

(No Model.)

2 Sheets—Sheet 1.

P. S. RIDDELLE.
WINDOW SASH LOCK.

No. 552,777.

Patented Jan. 7, 1896.

Fig. 2.

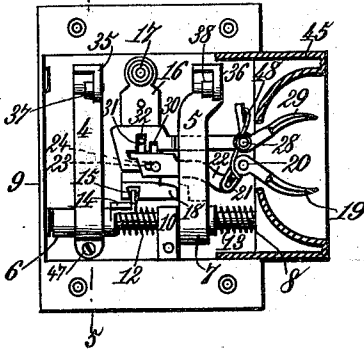


Fig. 3.

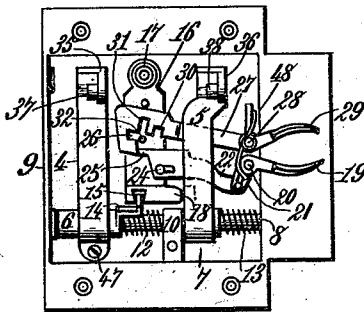
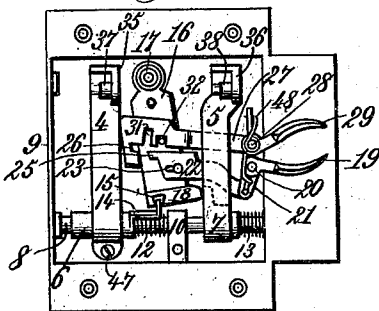


Fig. 4.



Witnesses.
Robert E. Smith,
Dennis Sumby.

Fig. 1.

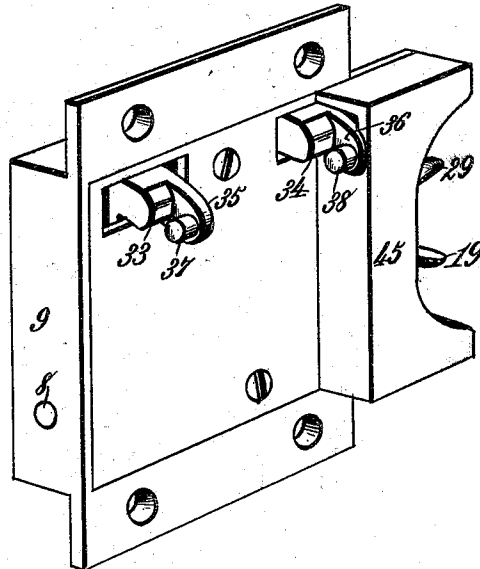
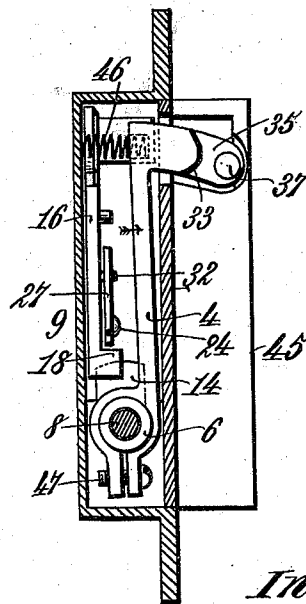


Fig. 5.



Inventor.
Philip S. Riddelle.
By James L. Norris,
Atty.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 6.

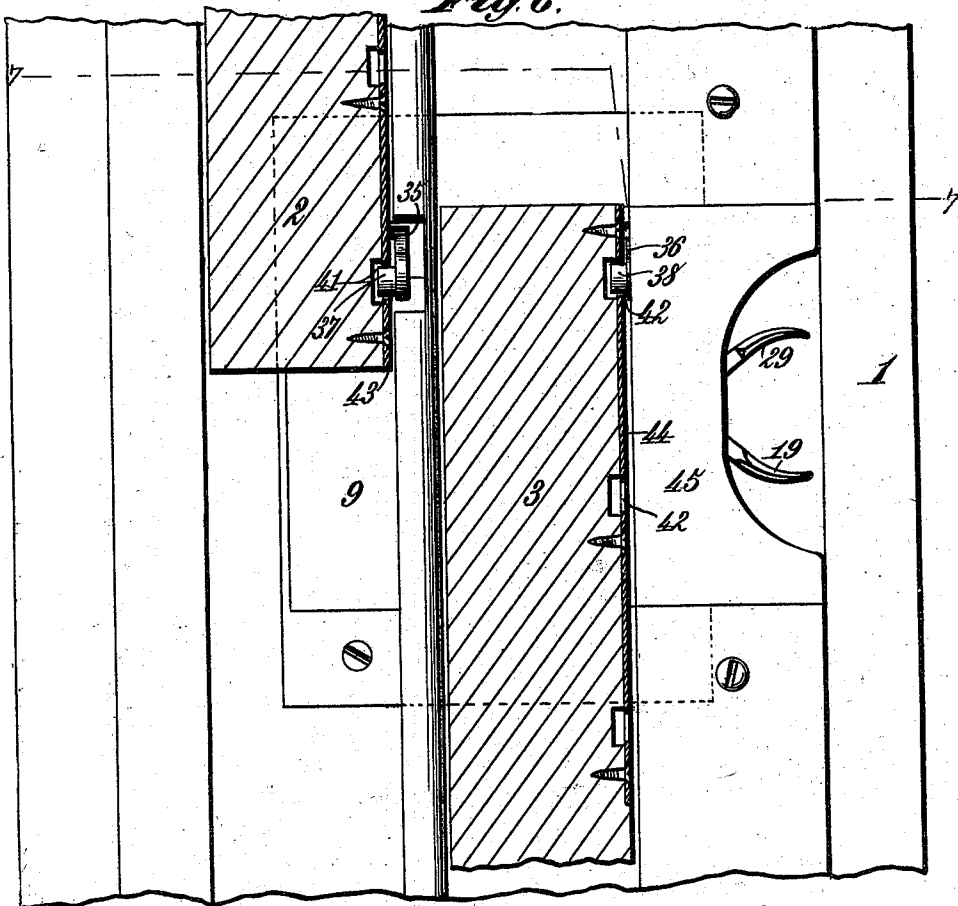
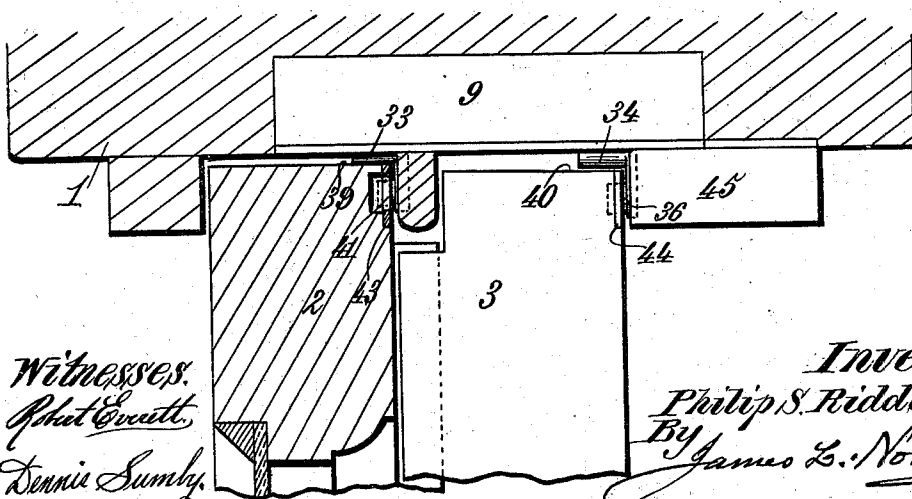


Fig. 7.



Witnesses:
Robert Everett
Dennis Sumby

Inventor:
Philip S. Riddelle
By *James L. Norris*
Att'y.

UNITED STATES PATENT OFFICE.

PHILIP S. RIDDELLE, OF WOODSTOCK, VIRGINIA.

WINDOW-SASH LOCK.

SPECIFICATION forming part of Letters Patent No. 552,777, dated January 7, 1896.

Application filed August 19, 1895. Serial No. 559,763. (No model.)

To all whom it may concern:

Be it known, that I, PHILIP S. RIDDELLE, a citizen of the United States, residing at Woodstock, in the county of Shenandoah and State of Virginia, have invented new and useful Improvements in Window-Sash Locks, of which the following is a specification.

This invention relates to window-sash locks, and is particularly designed for locking the revolving sashes disclosed in Letters Patent No. 514,773, issued to me February 13, 1894, but is useful in connection with window-sashes of any kind which are to be locked against movement when closed to exclude burglars, or for any other purpose, or to be locked when more or less opened or raised.

The object of my invention is to provide a new and improved sash-lock, which in the normal position of the parts will automatically lock a sash, one or more, in any desired position, but is susceptible of being set through the medium of a pair of finger-actuated devices in such manner that the lock will remain inactive as regards locking the sash when it is raised or lowered, whereby the lock can be used to automatically engage and hold a sash closed, or at any desired point in its opening and closing movements, or can be made inoperative as regards its locking action to permit the sash to be freely raised and lowered without being engaged and locked by the lock at any point in its ascending and descending movements.

My invention also has for its object to provide a new and improved sash-lock, wherein a locking-arm, one or more, is susceptible of yielding laterally, with respect to the lock-case, for the purpose of accommodating or compensating for shrinking, swelling or warping of the sash-frame and to constantly maintain a part of the locking-arm in engagement with the edge of the sash, so that a lateral locking pin or stud on a part of the arm will under all conditions lie in the proper plane to engage any one of the line of locking notches, orifices or recesses provided in the sash to receive the said pin or stud when the sash is to be locked in its closed or any other position.

The objects of my invention are accomplished in the manner and by the means hereinafter described and claimed, reference be-

ing made to the accompanying drawings, in which—

Figure 1 is a perspective view of a sash-lock constructed in accordance with my invention. Fig. 2 is a plan view of the same, omitting the front plate to clearly illustrate the lock mechanism and showing the parts in position for locking two sashes. Fig. 3 is a similar view, showing the finger-levers moved into position preparatory to retracting the locking-arms. Fig. 4 is a similar view, showing the position of the parts when the lock is set so that the locking-arms remain inactive as regards locking the sashes. Fig. 5 is a vertical sectional view taken on the line 5 5, Fig. 2, but on a larger scale than the latter figure, showing the front plate of the lock in position. Fig. 6 is an elevation showing a portion of a window-frame, portions of two sashes, and my improved sash-lock applied thereto and having the locking-arms engaged with the two sashes to lock the same; and Fig. 7 is a horizontal sectional view taken on the line 7 7, Fig. 6, the lock-case being in plan view.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates the frame of a window, and 2 and 3 the upper and lower window-sashes. The window-sashes may be arranged to simply slide perpendicularly, as in ordinary windows, but I prefer to construct the window-sashes so that they can be rotated or revolved, as in my Letters Patent hereinbefore mentioned. I wish it clearly understood, however, that the construction and movements of the sashes can be effected in any ordinary or desired manner without altering the spirit of my invention, which is an improved sash-lock designed to be applied to the window-frame, or, under some circumstances, to the sash itself, for the purpose of locking the sash, one or more, in its closed position, or any position to which it may be adjusted.

The improved sash-lock, as herein shown, comprises two locking-arms 4 and 5, which are provided at their lower ends with hubs 6 and 7, mounted on a supporting-rod 8, secured at its ends to the sides of the case 9 and extending through a lug 10 provided in the lower

portion of the lock-case, approximately central, between the perpendicular sides thereof. The supporting-rod 8 may be stationary and the locking-arms 4 and 5 swing or turn there-
 5 upon as a center, so that the locking-arms can move laterally with respect to the lock-case. The hubs 6 and 7 of the locking-arms are also susceptible of sliding longitudinally along the supporting-rod 8, and consequently the lock-
 10 ing-arms are susceptible of moving back and forth in the direction of the length of the supporting-rod, and also of moving laterally in a plane at right angles to the length of said rod. The hubs 6 and 7 of the locking-arms are
 15 acted upon by springs 12 and 13, which, as here shown, are in the form of spiral springs arranged upon the supporting-rod 8; but obviously the construction and arrangement of the springs can be variously modified so long as
 20 they accomplish the purpose for which they are intended, which is to constantly press the two locking-arms toward the left and thus tend to maintain the said arms in their locking position. The spring 12, as here shown,
 25 is arranged between the hub 6 of the locking-arm 4 and the lug 10 through which the rod extends, and the spring 13 is arranged between the hub 7 and the right-hand side wall of the lock-case.
 30 The hub 6 of the locking-arm 4 is provided with a flange or lug 14, which enters a notch 15 in the lower end of a movable lever 16. This lever is pivotally suspended at its upper end within the lock-case through the medium
 35 of a pivot-pin 17, and obviously the lever can oscillate, and when moved to the right it will carry with it the locking-arm 4. When the lever is released after having been moved toward the right, the spring 12, acting upon the
 40 hub 6 of the locking-arm 4, shifts the latter toward the left and restores the lever 16 to the position shown in Fig. 2. The lower end of the lever 16 is provided with a projection 18, bearing against the locking-arm 5, in juxtaposition
 45 to the hub 7 thereof, so that when the lever 16 is shifted toward the right, both locking-arms 4 and 5 will also be shifted in the same direction. When the lever 16 is released and permitted to move toward the left, as heretofore explained, the spring 13 will shift the
 50 locking-arm 5 toward the left and place it in the position shown in Fig. 2.

The lever 16 is operated through the medium of a finger-piece 19, preferably in the form of a bell-crank lever, pivoted at its
 55 angle to the lock-case, as at 20, and having a short arm 21 pivotally connected to a link 22, having a slot 23 in its inner end portion, through which extends a pin 24, projecting
 60 from the lever 16 in such manner that when the finger-piece 19 is pressed upwardly the link 22 will be drawn toward the right, and when the left-hand end of the slot 23 reaches the pin 24 the lever 16 will commence to move
 65 in the direction required to retract the locking-arms from their locking position (shown in Fig. 2) to the unlocking position. (Shown in

Fig. 4.) The pin-and-slot connection between the link 22 and the lever 16 permits the link 22 to have a certain longitudinal play before
 70 it actually commences to move or swing the lever 16, for a purpose which will hereinafter appear.

The inner end of the link 22 is provided with a small finger 25, formed as a longitudinal
 75 extension of the link and adapted to enter a notch 26 formed in the inner end portion of the locking finger-lever 27 pivoted to the lock-case, as at 28, and having its finger-piece 29 arranged above the finger-piece 19. 80
 The inner end portion of the finger-lever 27 is also provided with notches 30 and 31, either of which is adapted to receive a pin 32, fixed to the swinging lever 16. The notch 31 is of
 85 greater depth than the notch 30, and when all the parts are in their normal position, with the locking-arms 4 and 5 shifted to their locking position, the pin 32 lies in the notch 31 and the finger 25 of the link 22 lies in the
 90 notch 26 of the finger-lever 27, thereby effectually holding the locking-arms in their locking position and preventing their retraction until the finger-piece 19 is first operated to
 95 withdraw the finger 25 from the notch 26 and the finger-piece 29 is operated to raise finger-lever 27 and disengage it from the pin 32, after which continued upward pressure on
 the finger-piece 19 will shift the link 22 in the direction required to swing the lever 16
 100 toward the right and thereby move the locking-arms 4 and 5 in the same direction to retract them from their locking to their unlocking position.

When the finger-pieces 19 and 29 are operated, as above set forth, to fully retract the
 105 locking-arms 4 and 5 and the finger-piece 29 is released, while pressure is maintained on the finger-piece 19, the inner end portion of the finger-lever 27 will descend and the notch 30 will engage the pin 32, thereby locking the
 110 lever 16 in the position shown in Fig. 4 and holding the locking-arms in their unlocking position, so that the sash, one or more, can be raised or lowered without the locking-arms engaging the same. If, however, both finger-
 115 pieces 19 and 29 are simultaneously released, after they have been operated to shift the lever 16 toward the right to retract the locking-arms 4 and 5, both locking-arms will be simultaneously thrown to their locking position
 120 by the springs 12 and 13, and a spring 48, hereinafter referred to, will press the finger-pieces 19 and 29 away from each other, throw the lever 27 downward and shift the link 22 into engagement with the notch 26
 125 of said lever 27. By this means the several parts of the lock will be restored to their normal position, as shown in Fig. 2.

It will be obvious from the foregoing that it is impossible to retract either or both lock-
 130 ing-arms by simply manipulating one of the finger-pieces 19 or 29. In other words, to retract either or both locking-arms, it is essential to manipulate both finger-pieces 19 and 29.

The upper end portions of the locking-arms are provided with curved bearings 33 and 34 and projecting lugs 35 and 36, provided respectively with locking-studs 37 and 38, as will be best seen by reference to Fig. 1. The curved bearings 33 and 34 are adapted to rest against the edges 39 and 40 of the sashes 2 and 3, as best seen in Fig. 7, and the locking-studs 37 and 38 are adapted to enter notches, orifices or recesses 41 and 42 provided in the inner sides of the sashes 2 and 3, in juxtaposition to the edges 39 and 40 thereof. The notches, orifices or recesses 41 and 42 may be provided in any manner suitable for the purpose in hand, but I prefer to provide the corners of the sashes with metallic plates 43 and 44 in which the notches, orifices or recesses are constructed. The sashes are each provided with any number of these notches, orifices or recesses, and the latter are arranged in a vertical line in each sash, so that when the sashes are raised or lowered the locking-studs 37 and 38 will, if the locking-arms are not positively held retracted as before explained, automatically spring into engagement with the sashes and lock them in any desired position. If the locking-arms are not held retracted by the engagement of the ward 30 of the lever 27 with the pin 32 on the lever 16, the locking-studs 37 and 38 will spring into the notches, orifices or recesses whenever the latter coincide or register with the locking-studs. Obviously under such conditions the window-sashes will be stopped and locked whenever any of the notches, orifices or recesses in the sashes register with the studs 37 and 38, and unless these locking-studs can be held retracted whenever desired it would be necessary to manipulate the finger-pieces 19 and 29 many times during the complete raising or lowering of the sashes. To avoid this frequent manipulation of the finger-pieces when it is desired to raise or lower the sashes without their being engaged by the locking-studs of the locking-arms is the object or purpose of the pin 32 and notch 30 of the finger-lever 27.

The provision of means for rendering the locking-arms inactive as regards their locking engagement with the sashes in very advantageous, in that it enables the sashes to be raised or lowered without being engaged and locked by the sash-lock, while, if desired, the sash-lock can be manipulated so that its locking-arms will automatically engage and lock the sashes in any position to which they are moved.

The lock-case, as best shown in Fig. 1, is provided at the right-hand side with an enlarged portion 45, which in a large measure guards and protects the finger-pieces 19 and 29, while at the same time a person at the inside of the window can conveniently manipulate the finger-pieces.

The locking-arms 4 and 5 are acted upon by springs, as at 46, Fig. 5, which constantly press the locking-arms in the direction of the

arrow, so that the curved bearings 33 and 34 are maintained against the edges 39 and 40 of the sashes 2 and 3. The springs 46 permit the locking-arms to yield laterally with respect to the lock-case, and consequently these locking-arms will accommodate or compensate for any shrinking, swelling or warping of the window-sashes which would tend to displace the line of notches, orifices or recesses 41 and 42 out of proper alignment with the locking-studs 37 and 38. The springs, as at 46, may be of any known construction suitable for the purpose of constantly pressing the locking-arms toward the edges of the sashes. The bearings 33 and 34 are preferably curved to reduce frictional contact with the edges of the sashes; but, obviously, these bearings 33 and 34 may be of any desired form and constructed in any suitable manner.

The locking-arm 4, which directly connects with the lever 16, is adjustably mounted on the hub 6, of which the lug 14 is a part. The object of adjustably mounting the locking-arm 4 is that it can be shifted toward or from the locking-arm 5 and thereby enable the locking-arms to be adjusted relatively to one another for adapting them to different windows or sashes which differ in thickness. The adjustable connection between the locking-arm 4 and the hub 6 is preferably effected by splitting the lower end of the arm 4 and clamping it on the hub 6 by a screw 47, as best seen in Fig. 5. By loosening the screw 47 the arm 4 can be shifted to any desired position on the hub 6, and then by tightening the screw the arm will be rigidly clamped to the hub.

The finger-piece 19 and the finger-lever 27 are acted upon in any suitable manner through the medium of a spring 48, which throws the finger-pieces 19 and 29 apart or away from each other when released by the operator, and thereby restores the lever 27 and link 22 to normal position, as before explained. The spring for this purpose may be of any desired construction and arranged in any suitable manner.

In the operation of the improved sash-lock, if the locking-arms 4 and 5 are held retracted by the engagement of the notch 30 with the pin 32 of the lever 16, as shown in Fig. 4, and it is desired to render the locking-arms active as regards their locking engagement with the sashes, it is only necessary to press downwardly upon the finger-piece 29 to disengage the notch 30 from the pin 32, when the springs 12 and 13 will swiftly throw the locking-arms to their locking position, as shown in Fig. 2.

The construction and arrangement of parts as shown and described render it impossible to unlock the sash-lock unless both finger-pieces are simultaneously pressed toward each other, and therefore it is improbable that a person outside the window could introduce an instrument or stick under the window, even if the latter were slightly raised and locked, and operate both finger-pieces simultaneously. The lock, therefore, is a safeguard

against the window being raised from the outside by any person.

The improved sash-lock is well adapted for the windows of hotels at seaside or mountain resorts, where it is often desired to slightly open the window and lock it in such position so that unauthorized persons cannot raise or further open either sash from the outside.

I have described my sash-lock as provided with two locking-arms 4 and 5, but obviously one of the locking-arms can be dispensed with if the lock is only designed to lock one sash, but where two sashes of each window are to be locked in their closed position, or more or less open, the two locking-arms are employed.

It will be observed that since the locking-arm 5 is not directly attached to the pivoted lever 16, it is possible for the locking-arm 5 to be held retracted against the tension of the spring 13 after the lever 16 has been released and the locking-arm 4 has sprung to its locking position. (Shown in Fig. 2.) The purpose of this is that the locking-stud 38 can bear against the edge of the lower sash until the locking-stud registers with one of the notches, orifices or recesses, when the locking-arm 5 will spring forward and the locking-stud 38 will enter one of the notches, orifices or recesses.

My improved sash-lock can be applied either to the right-hand or to the left-hand side of the window-frame to suit the conditions required.

The sash-lock is comparatively simple in construction, yet it is durable and efficient in use. It is strong and substantial and when in place on the window-frame it occupies such position relatively to the frame and sashes that it cannot be picked and cannot be operated from the outside of the window.

Having thus described my invention, what I claim is—

1. In a sash-lock, the combination of a pivoted, swinging, locking-arm shiftable back and forth to locking and unlocking position and also adapted to swing laterally to accommodate shrinking or swelling of the sash-frame, said arm having a bearing to rest against the edge of the sash-frame, and a laterally projecting stud in front of said bearing to spring into engagement with recesses in the sash-frame, and devices for shifting the locking-arm to locking and unlocking position, substantially as described.

2. In a sash-lock, the combination of a locking-arm shiftable back and forth to locking and unlocking position, and also movable laterally to accommodate shrinking or swelling of the sash-frame, said arm having a bearing to constantly rest against the edge of the sash-frame, and a laterally projecting stud located in front of said bearing to spring into engagement with recesses in the sash-frame, a pivoted swinging lever engaging a part of the locking-arm, a pivoted finger-piece, and a link connected at one end with the finger-piece, and at the other end with the said lever

for swinging the same to retract the locking-arm from engagement with the sash-frame, substantially as described.

3. In a sash-lock, the combination of a locking-arm, having means to engage a sash-frame and movable back and forth to locking and unlocking position, a movable lever engaging a part of the locking-arm and two finger-pieces, one of which has a link connection with the lever and the other one of which is provided with means for engaging and locking the link, so that the lever which retracts the locking-arm cannot be shifted unless both finger-pieces are simultaneously operated, substantially as described.

4. In a sash-lock, the combination of a locking-arm, having means to engage a sash-frame and movable back and forth to locking and unlocking position, a movable lever engaging a part of the locking-arm, a finger-piece, a link connecting the finger-piece with said lever, and a locking-lever having a finger-piece and provided with means to engage the said link and also engage the said lever, whereby the locking-arm cannot be retracted unless both finger-pieces are actuated, substantially as described.

5. In a sash-lock, the combination of two locking-arms, having means to engage two sash-frames and independently movable back and forth to locking and unlocking position, and also movable laterally to accommodate shrinking or swelling of the sash, a pivoted swinging lever acting upon both locking-arms to shift the latter from locking to unlocking position and a finger-piece having a link connection with the said lever, substantially as described.

6. In a sash-lock, the combination of two locking-arms movable back and forth to locking and unlocking position and having means to engage two sash-frames, a pivoted swinging lever acting upon both locking-arms to shift them to unlocking position, a finger-piece having a link connection with the said lever, and a locking-lever having means to engage the link of the finger-lever and also engage the pivoted swinging lever, whereby the two locking-arms cannot be retracted unless the finger-piece and the locking-lever are both actuated, substantially as described.

7. In a sash-lock, the combination with a lock-case having a supporting-rod, of two swinging locking-arms pivotally mounted on the supporting-rod and movable longitudinally thereof, a pivoted swinging lever acting to move both locking-arms on the supporting-rod, and a finger-piece having a link connection with said lever, substantially as described.

8. The combination with a lock-case having a supporting-rod, of two locking-arms pivotally mounted on the supporting-rod and movable longitudinally thereof, a pivotally swinging lever acting to shift both locking-arms on the supporting-rod, a pivoted finger-piece having a link connection with said le-

ver, and a locking-lever having a finger-piece and provided with means for engaging the link of the finger-piece and also engaging the said pivoted swinging lever, whereby the two locking-arms cannot be retracted unless both finger-pieces are actuated, substantially as described.

9. The combination with a lock-case having a supporting-rod, of a locking-arm pivotally mounted on the supporting-rod, movable longitudinally thereof and provided with a lug, a pivoted swinging lever engaging the said lug, and a pivoted finger-piece having a link connection with said lever for swinging the latter to move the locking-arm longitudinally of the supporting rod, substantially as described.

10. The combination with a lock-case having a supporting-rod, of two locking-arms movable longitudinally of the supporting-arm, a pivoted swinging lever acting to shift both locking-arms in one direction on the supporting rod, springs for shifting the locking-arms in the opposite direction on the supporting-rod, and a finger-piece having a link connection with the said lever, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

PHILIP S. RIDDELLE.

Witnesses:

ALBERT H. NORRIS,
O. T. THOMPSON.