H. LANE.

AUTOMATIC SASH LOCK.

APPLICATION FILED JAN. 29, 1916.

1,177,637. Patented Apr. 4, 1916.

Fig. 1.

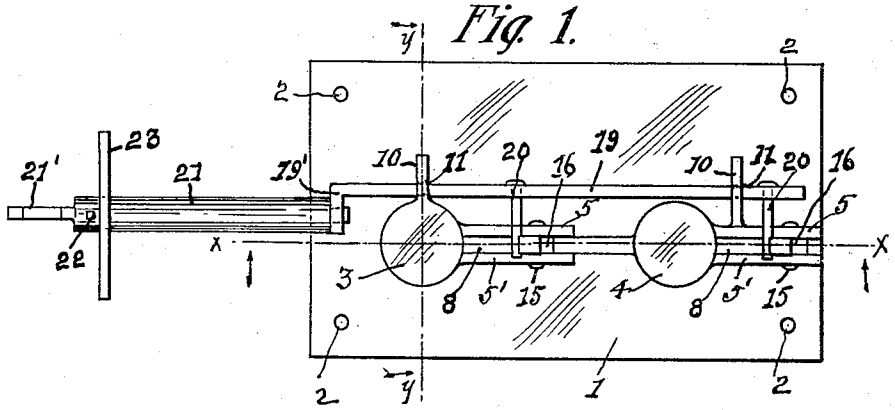



Fig. 2.

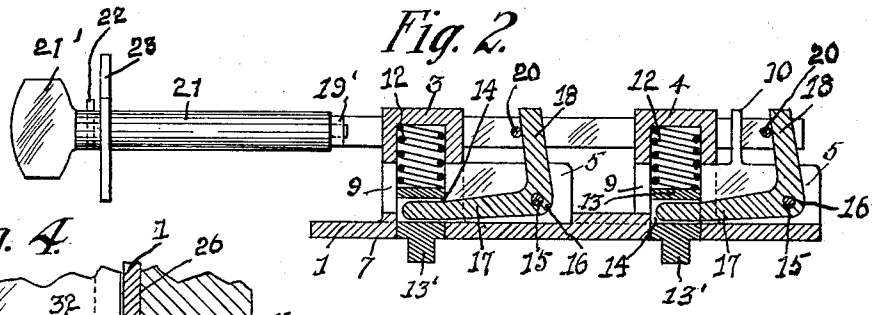



Fig. 4.

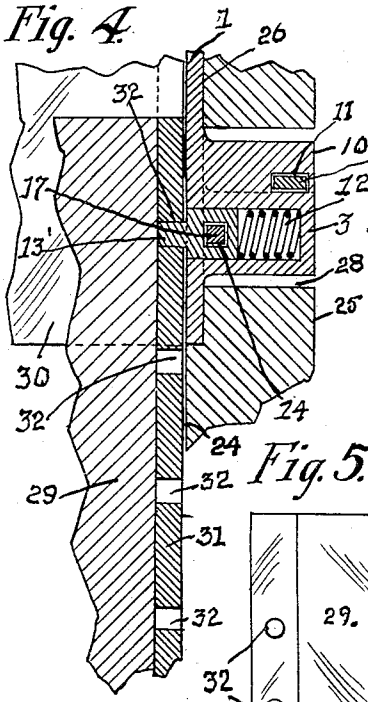



Fig. 3.

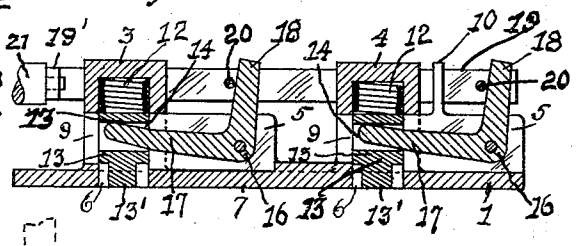



Fig. 5.

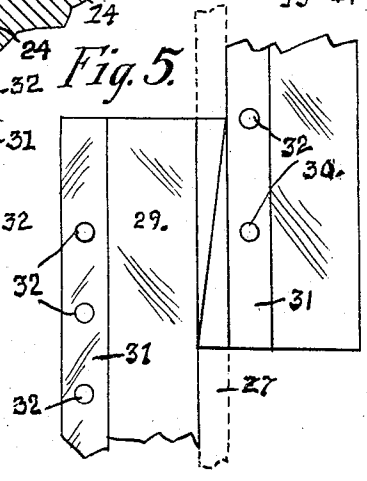



Fig. 6.

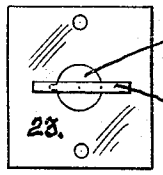
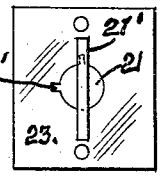



Fig. 7.




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# UNITED STATES PATENT OFFICE.

HARVEY LANE, OF TOLEDO, OHIO.

## AUTOMATIC SASH-LOCK.

1,177,637. Specification of Letters Patent. Patented Apr. 4, 1916.

Application filed January 29, 1916. Serial No. 74,992.

*To all whom it may concern:*

Be it known that I, HARVEY LANE, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented new and useful Improvements in Automatic Sash-Locks, of which the following is a specification.

My invention relates to an automatic sash lock, and has for its object to provide a lock of the kind that is adapted to automatically lock both the upper and lower sashes of a window in any open, as well as in their normal closed positions, and that is readily and conveniently unlocked to admit of the movement of either sash, and that is readily accessible from the inside of the building and is non-accessible from the outside for unlocking, whether the sash be locked open or shut.

I accomplish these objects by the construction and combination of parts as hereinafter described and illustrated in the drawings, in which—

Figure 1 is a side elevation of a lock constructed in accordance with my invention, detached from a window frame. Fig. 2 is a longitudinal section of the same on line *x—x* of Fig. 1 and showing the parts in locking position. Fig. 3 is a similar view showing the parts in unlocked position, with a part of the push rod broken away. Fig. 4 is a broken away cross section of my lock on line *y—y* of Fig. 1, attached to a broken away portion of a window frame, and showing the parts in position locking a broken away portion of the lower sash. Fig. 5 shows broken away portions of the slide faces of the upper and lower sashes, with the locking plates secured thereto flush therewith. Fig. 6 is a side view of the face plate through which the push bar extends, and showing the push bar in position to unlock the lock, and Fig. 7 is a similar view showing the push bar in position locked against movement.

In the drawings 1 designates the base plate on which are mounted the movable parts of my lock, and having the countersunk holes 2 for attaching the lock in a complementary recessed portion of the window frame, flush with and transverse the slide ways of the upper and lower sash of the window.

The base plate 1 has integral with and perpendicular to its inner side the cylindrical lugs 3 and 4, each having integral therewith a pair of parallel walls 5 and 5′, extending therefrom toward the same end of the plate 1 and in alinement with the lugs. The lugs 3 and 4 are provided with the socket bores 6, extending through the outer face 7 of the plate 1, and, opposite the spaces 8 between the walls 5 and 5′, with the rectangular transverse openings 9 alined with the spaces 8. The lug 3, and the wall 5 of the lug 4, each have integral therewith and with the base plate 1 and at right angles thereto, a bearing wall 10. The bearing walls 10 are of equal length with the lugs 3 and 4 and, opposite the free end portions of the lugs, are provided with alined guide openings 11 for a purpose hereinafter described.

In the inner end portions of the bores 6 of the lugs 3 and 4 are inserted the helical springs 12 and in the outer portions, bearing against the springs, are the locking bolts 13, having the transverse openings 14 alined with the openings 9 of the lugs.

Between the walls 5 and 5′ of each lug is pivotally mounted by a pin 15, a bell crank 16, each bell crank having an arm 17 extending into the opening 14 of the locking bolt 13 of the next adjacent lug, and an arm 18 extending at a right angle to the arm 17 between and beyond the walls 5 and 5′.

Through the guide openings 11 of the bearing walls 10 is extended and movably mounted the push bar 19, which is provided with the push pins 20, which extend respectively at right angles from the bar transversely over the walls 5 and 5′ of each lug, in engagement with the inner angle faces of the arms 18 of the bell cranks 16.

The end portions 19′ of the push bar 19, nearest the lug 3, is bent at right angles to the main body of the bar, and is perforated and screw tapped to have threaded therein the cylindrical extension 21, having at its free end a flattened handle portion 21′, and near the handle portion is provided with a locking pin 22. The extension 21 of the push bar extends through a plate 23, which is adapted to be secured to the inner face of a window frame 24, preferably inset therein in a suitable recess (not shown) to receive the plate.

The base plate 1 is located (preferably at

the right side) of a window frame 25, (relative to inside of the room in which the frame is located), opposite the lapping portions of the upper and lower sashes of the window, and in a recess 26 adapted to receive the plate with its outer face 7 flush with the outer face of the side of the window frame, and transverse the slide ways of both the upper and lower sashes and their dividing strip 27. The recess 26 is provided opposite each sash with an extension recess 28 adapted to freely receive the lugs 3 and 4, the walls 5 and 5′, and the bearing walls 10, with the bell cranks 16 and the push bar 19 freely movable therein, it being understood that the distance of projection of the lugs and working parts described, from the inner face of the plate 1, is not sufficient in any instance to extend them into the travel ways of the sash weights, (not shown). It is also to be understood that the recess 28 is so located that the lug 3 is located opposite the top portion of the lower sash 29, and the lug 4 opposite the lower portion of the upper sash 30.

In line with the perforation of the angled end portion of the push bar 19 the inner portion of the window frame 25 is provided with an orifice, (not shown), to receive the extension rod 21 which has its inner end portion reduced and threaded to run into the tapped end portion of the push bar 19.

The slide faces of the upper and lower sashes abutting the base plate 1 have recessed therein, flush therewith, the lock strips 31, which are provided with perforations 32 at regular short intervals of their lengths adapted to receive the reduced end portions 13′ of the bolts 13, which are normally projected by the springs 12 beyond the face 7 of the base plate 1, as shown in Fig. 2. The strips 31 may extend any suitable distance along the slide faces of the sashes, but they need not extend beyond a distance which will admit locking the sashes in open position at the top and bottom of the window for purposes of ventilation, without opening them sufficiently to admit a person to enter through the opening. The strips 31 are so located that when the sashes 29 and 30 are closed the first of the perforations 32 of each strip are registered respectively with the reduced end portions 13′ respectively of the bolts 13 of the lugs 3 and 4, and the portions 13′ are projected therein, normally locking the sashes in such closed position.

The face plate 23 of the push rod extension 21 is provided with an incut 23′ which normally registers with the lock pin 22, when the threaded end portions of the extension 21 is run into and shouldered against the angled end portion of the push bar 19, and in such position the extension 21 is free to be pushed inward until the pin 22 passes through the incut 23′. However, if the extension 21 be turned a quarter turn to the left before pushing thereon, the pin 22 locks it against being pushed inward, or if the quarter turn is made after the pin 22 of the extension is pushed through the incut of the plate 23, the extension 21 is locked against outward movement. Thus constructed it is manifest that when the extension 21 is in its normal unlocked position, a push inward thereon will move the push bar 19 to move the bell cranks from their positions shown in Fig. 2 into the positions shown in Fig. 3, and thereby withdraw the bolts 13 within the lugs 3 and 4, and that upon releasing the pressure on the extension 21 the springs 12 automatically returns the bolts to their normal locking position, as shown in Fig. 2, as also the extension 21 to its normal position. It is also manifest that so long as the push bar is held pushed inward both sashes will be unlocked and either may be freely moved to open, and that in whatever position they are left when the pressure is removed they will be either locked, or will be automatically locked when moved in either direction less than a full interval between the perforations 32 of the strips 31, it being readily seen that the lock bolts 3 will be held pushed inward by the sash between the perforations if the push bar is released while in such intermediate position, and that when the sash is moved in either direction from such intermediate position, as soon as the nearest perforation 32 is in register with either of the bolts 13, the springs 12 of the bolt will automatically move the bolt into locking engagement with the strip 31 of the sash.

Either of the sashes of a window, equipped with a lock constructed as described, may be readily and independently moved from and to a normally closed position by holding the extension 21 pressed inward while the sash is being moved. Upon releasing the extension both sashes will be locked in whatever relative position they are in.

When it is desired to lock the bolts 13 in unlocked position, so that the sash may be moved freely up and down for convenience of washing or cleaning, by first pushing the extension 21 inward to withdraw the bolts 13 from locking position and then giving the extension a quarter turn until the pin 22 is out of alinement with the slot 23′, the bolts 13 are locked in open position and the sash may then be moved freely up and down, without either becoming locked.

Equipped with my lock, the upper sash of a window may be lowered and the lower raised, each a distance insufficient to permit a person from entering through the openings, and in such position the sash will be as securely locked against further movement

as in a closed position, and if the further precaution is taken to lock the extension 21 as described, the lock is secured against being unlocked from the outside, notwithstanding the window is open.

The lock when installed is wholly invisible from the outside, and only the push extension 21 and the face plate 23 are visible from the inside, and when the sashes are either normally closed or opened within the limitation stated, they are securely locked and cannot be opened from the outside excepting by breaking the glass or the sash.

It is apparent that minor changes may be made in the embodiment of my lock shown and described without departing from the principle of its construction and operation and I therefore do not limit myself in its construction excepting as expressed in the claims.

What I claim to be new is—

1. In an automatic sash lock, the combination with a window frame and upper and lower sash slidably mounted in the frame, of a lock comprising a base plate, recessed in the window frame transverse the slide ways of the upper and lower sashes, opposite the lapping portions of the upper and lower portions when in closed position, said base plate having bolt housings and bearing supports projecting at right angles thereto from its inner face, one opposite each slide way, spring pressed bolts movable in the housings and held normally projected partly through the outer face of the base plate into the slide ways, a bell crank for each bolt, said bell crank pivotally mounted in a support of the base plate and having one arm engaging and adapted to reciprocate the bolt in its housing, a push bar movable in guide ways of the base supports and adapted to engage the free arm of each bell crank when pushed in one direction, and move the bolts against the resistance of their springs, and when released from pressure to be moved in the opposite direction by the pressure of the springs on the bolts and the bell cranks, a push rod connected to the push bar and extending through the inner wall face of the window frame, and adapted to operate the push bar to unlock the bolts, and lock plates secured to slide faces of the sashes, transverse the outer face of the base plate, said lock plates having perforations at short intervals adapted to be brought into register with and receive the lock bolts, some in a normally closed position and others respectively in open positions.

2. In a sash lock, the combination of a base plate adapted to be recessed in a window frame transverse the slide ways of the window sash, with the outer face flush with the slide faces of the ways opposite the overlapping portions of the upper and lower sashes, and having bolt housings one opposite each slide way and projecting at right angles to its inner face, bolts reciprocable in the housings and through the base plate, springs adapted to hold the bolts normally projected through the base plate, a bell crank connected to each bolt and adapted to independently withdraw its bolt, against the resistance of the spring, a push bar adapted to operate the bell cranks to withdraw the bolts, and lock strips secured to the upper and lower sashes abutting the base plate, and having perforations at short intervals, the perforations of each strip adapted to be consecutively registered with and receive the bolt that is opposite the strip.

3. In a sash lock, the combination of a base plate adapted to be recessed in a window frame transverse the slide ways of the window sash, with the outer face flush with the slide faces of the ways opposite the overlapping portions of the upper and lower sashes, and having bolt housings one opposite each slide way and projecting at right angles to its inner face, bolts reciprocable in the housings and through the base plate, springs adapted to hold the bolts normally projected through the base plate, a bell crank connected to each bolt and adapted to independently withdraw its bolt, against the resistance of the spring, a push bar adapted to operate the bell cranks to withdraw the bolts, lock strips secured to the upper and lower sashes abutting the base plate, and having perforations at short intervals, the perforations adapted to be consecutively registered with and receive the bolt that is opposite the strip, and means to lock the push bar either in its normal or pushed in position.

In testimony whereof I have hereunto set my hand at Toledo, Ohio, this 26th day of January, 1916, in the presence of two subscribing witnesses.

HARVEY LANE.

In presence of:
ALBERT T. GOORLEY,
R. B. SOONRARD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."