April 18, 1933. R. T. AXE 1,904,602

WINDOW SASH HOLDER AND WINDOW CONSTRUCTION

Filed Feb. 26, 1930 2 Sheets-Sheet 1

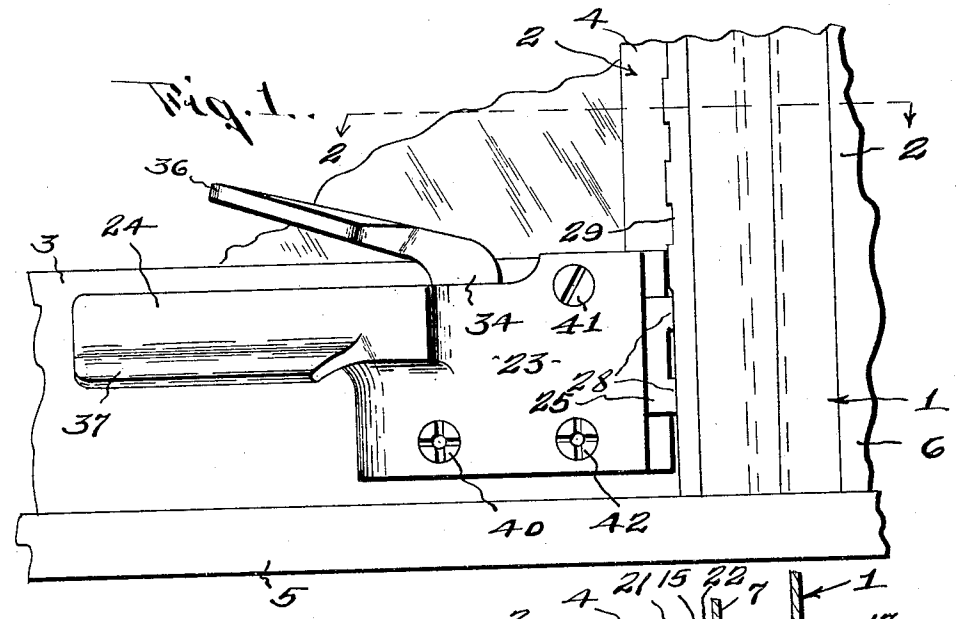


Fig. 1.

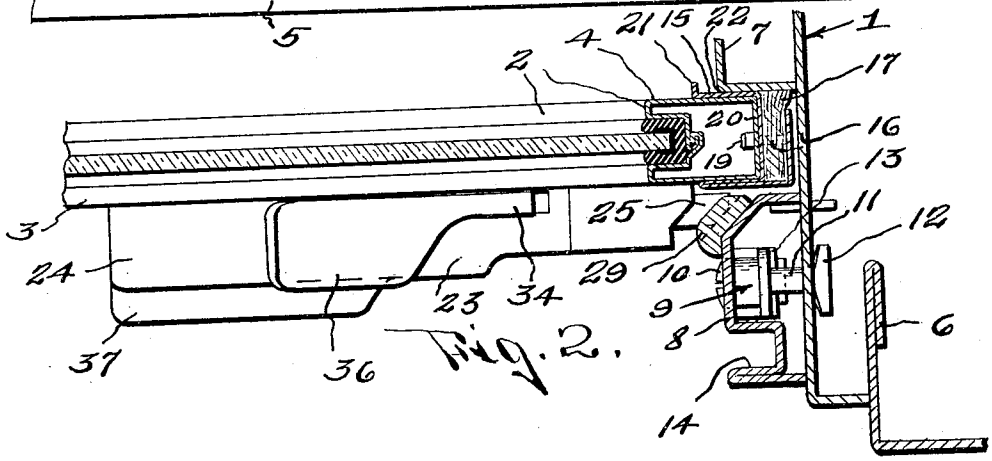


Fig. 2.

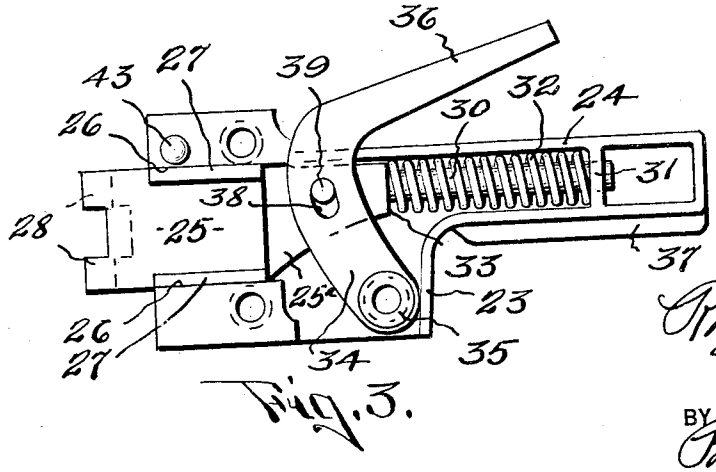


Fig. 3.

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WINDOW SASH HOLDER AND WINDOW CONSTRUCTION

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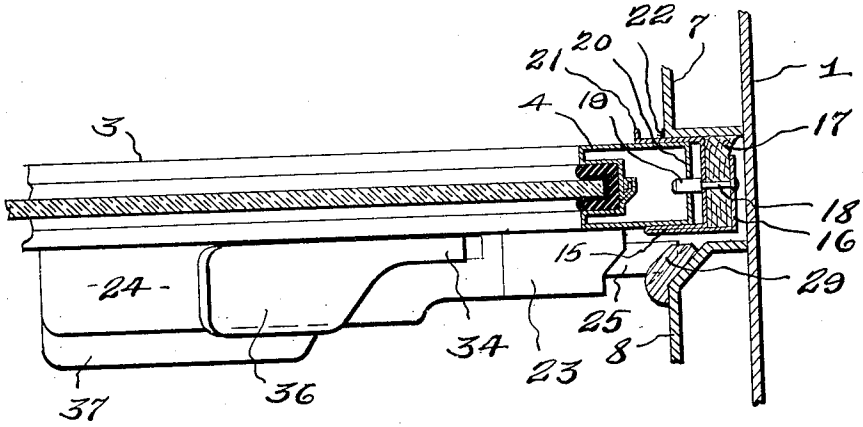


Fig. 4.

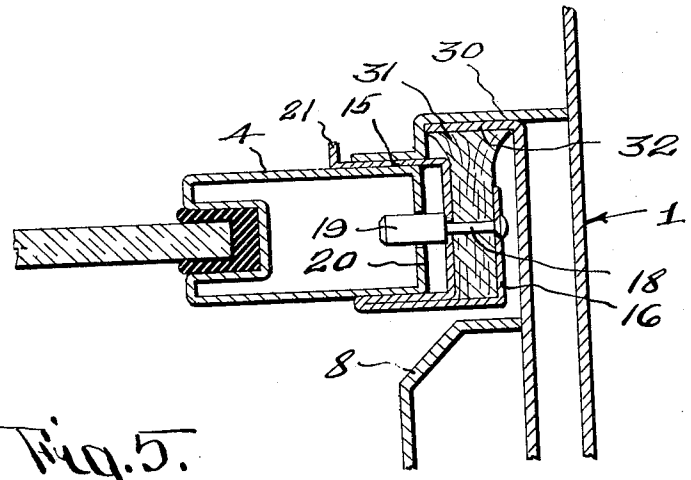


Fig. 5.

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Patented Apr. 18, 1933

1,904,602

UNITED STATES PATENT OFFICE

ROY T. AXE, OF SYRACUSE, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE SYRACUSE TRUST COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK, TRUSTEE

WINDOW SASH HOLDER AND WINDOW CONSTRUCTION

Application filed February 26, 1930. Serial No. 431,579.

This invention relates to window sash holders of the type used on railway cars, motor busses and the like, and has for its object a sash holder which is particularly simple and economical in construction and so formed as to be mounted on one of the sash members, usually the lower rail within the width of the rail and still be of sufficient size and strength to stand the use to which it is subjected. Other objects appear throughout the specification.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

Figure 1 is a fragmentary elevation of a window frame and sash to which this sash holder is applied.

Figure 2 is a sectional view on line 2—2, Figure 1.

Figure 3 is an inner face view of the sash holder.

Figure 4 is a fragmentary detail sectional view similar to Figure 2, showing the adjustability of the wear strip.

Figure 5 is a view similar to Figure 2 showing the window guide as formed with an offset portion.

1 designates, generally, the frame, and 2, the sash; 3, the lower rail of the sash and 4, one of the upright members or stiles. The frame may be of any suitable form, size and construction, and that here shown includes a frame member or base 5 mountable in the usual window opening of a car structure. 6 designates a portion of the frame around the window opening.

7 designates the outer stop suitably mounted on the frame member or base 5, and 8, the inner stop mounted on the frame member 5.

The outer stop 7 is here shown as formed up of sheet metal and is secured to the portion 6 in any suitable manner. The inner stop 8 is also formed up of sheet metal and is detachably secured to the base member 5 in any suitable manner, not forming part of this invention. It is here shown as secured in position by fastening members 9 which have a buttoning like action, each of these members consisting of a head 10, stem 11 and a cross bar or button 12. The head acts against a suitable spring as a leaf spring 13 which tends to press the entire member 9 outwardly. The cross bar or button 12 extends through a correspondingly shaped slot in the frame member 6 when alined therewith and when given a one-quarter turn interlocks with the base member 5. The head 10 is formed with a screw driver slot to facilitate the operation of the fastening member.

In applying the inner stop 8 to the sash, it is located with the buttons or cross bars 12 alined with their slots. Then the buttons are pushed one by one inwardly by means of a screw driver against the action of the springs 13 to carry the cross bars through their slots. The members 9 are then given a one-quarter turn to interlock the cross bars or buttons 12. These fastening members form no part of this invention.

The inner stop 8 is also formed with a suitable curtain guide 14. The frame members 1 constitute the posts or the post constructions of the window frame or structure. The spacings apart of the posts at opposite ends of a window opening vary in different window openings intended to be of the same size or to receive sashes of the same size, and hence, the sash guides formed by the inner and outer stops and the frame members or posts vary in their spacings. One of the features of this construction is adjustable members located on the sash to conform to such variations.

The stiles and the rails are preferably formed up of sheet metal as sheet brass, as sheet metal is comparatively light and thin. Each of the stiles 4 is formed with an adjustable wear and weather strip member 15 in the form of a channel which fits over the margin of the stile 4 and tensioned to snugly grip the margin of the stile 4. The weather strip member 15 is bent up out of sheet metal and is provided with a channel formed by an offset flange 16 for receiving a weather strip 17 which engages the window stop 7. This

channel shaped wear and weather strip member or holder is adjustable inwardly and outwardly to conform to variations in the spacing of the posts or the window guides. The weather strip 17 is held in position by fastening members 18, the inner ends 19 of which are slidably fitted in holes in the edge wall 20 of the stile 4. The outer flange or wall of the member 15 is formed with a lip 21 for deflecting air currents away from the passage 22 between the weather strip member and the outer stop.

In Figure 4, the weather strip member is shown as adjusted outwardly slightly from the position shown in Figure 2. The sash construction and the constructions by which the sash is widthwise adjustable, form no part of this invention, but form the subject matter of my pending application, Sr. No. 538,148, filed May 18, 1931.

The sash holder comprises a hollow elongated housing mountable upon one of the sash members usually the lower rail 3 and open at its rear side so that the rear side is closed by the rail 3, the housing having a lengthwise hollow extension forming a lift handle, a latch bolt guided in the housing and having a stem portion extending lengthwise of the extension of the housing, a spring surrounding the stem and acting on the latch to press it outwardly into operative position and an operating lever having a portion located in the housing and coacting with the latch bolt to operate it, and an angular portion extending outside of the housing in a general direction lengthwise of the extension of the housing and arranged in pinch handle relation to the extension and means for securing the housing to the rail, the parts within the housing being held in position by the wall of the rail on which the housing is mounted.

23 designates the housing; 24, the lengthwise extension thereof. The latch is here shown as a sliding bolt or head 25 movable between the upper and lower guide surfaces 26 in the housing, the bolt or head having bearing surfaces or shoes 27 movable along the guides; these shoes also engage the edges with the rail 3 when the housing is mounted on the rail so that the rail holds the head 25 from displacement. The head or bolt 25 normally projects beyond the end of the housing and has suitable latch means as teeth 28 for coacting with a rack 29 located on the inner stop 8. The latch bolt also includes a reduced intermediate portion 25^a in the rear of the head which is of less thickness than the head, and a rod or stem 30 extending rearwardly from the intermediate portion 25^a and lengthwise of the hollow extension 24 through a guide or abutment 31.

32 is a spring surrounding the stem and thrusting at one end against the abutment 31 and at its other end against a shoulder 33 at the base of the stem.

The arrangement of the latch is such that a long spring, can be used, capable of projecting the latch head various distances out of the housing to engage the rack regardless of variations within limits, in the spacing of the sash guides at opposite sides of the sash, that is regardless of the width, within limits, of the window frame or window opening.

34 is an operating lever mounted on a stud 35 in the housing and including a portion extending crosswise of the reduced intermediate portion 25^a and an angular portion 36 extending outside of the housing in a general direction lengthwise of the extension 24 and located so as to be engaged pinch handle fashion with the extension 24. The extension 24 is provided with a suitable hand engaging lip 37. The lever 34 is connected to the latch to operate the same through any suitable means as by a pin-and-slot connection, the lever 34 being provided with a slot 38 and the intermediate portion 29 of the latch with a pin 39 working in the slot. The hub of the lever 34 is mounted on the stud 35 and the end face thereof is flush with the end of the stud and both are substantially flush with the inner face of the housing 23 so that the end of the hub is against the outer face of the rail 3 and hence the lever held on the stud by the outer face of the rail 3. The housing 23 is secured to the rail in any suitable manner as by fastening members or screws, one of which, as 40 extending axially through the stud, and other of which as 41, 42 extend through the body of the housing 23 above and below the guide 26 for the head 25. Also, the housing 23 is provided with a suitable stud 43 for entering a complemental socket in the rail 3, this stud being primary for the purpose of facilitating the locating of the housing on the rail preliminary to the placing of the screws. The screws 41 and 42 are of special construction, but insofar as this invention is concerned, any suitable screws may be employed.

The teeth 28 of the bolt 25 are bevelled and coact with bevelled surfaces on the rack 29, the incline of the bevel being such that the bolts 25 at opposite sides of the sash wedge or cam the sash toward the outer stop and press the weather strip member 15 and the edge of the felt strip member 17 against the outer stop 7.

As seen in Figure 5, the outer stop is formed with an offset portion 30 and the weather strip 31 corresponding to the weather strip 17, in Figure 2, extends into the offset portion and engages the same or an interposed flange 32 of the base plate 5.

This sash mechanism is particularly advantageous in that it consists of but a few parts compactly arranged and is particularly strong and capable of withstanding the shocks and jars to which it is submitted in ordinary use at the same time it is so compact as to be

mounted upon a narrow rail. Owing to the fact that the housing is open at its inner side and the parts held in position by the wall of the rail, the sash lock can be made particularly narrow from front to rear and hence located in situations where such narrowness is required such as in railway cars and busses and the like.

Owing to the arrangement of the fastening members, the housing is supported most advantageously to withstand the strains applied to it. In applying the sash holder, the parts are assembled therein as shown in Figure 3, the sash holder applied to the rail 3 first by inserting the stud 43 in the corresponding opening in the rail 3 and then the screw 41 inserted, this alining the holes for the other screws 40, 42 so that they can be readily applied. When it is desired, to open or close the sash, the operator takes hold of the handle extension 23 and the portion 36 of the lever 34, pinch handle fashion withdrawing the bolt head 25 and either lifting the sash or permitting the sash to lower by gravity if it is open. The movement of the lever 36 withdraws the bolt head 25 rearwardly in a straight line against the returning spring 32.

Owing to the location of the spring in the extension of the housing, a particularly long spring can be used to be tensioned sufficiently to work the latch in all situations. It will be understood that the width of the sash guides or window openings vary slightly, within limits. With wooden sashes, the car builder applies the sash holders after he has fitted the sash to its guide and therefore can locate the sash holders so that they will coact most advantageously with the rack. However, it is impractical to adjustably mount sash holders on brass or metal sashes and therefore, the car builder cannot adjust the sash holders so that their springs will cause the latches or bolts to coact most advantageously with their racks.

By this invention, a spring can be used of sufficient size to compensate for all the variations within limits of the spacing of the posts or window guides carried thereby.

What I claim is:

1. The combination with a window sash and guide therefor, of a sash holder comprising a housing mounted on the rail of the sash and having a hollow lengthwise extension constituting a rigid lift handle, a latch member movable in the housing and having a lengthwise stem extending into the hollow lift portion, an operating lever pivoted in the housing and extending to the outside thereof and coacting with the latch member to operate the same and a spring surrounding said stem and thrusting against the latch member, the portion of the latch operating lever located outside of the housing, extending lengthwise of the lift handle and arranged in pinch handle relation thereto.

2. The combination with a window sash and guide therefor, of a sash lock comprising a housing mountable on the rail of the sash and extending lengthwise thereof, the housing being formed hollow and open at its side toward the rail whereby the rail forms a closure for the housing, when the housing is mounted on the rail, a latch guided in the housing and an operating lever mounted in the housing and connected to the latch and extending to the outside of the housing, and means for securing the housing to the sash including a fastening member extending coaxially of the lever.

3. The combination with a window sash and guide therefor, of a sash lock comprising a housing mountable on the rail of the sash and extending lengthwise thereof, the housing being formed hollow and open at its side toward the rail and formed with a guide, the housing and the guide being open at their side toward the rail whereby the rail forms a closure for the housing when the housing is mounted on the rail, a latch movable in the guide and an operating lever mounted in the housing and coacting with the latch, the lever extending to the outside of the housing, and means for securing the housing to the sash including a fastening member extending coaxially of the lever, and fastening members extending through the housing on opposite sides of the said guide.

4. The combination of a window sash element, and a guide element for the sash element, one of said elements having members adjustable in a direction widthwise of the sash, the sash guide element being provided with means for coacting with a sash holder; of a sash holder mounted on the sash element and comprising a latch for coacting with said means on the guide element, said latch bolt being movable edgewise relatively to the sash, and the sash holder including mechanism by which the latch bolt has a follow up movement to compensate for the adjustment of said widthwise adjustable members, all whereby the latch bolt coacts with the means on the window guide in all widthwise adjustments of said widthwise adjustable members.

In testimony whereof, I have hereunto signed my name, at Syracuse, in the county of Onondaga, and State of New York, this 21st day of February, 1930.

ROY T. AXE.