E. P. SPERRY.

WINDOW OPERATING AND LOCKING MECHANISM.

APPLICATION FILED DEC. 3, 1906.

929,801. Patented Aug. 3, 1909.

Fig. 1.

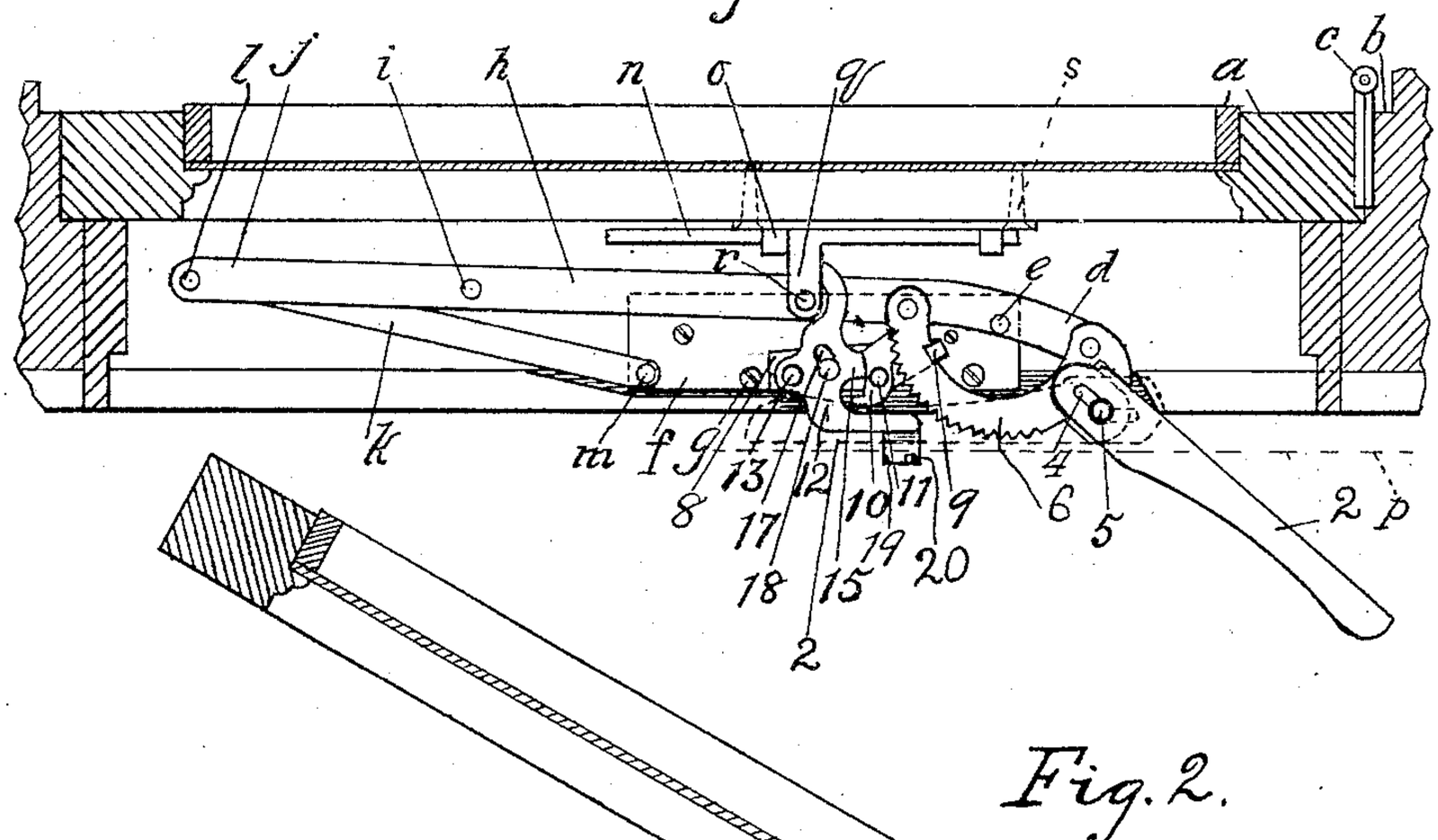


Fig. 2.

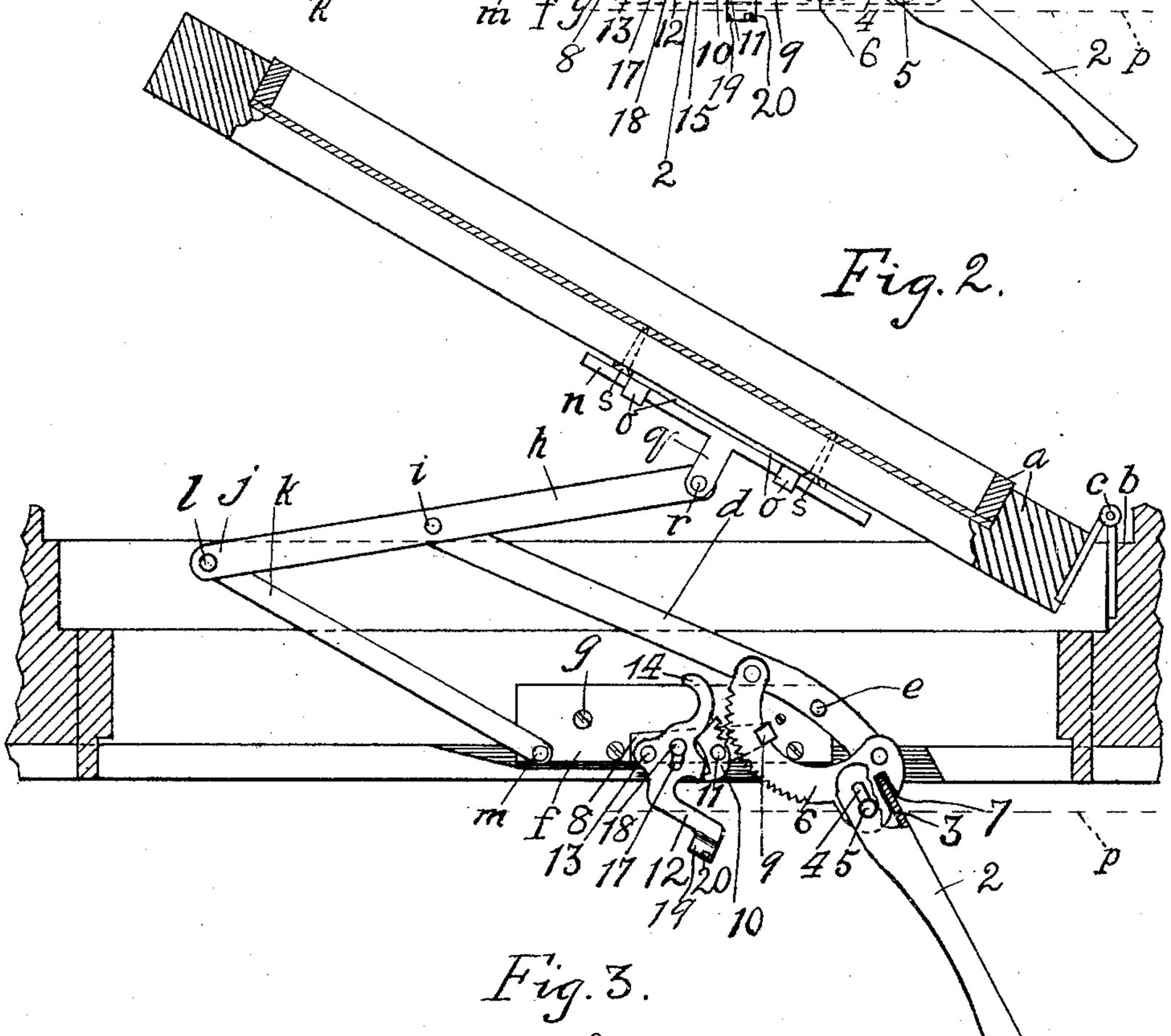


Fig. 3.

Fig. 4.

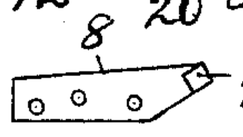
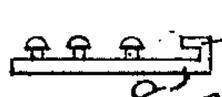


Fig. 5.



Witnesses.

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WINDOW OPERATING AND LOCKING MECHANISM.

No. 929,801. Specification of Letters Patent. Patented Aug. 3, 1909.

Application filed December 3, 1906. Serial No. 346,067.

To all whom it may concern:

Be it known that I, EVELYN P. SPERRY, a citizen of the United States, residing in Oak Park, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Window Operating and Locking Mechanisms, of which the following is a specification.

This invention relates to that class of window operating and locking mechanisms comprising lever mechanism adapted to be operatively connected with a window and provided with locking mechanism adapted to lock the lever mechanism and thereby the window in different adjusted positions.

The principal object of the invention is to provide a simple, economical and efficient window operating and locking mechanism.

A further object is to provide a device of the class described, having lever mechanism adapted to be connected with the window and adjusted to different positions in which no part of such lever mechanism, when locked, is required to extend beyond the inner edge of the window stool or window frame so as to be in the way on the inside, or visible or accessible from without with locking mechanism adapted to lock such lever mechanism and thereby the window in different adjusted positions as desired, and with a foldable hand lever for operating or adjusting the lever mechanism and thereby the window, such locking mechanism and hand lever being so constructed and arranged that the locking mechanism and the lever mechanism to be locked may both be operated by means of the same hand lever which is also foldable into position to shield and inclose the locking mechanism, conceal the unsightly parts and enable the whole device to occupy a small space while locked in position to afford the maximum strength and security.

Other and further objects of the invention will appear from an examination of the drawings and the following description and claims.

The invention consists in the features, combinations and details of construction hereinafter described and claimed.

In the accompanying drawings Figure 1 is a plan view of a window operating and locking mechanism in locking position, showing the hand lever in folded position in dotted lines; Fig. 2, a plan view of the same in releasing position; Fig. 3, a view in side elevation of the operating and locking mechanism shown in Fig. 1; Fig. 4, a detail plan view of the supporting and guiding plate, and Fig. 5, a side elevation of said plate.

In constructing a window provided with operating and locking mechanism constructed in accordance with my improvements, I provide a window sash *a* which is mounted in a window-frame *b* upon hinges *c* so as to swing in a horizontal plane. A main operating lever *d* is pivotally connected, by means of a pivot *e* with a base-plate *f*, such base plate being secured to the window-frame beneath the stool or top member of the window-sill, by means of screws *g*. A lever *h* is pivotally connected with the outer swinging end of the main operating lever *d* by means of a pivot *i*. One end *j* of the lever *h* is pivotally connected with a link *k* by means of a pivot *l*, and the link *k* is pivotally connected with the base-plate by a pivot *m*. Connecting mechanism consisting of a bracket *o* is mounted upon and secured to the sash by means of screws *s*, and has a plurality of loop or socket portions in which is slidably mounted a horizontal rod *n* having a central lug *q* between the loop or socket portions of the connecting bracket. The outer swinging end of the lever *h* is connected with this lug by means of a rivet *r*. The lever mechanism is thus flexibly connected with the window-sash and is adapted to move the window to any desired adjusted, open, closed or intermediate position.

It is desirable that the locking and operating mechanism be concealed and shielded so far as possible, and that it be inaccessible from the outside. In order to provide means whereby the required leverage can be obtained and the parts shielded and concealed, the portion of the main operating lever which extends inside the pivot *e* is made sufficiently short so that it preferably will not extend beyond the inner edge of the stool or member which covers the window-sill. The position of the inner edge of the window stool is indicated in the drawings by the dotted line *p*. A hand lever or handle 2 is provided, having a depending shielding flange portion 3 for shielding the locking mechanism and engaging the main operating lever. One end of this hand lever is provided with an elongated slot 4 into which a pivot pin 5 connected with or mounted upon the main operating lever extends. A toothed guiding segment which is mounted on the main operat-

ing lever *d* supports the hand lever. This toothed securing and guiding segment 6 and the inner end of the main operating lever are provided with a slot 7 in position to receive the end of the depending flange of the hand lever when in extended operative position. The elongated slot extends longitudinally of the hand lever and parallel with its depending flange, so that the flange may be inserted into the slot 7 and withdrawn when desired, and the hand lever folded into position to shield and conceal the locking mechanism, as indicated in dotted lines in Figs. 1 and 3. The required leverage may thus be obtained by means of mechanism adapted to be concealed and no part of which is required to extend beyond the inner edge of the window stool so as to be in the way, or so as to be visible or accessible from without when the mechanism is in locking position.

A supporting guiding member or plate 8 is mounted upon the base plate and provided with a slotted or hooked end portion 9 in sliding engagement with the inner curved edge of the toothed segment and between such segment and the pivot on which the segment and main operating lever rotate. A toothed pawl 10 is pivotally mounted upon this guiding plate adjacent to and movable into and out of toothed and clamping or gripping engagement with the guiding segment which extends between the pawl and slotted or hooked portion of the plate 8. A pawl operating and locking member 12 is also pivotally mounted upon the guiding and supporting plate by means of a pivot pin 13. This locking member has an integral locking hook portion 14 forming one end thereof, and a cam portion or lug 15 between such hooked end and the operating lever or handle portion which forms the opposite end of such locking member. Said hooked locking member is also provided with a curved or segmental slot 17 into which extends a headed pin 18 for securely holding and guiding the locking member, minimizing the strain upon the pivot pin 13 and insuring proper engagement with the pawl notwithstanding any wearing away of the pivotal bearings or pins. The cam portion of this locking member is in sliding engagement with the adjacent slightly curved side of the toothed pawl 11 already described. The movement of the said locking member to locking position as shown in Fig. 1 presses the pawl into toothed engagement with the toothed segment and causes the segment to be clamped between and rigidly held in position by the pawl and the hooked or slotted portion of the plate 8, so that the parts are securely locked and the main operating lever braced and rigidly held in any desired adjusted position by the plate 8 and the locking mechanism thereon in such a manner as to relieve the pivot pins of most of the strain to which they would otherwise be subjected. In other words the security, strength, durability and efficiency of the device is caused to depend as little as possible upon the strength of the pivot pins and is thus increased.

The locking member 12 is somewhat in the form of a bell-crank, and its inner end is provided with a depending and inwardly extending portion 19 and an upwardly extending stud or catch 20 upon such depending inwardly extending portion adapted to engage the depending flange portion of the hand lever 2 and enable the locking member 12, and thereby the pawl to be locked and released by the operation of such hand lever, which is also adapted to operate or adjust the lever mechanism which is to be locked.

The movement of the hand lever to folded position as shown in dotted lines in Fig. 1 causes it to engage the inner end of the locking member 12 and move it and thereby the pawl to locking position. The movement of said hand lever from folded position in the opposite direction causes it to engage the catch 20 and move the locking mechanism to releasing position. The continuation of this movement of the hand lever for the purpose of bringing it into position to operatively engage the lever mechanism to be operated or adjusted causes it to slip out of engagement with the catch and locking mechanism. The hand lever is so mounted that it has sufficient elasticity to permit it to slip over and into and out of engagement with the catch 20 as required, but the catch is of sufficient depth to hold the hand lever in engagement during the operation of the locking mechanism thereby, and prevent the accidental swinging of the hand lever to extended position.

By the above arrangement the locking mechanism may be operated by the movements of the hand lever to and from its folded and extended or operative positions or independently of the hand lever, as desired. The necessity for such additional or independent operation, however, is obviated and the locking operation facilitated and rendered less liable to be overlooked.

I claim:—

1. In a device of the class described, the combination of lever mechanism having a securing segment or arm, a pawl movable into and out of securing engagement with such securing segment or arm, a locking member in engagement with such pawl, and an operating lever provided with means for connecting it with such lever mechanism and movable into engagement with such locking member.

2. In a device of the class described, the combination of lever mechanism provided with means for connecting it with a window and having a securing segment or arm, a pawl movable into and out of securing en-

gagement with such securing segment or arm, a locking lever having a cam portion in engagement with such pawl, and a hand lever provided with means for connecting it with the lever mechanism having the securing segment or arm, and movable into operative engagement with said locking lever for operating it and thereby the pawl.

3. In a device of the class described, the combination of lever mechanism provided with means for connecting it with a window and having a securing segment or arm, a pawl movable into and out of securing engagement with such securing segment or arm, and a locking member in engagement with the pawl and having a hook portion movable with relation to the pawl and into and out of hooked engagement with the lever mechanism.

4. In a device of the class described, the combination of lever mechanism having a securing segment or arm, a pawl movable into and out of securing engagement with such securing segment or arm for securing the lever mechanism in stationary position, a locking member provided with a cam portion in engagement with the pawl and means for connecting such locking member and lever mechanism with a window sash.

5. In a device of the class described, the combination of a main operating lever provided with means for connecting it with a window and having a securing segment or arm, a guiding member and pawl between which such segment or arm extends, and means for locking the pawl and guiding member in clamping engagement with the securing segment or arm.

6. In a device of the class described, the combination of a lever pivotally mounted and provided with a securing segment or arm, means for connecting such lever with a window sash, a pawl movable into and out of securing engagement with such segment or arm, a pawl operating lever, and a supporting and guiding plate upon which such pawl and pawl operating member are mounted provided with a guiding portion in engagement with such segment or arm of the lever mechanism.

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