Feb. 10, 1931. K. D. LANGLEY 1,792,173

LATCH DEVICE

Filed Dec. 21, 1928

Fig. 1,

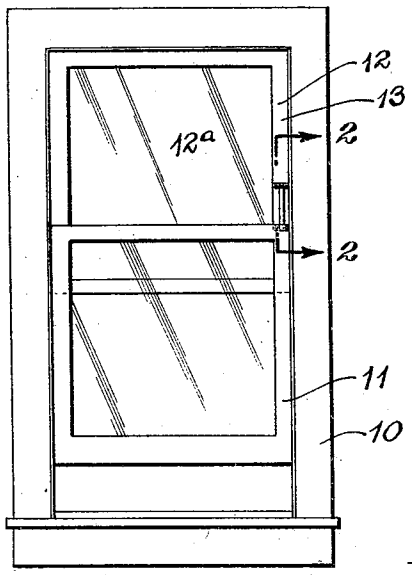


Fig. 2,

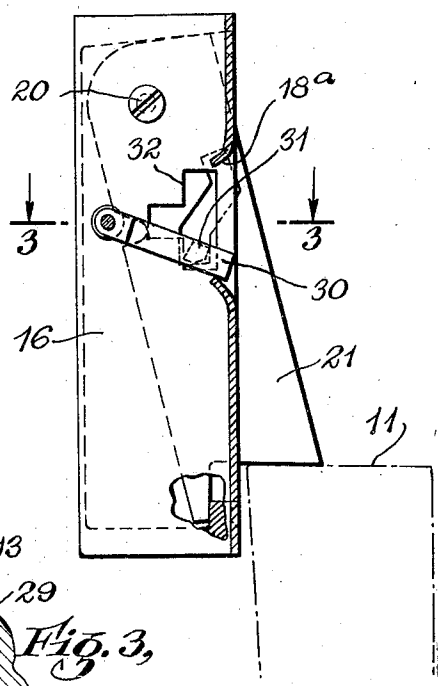


Fig. 3,

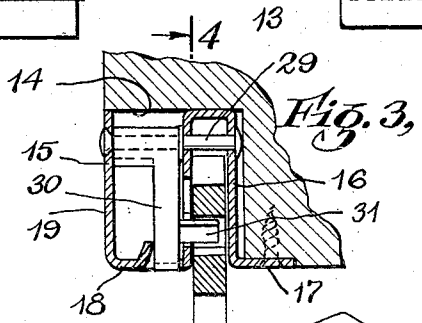


Fig. 4,

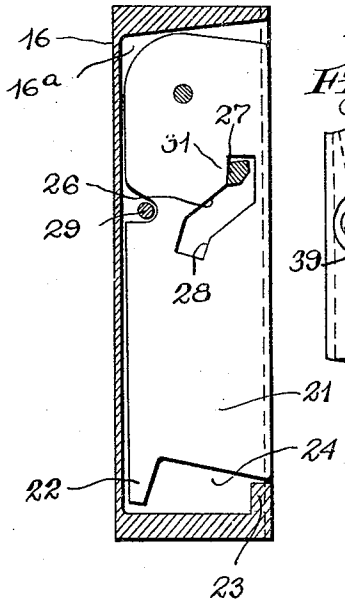


Fig. 6,

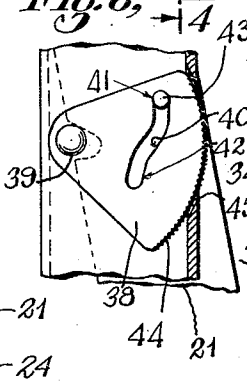
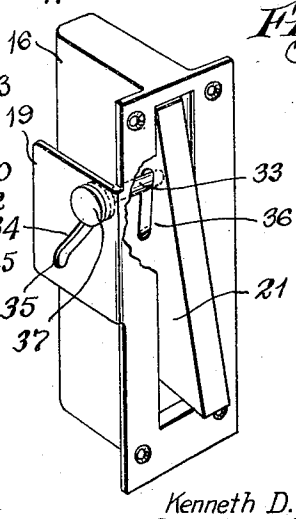


Fig. 5,



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Patented Feb. 10, 1931 1,792,173

UNITED STATES PATENT OFFICE

KENNETH D. LANGLEY, OF LARCHMONT, NEW YORK

LATCH DEVICE

Application filed December 21, 1928. Serial No. 327,510.

This invention relates to latch devices and particularly to devices of this class adapted for use in connection with the sashes of windows to lock and retain said sashes in a partially open position; and the object of the invention is to provide a device of the class specified which is supported in connection with one of the side rails of the upper sash at a predetermined point above the lower rail of said sash and in such position that the latch element will cooperate with the upper surface of the lower sash to limit the upward movement of the lower sash or the downward movement of the upper sash; a further object being to provide manual means for moving the latch element of the device into operative and inoperative positions, means being provided for retaining the latch element in its respective positions; and with these and other objects in view, the invention consists in a device of the class and for the purpose specified, which is simple in construction, efficient in use, and which is constructed as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:—

Fig. 1 is an inside view of a window frame showing one of my devices mounted in connection with the upper sash.

Fig. 2 is a section on the line 2—2 of Fig. 1 on an enlarged scale showing the device detached.

Fig. 3 is a section on the line 3—3 of Fig. 2 and indicating part of the upper sash.

Fig. 4 is a sectional view similar to Fig. 2 showing the parts in a different position, the section being on the line 4—4 of Fig. 3.

Fig. 5 is a perspective view of a modified form of construction which I employ; and,

Fig. 6 is a sectional view similar to Fig. 2 showing only a part of the construction and showing another modification.

In Figs. 1 to 4 inclusive, I have shown one form of my latch device, and in Fig. 1, I have indicated an inside view of a window frame to illustrate one use of my invention. In said figure, 10 represents the framework proper, 11 the lower sash, and 12 the upper sash. In practice, one side rail 13 of the upper sash is mortised out as seen at 14, note Fig. 3 of the drawing, to receive one of my improved latch devices 15, the casing of which may be of any desired construction and which consists of a U-shaped or channel-shaped body 16 having laterally extending flange portions 17 and 18 at the open end of the channel which constitutes front face plates of the casing arranged in alinement with the inner face of the rail 13.

The flange 18 has approximately centrally thereof an angularly extending bearing plate 19 which is arranged in alinement with the adjacent side face of the rail 13 inwardly of the glass panel 12*a* of the sash 12. Pivotally supported on a pin, screw or rod 20 is a latch bar or element 21, the pivot being arranged adjacent the upper end thereof and being supported in the channel portion 16 of the casing, the element 21 being adapted to normally rest within the chamber 16*a* of the channel as seen in Fig. 4 of the drawing, and is provided at its lower end with a projecting lug 22 adapted to operate in connection with a raised wall member 23 within the chamber 16*a* to limit the outward movement of the latch.

The lower wall 24 of the latch proper is beveled slightly to assume, when in its extended position, a horizontal plane, note Fig. 2, so as to engage the upper surface or rail of the lower sash 11 which is indicated in dot and dash lines in Fig. 2. The above described structure is common in the several forms of construction shown, and like references will indicate like parts in all of the fingers. Figs. 5 and 6 differ from the structure shown in Figs. 1 to 4 inclusive in the means or method of operating the latch element 21.

In Figs. 1 to 4 inclusive, the latch element 21 is provided with an angularly disposed and vertically inclined aperture 26, the ends of which terminate in angular portions 27 and 28. Mounted upon a rod or pivot pin 29 supported in the channel portion 16 of the casing and the bearing plate 19 is an operating arm 30 arranged within the chamber

between the plate 19 and the channel 16, the free end of the rod being exposed through a recessed and apertured portion 18*a* in the flange 18 but not projecting beyond the inner end of the flange 18 but sufficiently accessible to permit its upward and downward movement in the operation of the latch element 21.

The arm 30 carries adjacent its outer end and at one side thereof, an angular pin 31 which passes through a T-shaped aperture 32 in one side wall of the channel 16 and operates in the aperture 26 and the angular extensions 27 and 28 of the element 21. It will thus be seen that when the element 21 is in its normal or closed position as seen in Fig. 4, the pin 31 is within the extension 27, the arm 30 being in raised position. When in this position, the element 21 is locked against movement and especially against outward movement which would interfere with the operation of the window sashes. In lowering the arm 30 by hand, the pin 31 moves through the aperture 26 as well as the aperture 32 and is adapted to enter the angular extension 28.

In this operation, the inclined walls of the aperture 26 operate to move the lower end of the element 21 outwardly into the position shown in Fig. 2, in which position the element becomes locked against inward movement and cannot be released without raising the arm 30. The central offset portion of the aperture 31 is provided merely to facilitate the assemblage of the arm 30, and otherwise has no utility.

In the construction shown in Fig. 5 of the drawing, I have substituted for the arm 30, aperture 26 and the other elements of the operating mechanism, an operating mechanism involving a slidable pin or rod 33 supported to move vertically and angularly in vertically inclined apertures 34, both in the plate 19 and one side of the channel 16. The apertures 34 have angular offset portions 35 at their upper and lower ends which serve to lock the pin 33 against lateral movement, and thus lock the element 21 in its operative and inoperative positions.

In this construction, I have substituted for the aperture 26 an elongated and slightly inclined aperture 36 through which the pin 33 passes and in which the same operates, whereby in the upward and downward movement of the pin 33, the lower end of the element 21 is moved outwardly and inwardly with respect to the casing. The pin 33 may be operated by a button head 37 arranged on the outer face of the plate 19.

In Fig. 6 of the drawing, I have shown another modified form of operating means in the form of a cam member 38 rotatably supported on a pin or shaft 39 arranged in the plate 19 and channel 16. The cam 38 is provided with an aperture 40 having offset end portions 41 and 42 in which a pin 43 carried by the element 21 operates. With this construction, the face of the cam is rounded and preferably roughened as seen at 44 and is exposed through an aperture 45 in the flange plate 18 and is operated in the manner of a dial, the downward movement of the cam serving to advance or project the element 21, and the upward movement thereof serving to withdraw said element or move the same into inoperative position, the offset portions 41 and 42 serving to lock the element 21 in its two extreme positions.

It will be understood that the positioning of my improved latch device upon the upper sash of the window will determine the extent of opening required of either the upper and lower sash or both of said sashes, it being understood that the upper sash may be lowered and the lower sash opened, both to a slight degree, or either sash opened to the desired degree. In all instances, this opening will be sufficient for ventilating purposes, but not sufficient to permit a person to pass through the opening.

It will also be understood that while I have shown and described my improved latch device as mounted in connection with a window sash, that my invention is not necessarily limited to this use, as the latch device may be employed in connection with devices or apparatus of any kind or class wherein manually operated latches are required. It will also be understood that I am not necessarily limited to the specific form and construction of the latch element or the manner of its support as herein disclosed, and various other changes in and modifications of the construction herein set out may be made within the scope of the appended claims without departing from the spirit of my invention or sacrificing its advantages.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A latch device comprising a substantially U-shaped casing, the side walls of which terminate in laterally extending flanges, an elongated latch element one end of which is pivotally supported within said U-shaped casing and adjacent one end thereof whereby the other end of said element may be projected beyond the flanged end of the casing, an operating member movably supported in connection with the casing and cooperating with said element to move the same inwardly and outwardly with respect thereto, said member being exposed and operatable through one of said flanges, and means involving an angularly disposed aperture having relatively straight end portions for retaining said element in its open and closed positions.

2. A latch device of the class described comprising an elongated casing, a relative-

ly long latch element mounted within said casing, the upper end of said element being pivoted to the casing and the lower end thereof being adapted to project outwardly through the lower end of the casing, said element having an aperture adjacent the upper end thereof and disposed angularly with respect to the longitudinal plane of the element, the end portions of said aperture being offset to arrange said ends parallel to the longitudinal plane of the casing when said element is in open and closed positions, and a manually operated member mounted in said casing and having a part extending into and operating in the aperture of said element and adapted when arranged in the opposite end portions thereof to support and retain said element in open and closed positions.

3. A latch device of the class described comprising an elongated casing, a relatively long latch element mounted within said casing, the upper end of said element being pivoted to the casing and the lower end thereof being adapted to project outwardly through the lower end of the casing, said element having an aperture adjacent the upper end thereof and disposed angularly with respect to the longitudinal plane of the element, the end portions of said aperture being offset to arrange said ends parallel to the longitudinal plane of the casing when said element is in open and closed positions, a manually operated member mounted in said casing and having a part extending into and operating in the aperture of said element and adapted when arranged in the opposite end portions thereof to support and retain said element in open and closed positions, and means on said element and cooperating with the casing to limit the outward movement of said element with respect to the casing.

4. A latch device of the class described comprising an elongated casing, a relatively long latch element mounted within said casing, the upper end of said element being pivoted to the casing and the lower end thereof being adapted to project outwardly through the lower end of the casing, said element having an aperture adjacent the upper end thereof and disposed angularly with respect to the longitudinal plane of the element, the end portions of said aperture being offset to arrange said ends parallel to the longitudinal plane of the casing when said element is in open and closed positions, a manually operated member mounted in said casing and having a part extending into and operating in the aperture of said element and adapted when arranged in the opposite end portions thereof to support and retain said element in open and closed positions, and said manually operated member comprising a lever exposed through the front wall of the casing and normally lying within the boundaries thereof.

5. A latch device comprising an elongated casing having a front plate, an elongated latch element, one end of which is pivotally supported in one end of said casing and the other end of said element normally lying within the front plate of the casing and being adapted to project beyond said front plate when said element is in operative position, an operating member movably supported in connection with the casing and cooperating with said element to move the same inwardly and outwardly with respect thereto, said member being exposed and operatable through the front plate of the casing, and means involving an angularly disposed aperture having relatively straight end portions for retaining said element in its open and closed positions.

In testimony that I claim the foregoing as my invention I have signed my name this 19th day of December, 1928.

KENNETH D. LANGLEY.