Nov. 4, 1924. 1,513,835

T. P. LOVELL

SASH FASTENER

Filed Dec. 18, 1922

FIG. 1

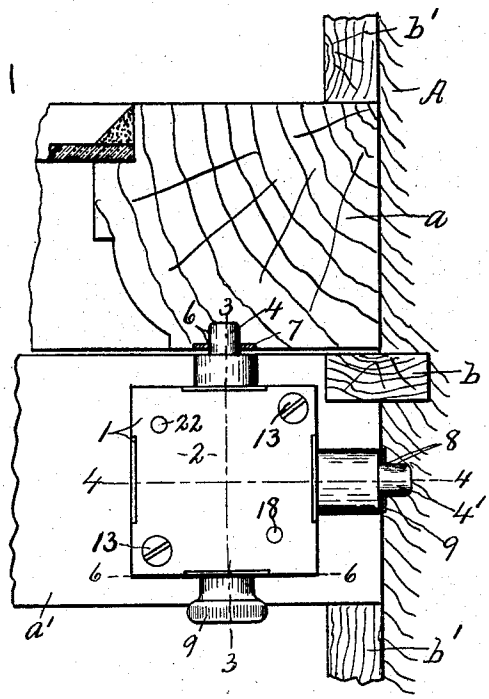


FIG. 2

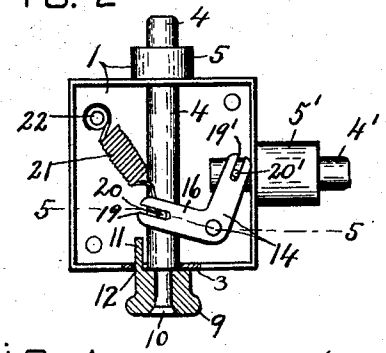


FIG. 3

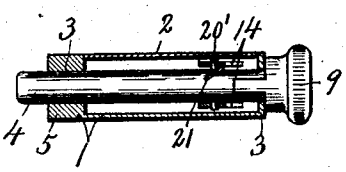


FIG. 4

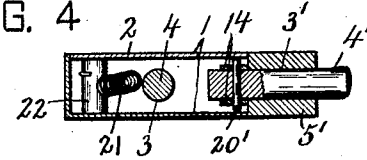


FIG. 5

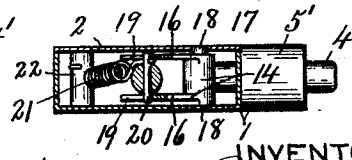
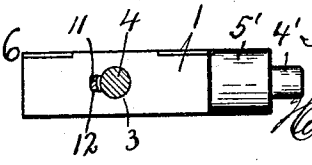


FIG. 6



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UNITED STATES PATENT OFFICE.

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SASH FASTENER.

Application filed December 18, 1922. Serial No. 607,680.

To all whom it may concern:

Be it known that I, THEODORE P. LOVELL, a citizen of the United States of America, residing at Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Sash Fasteners, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to a sash lock involving the use of a suitable case mounted upon the upper edge of the lower sash near one side thereof and provided with a pair of locking bolts movable longitudinally at right angles to each other for interlocking engagement with the upper sash and adjacent side of the window frame respectively together with suitable means for transmitting motion from one bolt to the other, and an operating member on one of the bolts whereby both bolts may be unlocked simultaneously.

I am aware that various devices have heretofore been proposed for locking the sash to each other and to the window frame but in most of these device with which I am familar, the mechanism for transmitting motion from one locking bolt to the other is not only complicated and expensive to manufacture, but in most instances where racks and pinions are employed, it is necessary to cut away considerable portion of one of the locking bolts to form the rack for receiving the pinion of the other locking bolt thereby materially weakening the bolt with the rack thereon, unless the housing for receiving the bolts is made of objectionally large size.

The main object of my invention is to provide means for transmitting motion from one bolt to the other without weakening either bolt and at the same time to enable the entire mechanism to be mounted within and upon a case of small size and relatively shallow depth so that it may be used with equal efficiency either upon the upper edge of the sash or imbedded or recessed therein without serious disfigurement of the sash.

Another object is to connect the retracting spring to one of the bolts near its junction with the means for transmitting motion to the other bolt so that it may act with equal efficiency upon the bolt to which it is attached and to said transmitting means.

Another object is to provide one of the bolts with a relatively rotatable operating member, having a detent normally guided in an opening in the case and adapted to engage the outer face of the case when the bolt is withdrawn for holding the locking bolts in their unlocked positions.

Other objects and uses relating to specific parts of the device will be brought out in the following description.

In the drawings:

Figure 1 is a horizontal sectional view through a portion of one side of the upper sash and adjacent portion of the window frame showing in top plan, the adjacent portion of the lower sash and my improved sash lock mounted thereon.

Figure 2 is a top plan of the detached sash lock with the top plate removed except that one side is shown partly in section to illustrate the normal position of the detent on the operating member.

Figures 3 and 4 are sectional views taken respectively on lines 3—3 and 4—4, Figure 1.

Figure 5 is a sectional view taken in the plane of line 5—5, Figure 2.

Figure 6 is a sectional view taken in the plane of line 6—6, Figure 1.

In order that my invention may be clearly understood, I have shown a portion of one side of a window frame —A— and also adjacent portions of the upper and lower sash —*a*— and —*a'*—, the window frame being provided with the usual parting strip —*b*— and guide stops —*b'*—.

The sash lock comprises a hollow rectangular case —1— of cast metal or other suitable material having a removable top plate —2— and guide openings —3— and —3'— in two of its sides for receiving a pair of locking bolts —4— and —4'—, the guide openings —3— being formed in the inner and outer sides of the case for receiving opposite ends of the bolt —4—, while the other opening —3'— extends at right angles to the openings —3— for receiving the bolt —4'—.

The outer side of the case is provided with an outwardly projecting boss —5— forming an extension thereof, around the adjacent

opening —3′— while the side in which the opening —3′— is formed is provided with a similar but somewhat longer boss —5′— forming an extension thereof around the adjacent bolt opening and corresponding in length to approximately the width of the portion of the parting strip —*b*— which extends between the sash —*a*— and —*a*′— to permit the case —1— to be brought as closely as possible to the adjacent side of the window frame.

The upper sash —*a*— is provided on its inner face, with one or more bolt openings —6— and a metal re-enforcing plate —7—, having apertures registering with the openings —6— for receiving the outer ends of the bolt —4—.

The metal strip —7— may be secured in any suitable manner to the inner face of the upper sash and, if a series of bolt openings —6— are to be used, they will be arranged at suitable intervals one above the other to enable the sash to be locked to each other in different relative positions.

In like manner the inner face of the adjacent side of the window frame —3— is provided with one or more bolt openings —8— and a re-enforcing plate —9— having one or more apertures registering with the bolt opening or openings —8— to receive the outer end of the bolt —4′— and if more than one bolt opening is used they may be arranged one above the other in suitably spaced relation to enable the lower sash to be locked in different positions of vertical adjustment.

The bolt —4— extends entirely through the case —1— beyond the inner and outer walls thereof, and has its outer end reduced for receiving an operating member or nob —9— which is rotatable thereon and is held against endwise displacement by enlarging the outer end of the reduced portion at —10—.

The nob or hand piece —9— is provided at one side with an extension —11— constituting a detent extending along one side of the bolt —4—, a distance corresponding approximately to or slightly greater than the portion of the bolt which extends beyond the outer end of the boss —5— when the bolt is in its locking position so that when the bolt is withdrawn inwardly to its unlocked position, the detent —11— will be withdrawn a corresponding distance through the inner side of the case —1— at which time, the nob or hand piece —9— may be turned slightly on the reduced end of the bolt for bringing the detent into engagement with the inner side of the case for holding the bolt in its unlocked position.

As shown, more clearly in Figure 6, the detent —11— is movable in a branch opening —12— leading from one side of the adjacent bolt opening —3— when the bolt is being moved to and from its locking position, but as previously stated, when the bolt is withdrawn from its locking position, the nob —9— with its detent —11— may be turned angularly to bring the detent into engagement with the inner face of the case out of registration with the slot —12— thereby positively holding the bolt in its unlocked position until the nob is again turned to register the detent with the slot —12—.

The bolt —4′— is disposed radially and at right angles to the bolt —4— and in the same horizontal plane but is sufficiently shorter than the bolt —4— to allow it to be withdrawn inwardly from its locking to its unlocking position and vice versa.

Both bolts are of substantially the same diameter and by placing them in the same horizontal plane permits them to be inclosed in a relatively shallow case which is of considerable advantage in devices of this character, both in appearance, economy of manufacture, and facility of installing, the entire device being secured to the upper edge of the lower sash by screws —13— which also serve to hold the cover plate —2— in place.

Reciprocal motion is transmitted from the bolt —4— to the bolt —4′— by means of a bell crank lever —14— which is pivoted by means of having lower and upper pairs of arms —16— in vertically spaced relation but united to a single hub —17— which in turn is provided with reduced lower and upper ends —18— journaled in corresponding openings in the lower and upper sides of the case as shown in Figure 5 whereby the bell crank lever is pivotally mounted within the case.

The corresponding lower and upper arms —16— of the bell crank lever at one side extend across the lower and upper faces of the bolt —4— and are provided with elongated slots —19— for receiving the opposite ends of a pin —20— which extends through the bolt —4— for establishing operative connection between the bolt and bell crank lever.

The other arms of the bell crank lever —14— extend across the lower and upper faces of the inner end of the bolt —4′— and are also slotted at —19′— for receiving the opposite ends of a pin —20′— extending diametrically through the bolt —4′— and thereby establishing connection between the bell crank lever and the last named bolt.

A coil spring —21— is mounted within the case —1— and has one end connected to the pin —20— and its other end attached to a stud —22— which like the hub —17— has its lower and upper ends reduced and engaged in corresponding apertures in the lower and upper walls of the case, said spring being tensioned to automatically

force the locking bolts to their locking positions when the detent —11— is registered with the slot —12—.

This spring —11— extends from the junction of the bolt —4— with the adjacent arm of the bell crank lever toward the locking end of said bolt —4— and therefore exerts equal force upon both the bolt and bell crank lever at their junctions one with the other to render the automatic operation of both bolts more effective.

Operation.

The locking ends of both of the bolts are slightly rounded to enable them to ride in freely along their respective plates —7— and —9— and to facilitate their entrance into the desired openings —6— or —8— in the upper sash —*a*— and window frame respectively.

It is now clear that when both sash are closed, the locking bolts —4— and —4′— will be automatically forced to their locking positions by the spring —21— and the bell crank lever —14—, and that when the bolt —4— is withdrawn from its locking position, the bolt —4′— will also be unlocked thus permitting either sash to be adjusted to the desired position whereupon the bolt —4— will automatically lock the two sash together while the bolt —4′— will automatically lock the lower sash thus preventing any further adjustment of either sash until the bolts are again unlocked.

In assembling the parts, when the cover is removed, the bell crank lever —14— may be dropped into place, after which the bolts —4— and —4′— may be inserted endwise in their respective openings and the pins —20— and —20′— then inserted through the slots of the bell crank levers into their corresponding bolts, one end of the spring being attached to the pin —20— and the other end to the post —22— after which the cover plate may be replaced and the entire case secured to the upper edge of the lower sash by means of screws —13—.

I claim:

A sash lock comprising a case adapted to be secured to the lower sash and having registering guide openings in opposite sides thereof, and an additional guide opening in another side at right angles to the first named openings, a locking bolt extending through and reciprocally movable in both of the first named openings and having one end adapted to engage the upper sash and its other end provided with a handle, an additional locking bolt reciprocally movable in the second named guide opening and having its outer end adapted to engage the window frame, and a bell-crank lever pivotally mounted in the case and having one arm engaged with the first named locking bolt and its other arm engaged with the second named bolt whereby an outward pull upon the handle will unlock both bolts, the first named locking bolt having a slight angular movement and being provided with a detent adapted to be brought into engagement with the outer face of the adjacent portion of the case by said angular adjustment when the locking bolts are withdrawn from their locking positions to hold said bolts in said positions.

In witness whereof I have hereunto set my hand this 13th day of December 1922.

THEODORE P. LOVELL.

Witnesses:
H. E. Chase,
Rita Campolieto.