March 15, 1949. H. EDWARDS ET AL 2,464,383

SAFETY WINDOW LATCH

Filed Aug. 8, 1947 2 Sheets-Sheet 1

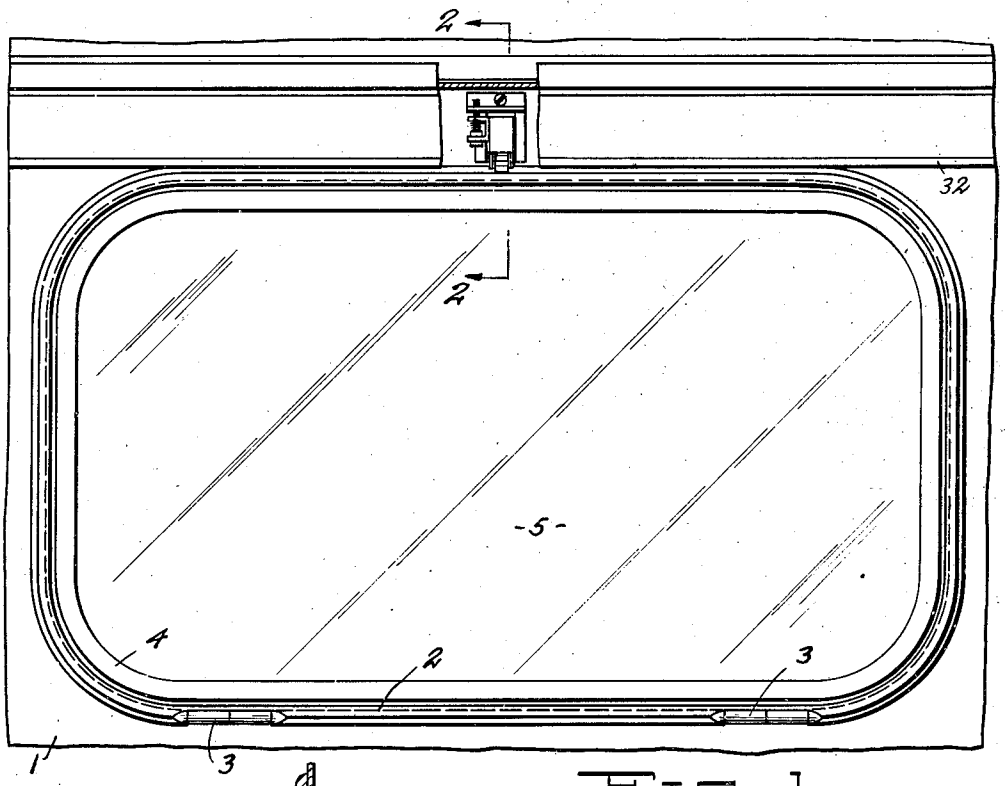


FIG. 1

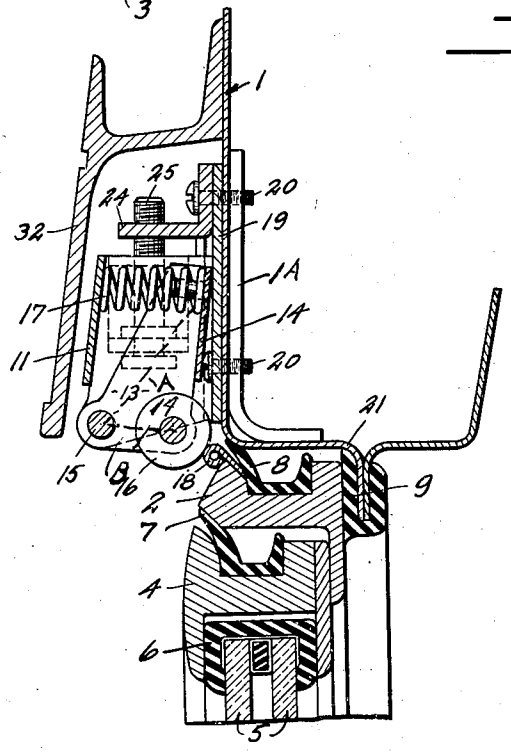


FIG. 2

INVENTOR.
Harold Edwards
BY George H. Goodemote
Bodell & Thompson
Attys

March 15, 1949. H. EDWARDS ET AL 2,464,383

SAFETY WINDOW LATCH

Filed Aug. 8, 1947. 2 Sheets-Sheet. 2

FIG. 3

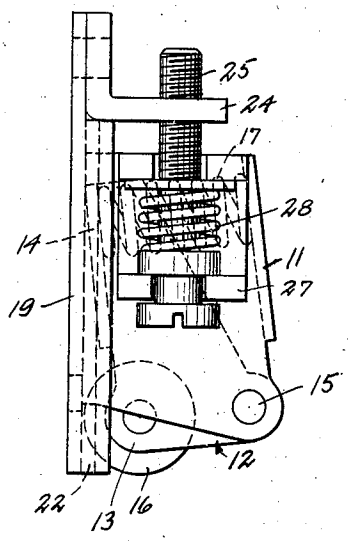


FIG. 4

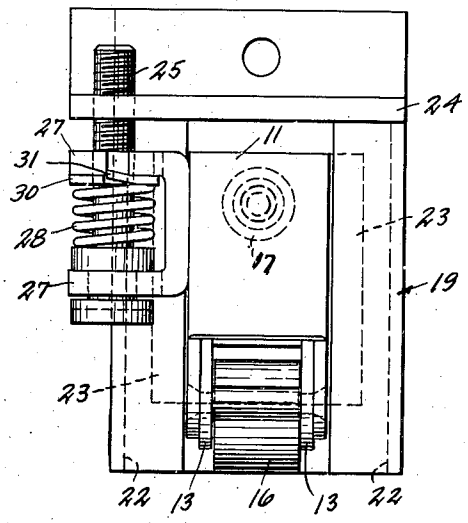
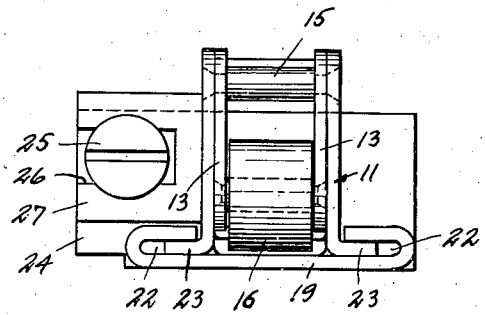


FIG. 5



INVENTOR.
Harold Edwards
George H Goodeniote
BY
Bodell Thompson
Attys

Patented Mar. 15, 1949

2,464,383

UNITED STATES PATENT OFFICE

2,464,383

SAFETY WINDOW LATCH

Harold Edwards and George H. Goodemote, Syracuse, N. Y., assignors to The O. M. Edwards Company, Inc., Syracuse, N. Y., a corporation of New York

Application August 8, 1947, Serial No. 767,443

3 Claims. (Cl. 292—79)

1

This invention relates to latches, or locking devices, for certain types of closures which are opened only in cases of emergency by an intentional abnormal opening force sufficient to overcome the latching, or locking force of the device; as for instance for normally permanently closed windows of air conditioned busses, or railway cars, and the like, which are opened only in cases of accidents, or emergencies, where the passengers must be removed, or afforded exit, through open windows.

The invention has for its object a latch or impositive lock device which is relatively small and compact in construction with ample resistance to unlatching force within a compact space to release only when a comparatively great intentional opening force is applied to the window.

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 bus, or car body, with a hinged window in a window opening, the car body being broken away showing the latch in front elevation.

Figure 2 is an enlarged sectional view on line 2—2, Figure 1.

Figures 3, 4 and 5, are respectively, an enlarged side elevation of the latch or lock mechanism looking in the opposite direction from that seen in Figure 2; a front elevation, and an inverted plan view.

This latch device includes a base element for attachment to one of two parts to be normally latched, or impositively locked together, one of which is a closure, as a window, an angle lever pivoted to the base element and having a member, as a roller, at the end of one arm to receive and resist an opening force applied to the window, and loaded spring means between the other arm of the angle and the base element to resist unlatching pivotal movement of the lever; this arrangement resulting in a relatively small, compact structure with powerful resistance, all located within a small space.

The latch device also includes a base plate attachable to one of the two parts to be latched together, the base plate and the base element being formed with slidably interfitting ways, and a fastening screw attached to the base element threading into the attaching base plate and extending parallel to the ways for holding the base

2

element in any adjusted position along the ways.

The latch or impositive lock device is here shown as mounted on the frame of a bus body along the upper side of the opening for a window frame which is hinged at its lower edge to swing open when sufficient pressure is applied to the window frame to overcome the holding force of the latch device.

The numeral 1 designates the vehicle body structure around the window opening, and 2 the window frame which is hinged at 3 along its lower rail in the window opening. A sash 4 is mounted in the window frame. This is shown as having double glass panels 5 sealed at 6 in the sash frame. The sash frame is sealed at 7 in the window frame 2, and the window frame 2 is sealed at 8 and 9 in the window opening, all by any suitable sealing means.

The numeral 11 designates the base element which is boxlike or U-shaped, or channel shaped, in general form and attached to the framing around the window opening by means of a base plate, as will be presently described.

12 designates an angle lever, this being double or U-shaped, or channel shape in form and nested in the base element with the bottoms of the channel formations opposed to and spaced from each other, the lever having angularly arranged arms 13 and 14 pivoted or fulcrumed at its angle at 15 to the base 11. One of the arms 13 of the lever is indicated by the line A, and the other 14 by the line B. The arm 14 extends upwardly into the boxlike element 11, and movement thereof when the force is applied to the roller 16 is resisted by a spring 17 interposed between the lever arm 14 and the opposing wall of the boxlike base element 11. Specifically, the spring is arranged between the bottoms of the channel formations of the base element 11 and the lever 12. The roller 16 is located between the sides of the U or channel formation of the lever and arranged in the path of a wear piece 18, Figure 2, on the upper rail of the window frame 2, and to press against said wear piece to normally hold the window frame from being swung outwardly about the hinges 3. The arrangement of the wear piece to the roller being such that force applied to the sash to open it, as to the left in Figure 2, tends to move the angle lever upwardly about its fulcrum or pivot 15 with a camming action, and thus further compress the loaded spring 17. The window frame can be again closed by the reverse of this operation. In other words, the opening force is applied to the roller 16 in the angular resultant of the outward force applied to the window frame and

the upward camming of the roller. This arrangement results in a small, compact, assembly of the base element, the lever and the spring by which an abnormal force is required to move the lever against the action of a relatively small spring.

19 is an attaching base plate which is attached to the framing 1 around the window opening, as by screws 20, sheeting 21 of car body structure extending between the base plate 19 and the framing 1A forming part of the body structure.

As seen in Figures 3, 4 and 5, the attaching plate 19 and the base element 11 are provided with slidably interfitting ways extending upwardly, or in such direction as to permit adjustment to locate the roller 16 relatively to the wear piece 18. As here shown, the base plate is formed with side flanges folded back over the body thereof providing grooves 22, and the sides of the boxlike base element are formed with out-turned flanges 23 at the outer edges of the side walls of the U formation of the base element 11 and extending into the grooves.

The boxlike base element is secured in the proper position or adjustment by means of a fastening screw located on one side of the boxlike base element 11 and carried thereby, this threading into the attaching base plate 19, or into an angularly extending shelf 24 projecting from the same.

25 designates the screw, this extending through open-ended slots 26 in laterally extending arms 27 of a bracket secured, as by welding, to one side of the boxlike or U-shaped structure of the base element 11. The head of the screw is grooved to receive one of the arms 27. A suitable spring 28 encircles the screw between the head thereof and the upper arm 27 of the bracket to avoid looseness and rattling. In order to prevent dislodgment of the screw laterally out of the slots of the bracket arms 27, a suitable washer 30, which interlocks at 31 in a notch in the upper arm 27 of the bracket, is located between the end of the spring 28 and the upper arm 27, through which washer the screw extends. The upper end of the spring 28 thrusts against this washer. Obviously, by means of the screw, the proper height of the base element 11 can be determined for the proper relative position of the roller 16 to the wear plate 18.

This locking device is covered by a channel shaped trim strip or hood 32 attached to the car body, or the sheeting 21 thereof.

When it is desired to open the window frame 2 in cases of emergency, a sufficient pushing force applied to the inner side of the sash, or the window frame, causes the lever to be moved upwardly about its pivot 15 against the action of the spring 17 so that the window frame will swing open about its hinges 3.

Owing to the arrangement of the lever relative to the part 18 through which the force is applied to the lever, an intentional excessive effort is required to shift the lever and release the window frame 2.

What we claim is:

1. A latch unit comprising a base element, an angle lever fulcrumed at its angle and having arms arranged at an angle to each other, an unlatching force receiving member mounted at the end of one of said arms, a spring interposed between the other arm of the lever and the base element to resist pivotal movement of the lever, and an attaching base plate, the base element and the attaching base plate having interfitting ways, and a fastening member for holding the base element in different adjusted positions along the attaching base, the fastening member extending parallel to the ways.

2. A latch unit including a boxlike base element, an angle lever pivoted at its angle in the base element and having arms arranged at an angle to each other, an unlatching force receiving member at the angle of said arms, a spring in the base element and interposed between the other arm of the lever and the base element and extending in a general direction parallel to the first arm of the lever, and an attaching base plate, the base element and the attaching base plate having interfitting ways, and a fastening screw located at one side of the boxlike base element and carried thereby extending parallel to the ways and threading into the attaching base plate.

3. A latch unit including a boxlike base element U-shaped in general form, an angle lever U-shaped in general form nested in the base element and reversely arranged therein with the bottoms of the U formations opposed to and spaced from each other, the angle lever being fulcrumed at the angle of the lever formation to the base element, an unlatching force receiving member at one end of one of the arms of the lever between the sides of the U formation, a spring between the other arm of the U formation of the lever and the base element and between the sides of the U formation of the lever and extending in a general direction parallel to the arm of the lever carrying said member, and an attaching base plate, the base element having laterally extending flanges on the sides of its U formation, and the attaching plate being formed with grooves in which the flanges slidably interlock, and a fastening screw for securing the base element to the attaching plate in different adjusted positions along the base plate, the fastening screw extending parallel to the flanges and grooves.

HAROLD EDWARDS.
GEORGE H. GOODEMOTE.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,180,814	Ziganek	Apr. 25, 1916
1,498,668	Meadows	June 24, 1924
2,389,056	Jamison	Nov. 13, 1945