Aug. 4, 1925. 1,548,567

E. S. WILLIAMS

WINDOW LIFT AND LOCK

Filed Dec. 3, 1924

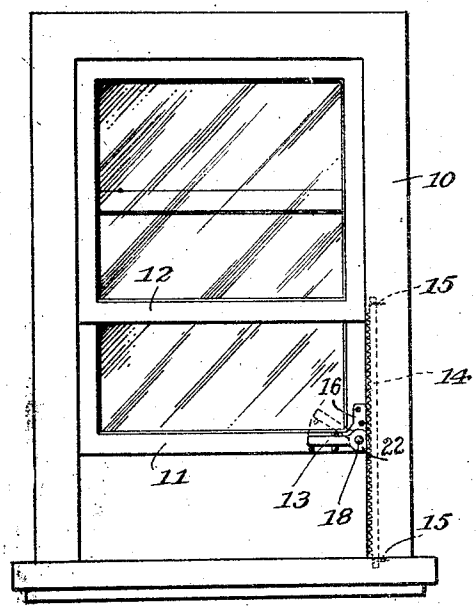


Fig. 1

Fig. 2

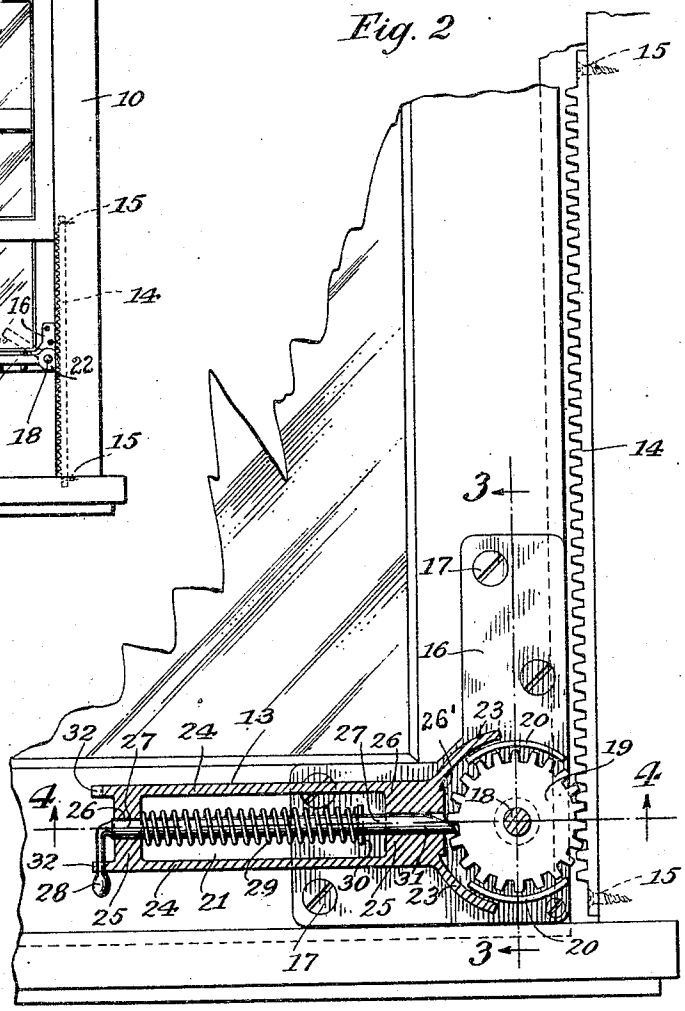


Fig. 3

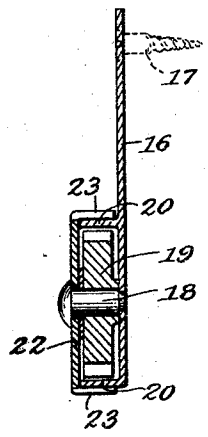
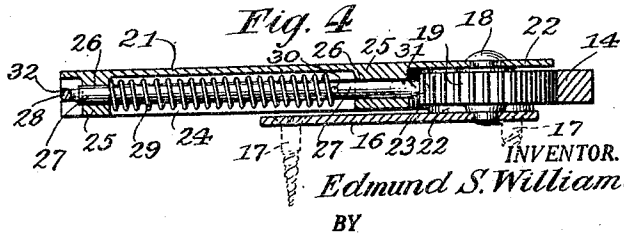


Fig. 4



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UNITED STATES PATENT OFFICE.

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WINDOW LIFT AND LOCK.

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To all whom it may concern:

Be it known that EDMUND S. WILLIAMS, citizen of the United States, and resident of Long Island City, in the county of Queens and State of New York, has invented certain new and useful Improvements in Window Lifts and Locks, of which the following is a specification.

This invention relates to a sash operator and holder and an object of the invention is to provide a novel and simple device for raising or lowering a sash and for holding and locking said sash in such open or closed position.

A further object is to provide a device as stated which will be adapted to serve as a sash operating mechanism to apply leverage upon a sash to readily raise or lower the same, should it have a tendency to stick in its frame, the device when utilized as operating mechanism being adapted to force a sash step by step to open or closed position and to hold the sash in any adjusted position. To the accomplishment of this last mentioned object, I provide an operating lever having a reversible pawl adapted to rotate a toothed wheel in either direction at will and to hold said toothed wheel in each of its rotated positions against the movement of the sash tending to rotate said toothed wheel.

With the above and other objects in view, the invention comprises the construction, arrangement and combination of parts as now to be fully described and as hereinafter to be specifically claimed, it being understood that the disclosure herein is merely illustrative, slight changes in details of construction and arrangement of parts being permissible so long as within the scope of the appended claims.

In the accompanying drawing forming a part of this specification,

Fig. 1 is an elevational view showing a sash-frame and a sash in which the features of the invention are incorporated;

Fig. 2 is a vertical sectional view, on an enlarged scale, of the device and its rack;

Fig. 3 is a sectional view taken on line 3—3 in Fig. 2, looking in the direction of the arrows; and

Fig. 4 is a sectional view taken on line 4—4 in Fig. 2, looking in the direction of the arrows.

With respect to the drawing, 10 represents a window-frame and 11 and 12 represent a lower and upper sash in said frame. The improved sash holder, denoted generally at 13, is shown applied at the right hand side of the lower sash 11, although a like holder could be applied at the left hand side, and similar holders could be applied to the upper sash 12.

Of the sash holder, 14 is a rack secured to the window casing in any convenient manner, as at 15, and 16 is a bracket secured to the sash 11 as at 17, the bracket having a stud 18 with toothed wheel 19 meshing with the rack 14. Numeral 20 represents arc shaped fins, integral with the bracket 16 as disclosed, and serving as guards for the toothed wheel.

Numeral 21 denotes an operating lever pivoted upon the stud 16 and having a head 22 with arc shaped flange 23 adapted to serve with the arc shaped fins 20 as a housing for the toothed wheel, the flange 23 being adapted to ride over the fins 20 when the lever is rotated, as will be understood.

In the handle portion of the lever and between longitudinal flanges 24 upon the side edges of the handle is a channel in which a pawl 27 is slidably mounted. In the channel of the handle and between said flanges 24 are provided bridge portions 25 having aligned holes 26 to receive the pawl 27 adapted to have rotary and longitudinal sliding movement in the bridge. At one end of the pawl is a finger piece 28 just beyond the handle of the lever and the other end of the pawl is adapted to engage the toothed wheel 19, a coil spring 29 is mounted upon the pawl and bears at one end against a pin 30 in the pawl and at the other end against the bridge 25 adjacent the handle serving to normally hold the pawl in engagement with teeth of the toothed wheel.

It will be noted that the end of the pawl, denoted 31, in engagement with the toothed wheel is constructed to allow turning of the toothed wheel in one direction (counter-clockwise as disclosed in Fig. 2), but to lock against a tooth of said toothed wheel when attempt is made to turn said wheel in opposite direction (clockwise in said Fig. 2). In the end of the handle spaced from the toothed wheel and rack, are oppositely disposed depressions 32 in one of which the finger piece 28 is adapted to lie. As shown in said Fig. 2, the handle is in the lower depression 32, locking the pawl against rota-

tion. Clearly, by drawing the handle toward the left, the pawl can be rotated a half-revolution and the handle allowed to enter the upper depression 32. Now the end 31 of the pawl will engage the toothed wheel to allow its free turning in clockwise direction and to lock it against counter-clockwise rotation.

The manner in which the sash holder is manipulated is as follows: When it is desired to open the sash as in Fig. 2, the handle 28 is turned upwardly as fully set forth. Then the sash can be lifted, the beveled face of the pawl riding over the teeth of the toothed wheel against the action of the coil spring 29. Clearly, the sash will remain in any open position to which adjusted, the straight edge of the pawl engaging a tooth of the toothed wheel to sustain the weight of the sash. To move the sash, then, toward closed position, the pawl is reversed, (returned to its position of Fig. 2), and the sash can be lowered as will be understood. When the sash is lowered to closed position as in Fig. 2, it is locked, any tendency to open it being resisted by the engagement of the straight edge of the pawl with a tooth of the toothed wheel. By withdrawing the pawl from the toothed wheel and holding it withdrawn, the sash can be freely manipulated in either direction. When it is desired to use the sash holder as operating mechanism for the sash, the pawl is set to rotate the toothed wheel in desired direction. By causing the operating lever to pivot upon the stud, the wheel is rotated one or more notches, the movement of the lever being limited by the engagement of the shoulder 26′ with the ends of the fins 20. The return of the lever to its original position causes the rounded face of the pawl to ride over a tooth so that the straight edge can engage back of the next tooth. Evidently, the sash can thus be forced step by step toward open or closed position, the operating lever with pawl providing considerable leverage upon the toothed wheel to rotate it.

Having thus fully described the invention, what I desire to claim as new is:

1. A sash holder comprising a rack, a bracket, a stud upon said bracket, a toothed wheel upon the stud and engaging the rack, a lever pivoted upon the stud, a pawl supported to have longitudinal movement in the lever and adapted to engage the teeth of the toothed wheel, the pawl being constructed to allow the toothed wheel to turn in one direction and to be locked against turning movement in opposite direction, and means for reversing the position of the pawl whereby the toothed wheel can be held against turning and can be rotatable in either direction, as preferred.

2. A sash holder and operating device comprising a rack, a stud and means supporting the same, a toothed wheel upon the stud and engaging the rack, a lever pivoted upon the stud, a pawl longitudinally movable in the lever and adapted to engage the toothed wheel, means for normally holding the pawl in engagement with the toothed wheel, the pawl being adapted to allow the toothed wheel to turn in one direction but to be locked against turning movement in opposite direction, and means for reversing the position of the pawl whereby the toothed wheel can be held against turning movement in either direction with respect to the lever, as preferred.

Signed at Long Island City, in the county of Queens and State of New York, this 28th day of November, A. D. 1924.

EDMUND S. WILLIAMS.