 5—6.

The upper sash is the outer sash of the window while the lower sash is the inner sash, as is usual.

The vertical side bars of the lower sash has channels 7 formed in the side faces thereof midway between the planes of the outer and inner faces of the side bars. Each channel extends from the upper end of the side bar in which it is formed nearly to the lower end of the latter and then is merged into a deeper channel 8 which extends for the remainder of the length of the side bar of the lower sash. The bottom rail of the lower sash is provided with channels 9 and 10, respectively, which extend in the bottom face of the bottom rail of the lower sash and are merged at their outer ends into the channels 8 and at their inner ends into a vertically enlarged recess 11, which opens through the bottom wall of the bottom rail of the lower sash midway of the length of said bottom rail. A plate 12 is secured by screws 13 to the inner face of the bottom rail of the lower sash so that a rock shaft 14 which is journalled in a central opening in the plate 12 will extend through a transverse opening 15 from the inner face of the bottom rail into the recess 11. The rock shaft 14 carries a pair of oppositely extending rocker arms 16 and 17, respectively, in the portion thereof which is received within the recess 11, the arm 16 extending obliquely upward from the rock shaft and the arm 17 extending obliquely downward from its junc-

ture with the rock shaft. An axially movable latch bolt 18 has an upwardly offset inner end portion 19 pivotally attached at 20 to the upper end of the rocker arm 16 and extends in the channel 9 through an opening in a guiding and retaining plate 21 which is secured by screws 22 against the bottom wall of the channel 8 at the outer end of the channel 9. A second latch bolt 23 is pivotally attached at 24 to the lower end of the arm 17 and extends in the channel 10 through an opening in a guiding and retaining plate 25 which is secured to the bottom of the channel 8 at the outer end of the channel 10. The outer ends of the latch bolts 18 and 23 are in sliding contact with the inner faces of vertical bars 26 which are secured to the inner faces of the side members of the window frame in position to extend into the channels 7, each of the bars 26 being provided with vertically spaced sockets or notches 27 in its inner face which the outer end of the adjacent latch bolt will enter as the lower sash is slid vertically, the latching bolts being urged continually toward out shot or locking positions by a tension spring 28 which is disposed in the channel 10 and is attached at one of its ends to the lower end of the arm 17 and at its other end to a wall of the channel 10. It thus will be manifest that the latching bolts will engage with the sockets or notches 27 in the bars 26 to hold the lower sash in any one of a plurality of vertically spaced positions and that the lower sash can be moved from any one of such vertically spaced positions only when the latch bolts 18—23 have been withdrawn from the particular notches or sockets 27 with which they were engaged. This is accomplished by manipulation of a laterally turned handle 29 which is rigid with the rock shaft 14 at the inner side of the bottom rail of the lower sash and is adapted to be operated manually to turn the rock shaft 14 so that the arms 16—17 will be swung toward vertical position in the recess 11 and the latch bolts 18—23 will be moved axially inward in the channels 9—10 until the said latch bolts have been withdrawn from the particular notches or sockets 27 with which they were engaged at a given time.

The upper sash also is formed with vertical channels 30 extending in the outer faces of its side rails from the lower ends of said side rails nearly to the upper ends thereof, the channels 30 being merged at their upper ends into relatively deep channels 31 which extend for the remainder of the length of the side bars of the upper sash. Channels 32—33 respectively extend in the upper side of the top rail of the upper sash from a relatively deep recess 34 to the upper end portions of the respective channels 31. The recess 34 also opens through the inner face of the top rail of the upper sash as indicated at 35 for the reception of a bracket plate 36 having a marginal flange secured to the top rail in countersunk relation to the inner face of the top rail. A rock shaft 37 is journalled in a central bearing 38 formed in the bracket plate, one end portion of the rock shaft 37 extending into the recess 34 while the opposite end portion of the rock shaft extends within the opening 35 but terminates short of the plane of the inner face of the top rail of the upper sash. A latch bolt 39 which is similar to the latch bolt 23 is pivotally attached at its inner end to the upper end of a rocker arm 40 which extends obliquely upward within the recess 34 from the rock shaft and extends through the channel 33 and through an opening in a guiding and retaining plate 41 which is secured to the bottom of the channel 31 at the outer end of the channel 33. A latch bolt 42 which is similar to the latch bolt 18 has a downwardly offset inner end portion 43 pivotally attached to the lower end of a rocker arm 44 which extends obliquely downwardly in the recess 34 from the rock shaft 37 and extends through the channel 32 and through an opening in a guiding and retaining plate 45 which is secured to the bottom of the channel 31 at the outer end of the channel 32. The portion of the rock shaft 37 that is received within the opening 35 carries a handle 46. A tension spring 47 is attached at one end to the upper end of the arm 40 and at its opposite end to a wall of the channel 33 and acts to urge the latch bolts 39—42 axially outward toward out shot or locking positions. When the latch bolts 39—42 are in out shot positions, the outer ends thereof are in contact with teeth 48 on the inner faces of vertical ratchet bars 49 which are secured to the inner faces of the side members of the window frame in position to extend into the channels 30. Each tooth 48 has a horizontal upper face and a sloping or inclined lower face and the latching bolts 39 and 42 have the outer end portions thereof formed as shown to engage with the flat upper sides of corresponding teeth to prevent downward movement of the upper sash until the handle 46 has been manipulated to cause axial inward movement of the latch bolts 39 and 42. However, when the upper sash has been moved downward from closed or raised position, it can be returned toward closed or raised position without there being any necessity of operating the handle 46 to retract the latch bolts since the latch bolts will slide along the inclined lower faces of the teeth 48.

From the foregoing it will be obvious that my invention provides a window having vertically adjustable sashes which will be held in vertically adjusted positions without the use of sash rope, pulleys and weights, and that the window cannot be opened from the outer side unless the latching mechanism

with which it is provided is broken. A window of ordinary construction can be equipped with the invention at slight cost and without any extensive changes in the usual construction of such window.

Obviously the invention is susceptible of embodiment in forms other than that which is illustrated in the accompanying drawings and I therefore consider as my own all such modifications and adaptations thereof as fairly fall within the scope of the appended claims.

I claim:

1. A sash fastener comprising in combination a vertically slidable sash, said sash having a vertical channel in a side bar thereof and having a horizontal channel in a horizontal bar thereof opening at one end into the vertical channel, a vertical ratchet bar partially received in said vertical channel, said ratchet bar having a vertical series of teeth on its inner face, each of said teeth having a flat horizontal upper face and a sloping lower face, a latch bolt axially movable in said horizontal channel, a spring urging said latch bolt to position to engage with said teeth to prevent downward movement of the sash when the latch bolt is in contact with the upper face of any one of said teeth, and a handle disposed in countersunk relation to the inner face of said top bar of the upper sash and operable to move said latch bolt axially out of engagement with said teeth.

2. In a device of the character described, a sash having a recess in a horizontal member of the frame thereof, a plate secured in said recess in countersunk relation to the outer face of said sash frame member, said plate having a central opening, a rock shaft journalled in said central opening, a pair of oppositely extending rocker arms carried by the rock shaft, said rocker arms being inclined with respect to the vertical, a pair of oppositely extending axially movable latch bolts, one of said latch bolts having an offset inner end portion pivotally attached to one of said rocker arms and the other latch bolt being pivotally attached at its inner end to the other rocker arm, a tension spring connecting one of said rocker arms with said sash frame, and a handle secured to said rock shaft and disposed completely in said recess in said sash frame member.

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