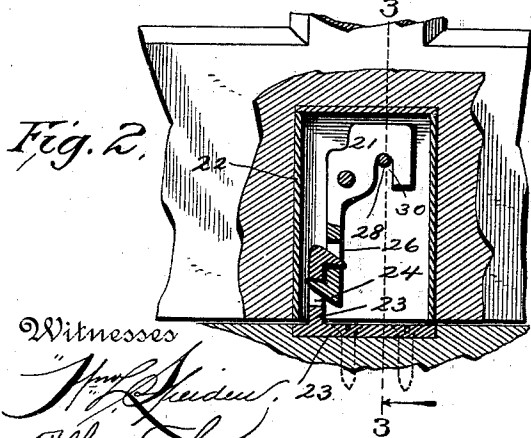
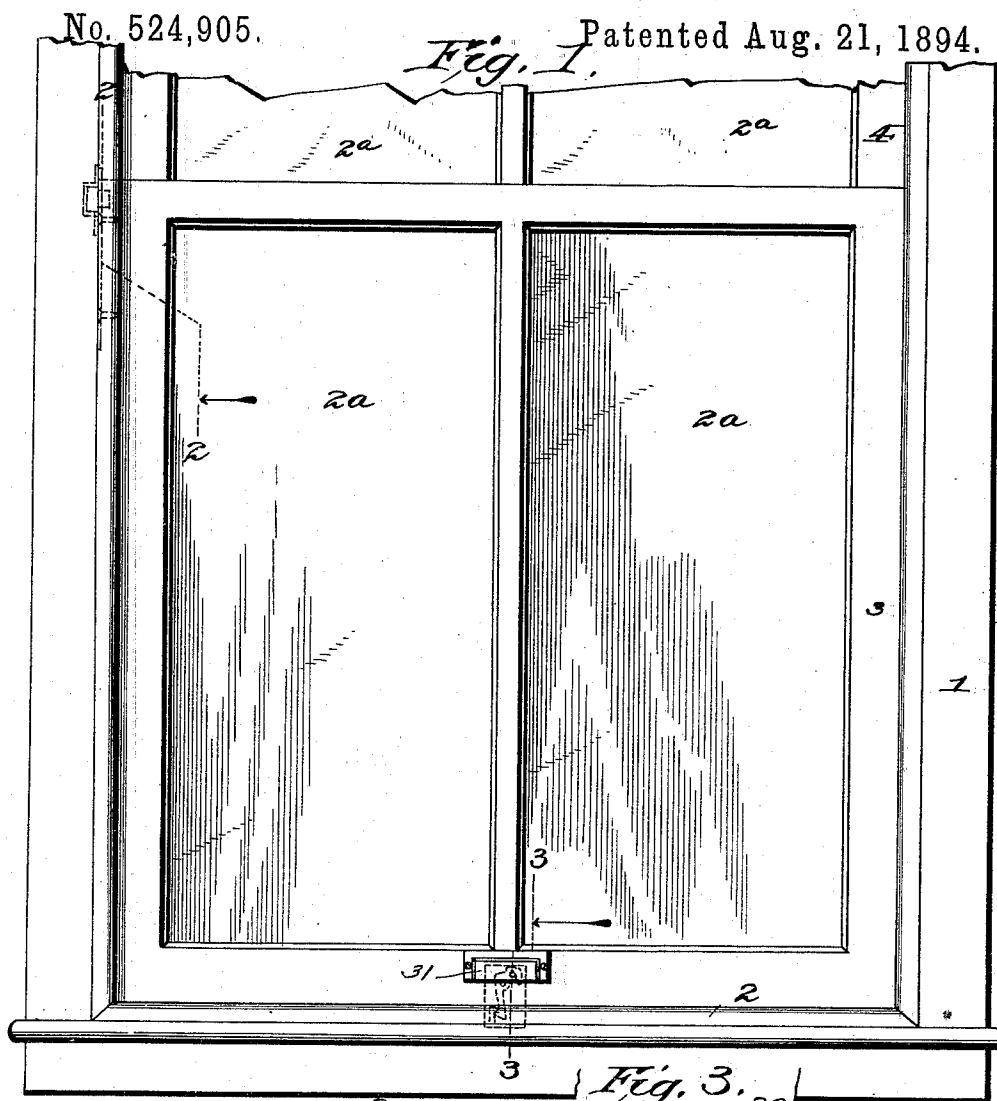


L. C. MILLER.
SASH FASTENER.

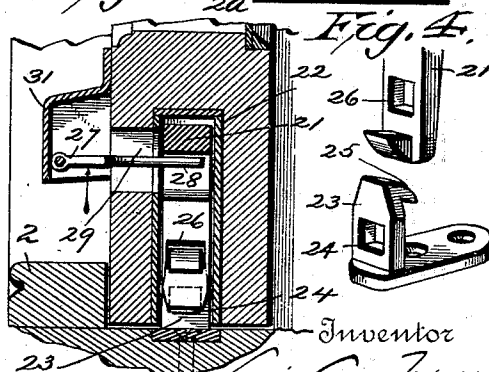
No. 524,905.

Patented Aug. 21, 1894.



Witnesses

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Inventor

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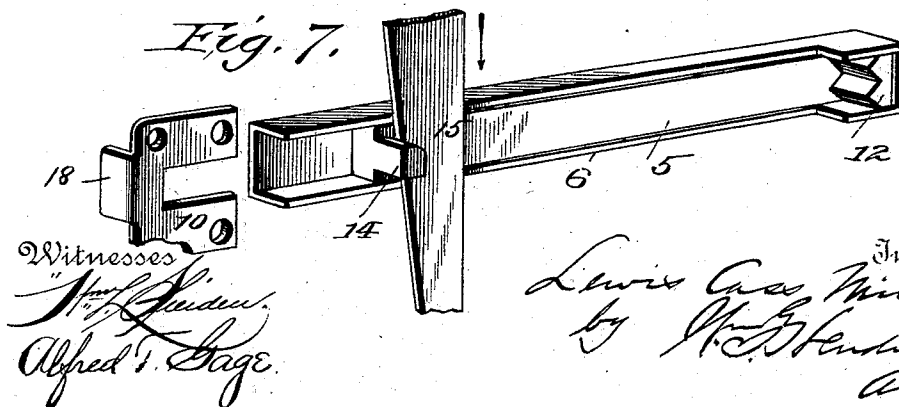
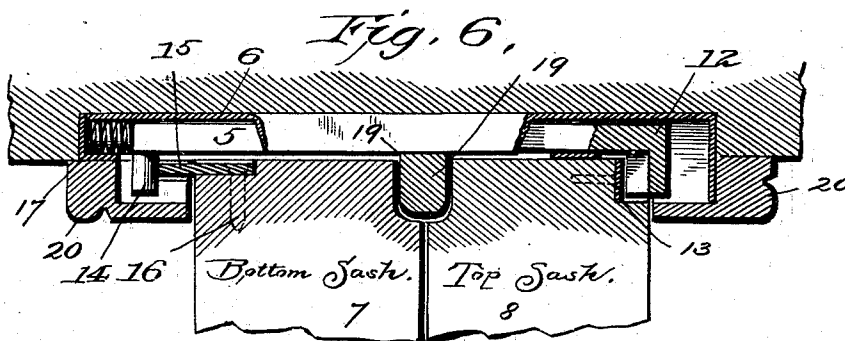
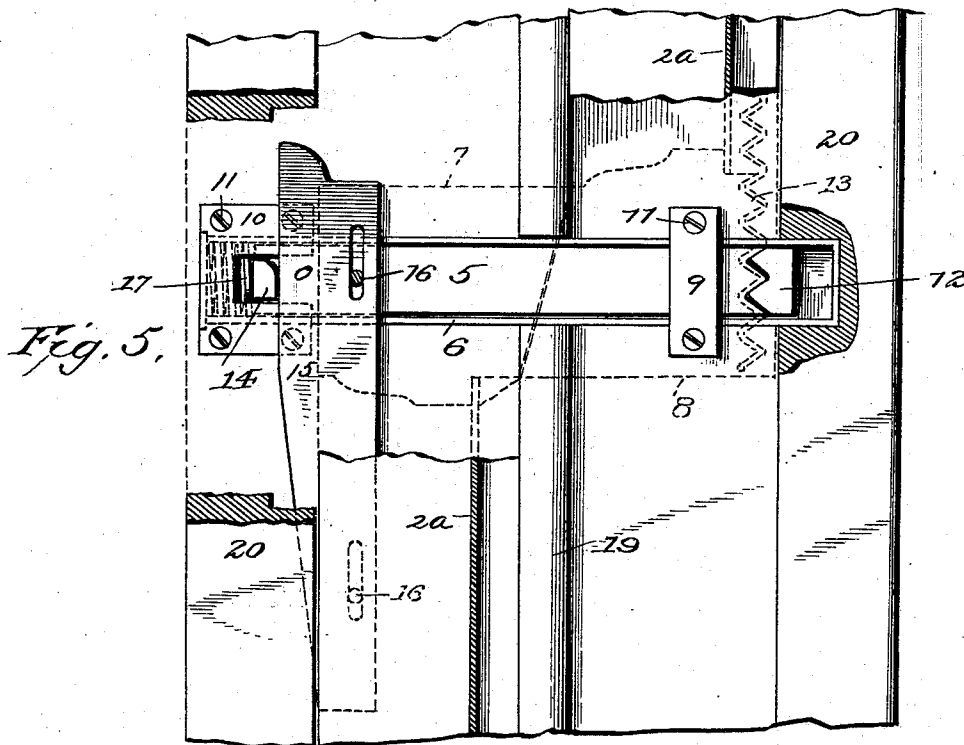
(No Model.)

3 Sheets—Sheet 2.

E. C. MILLER.
SASH FASTENER.

No. 524,905.

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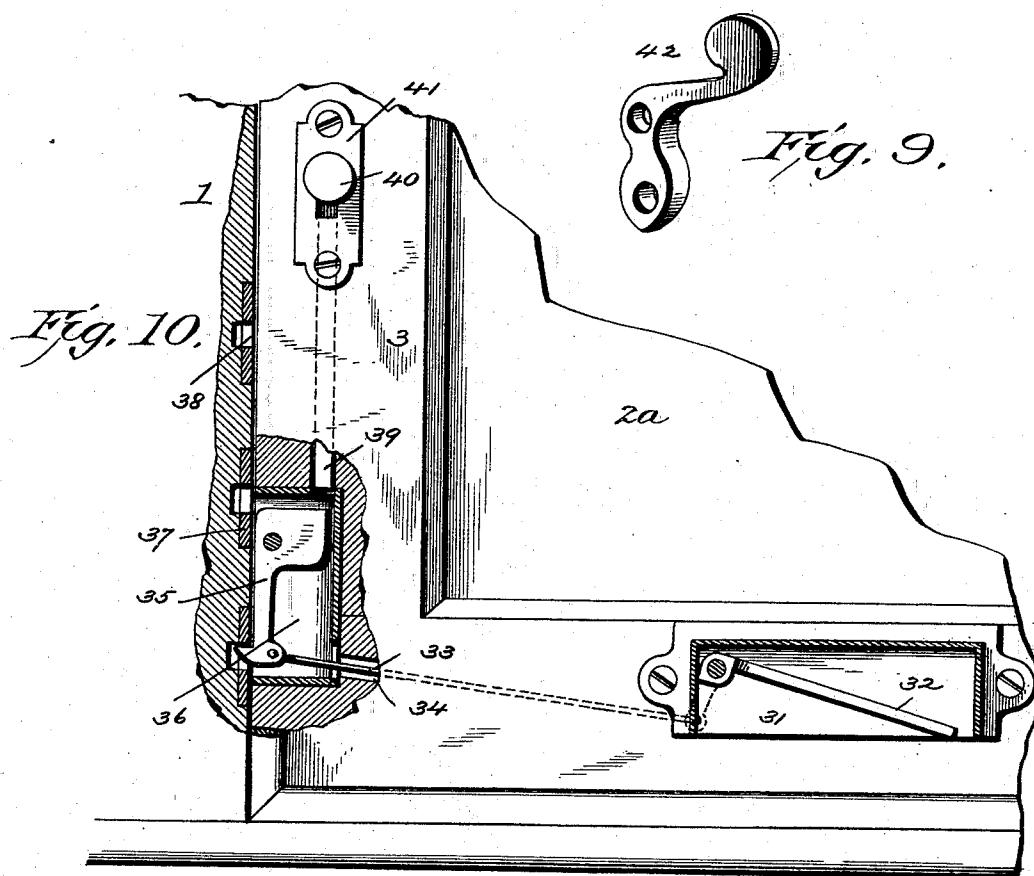
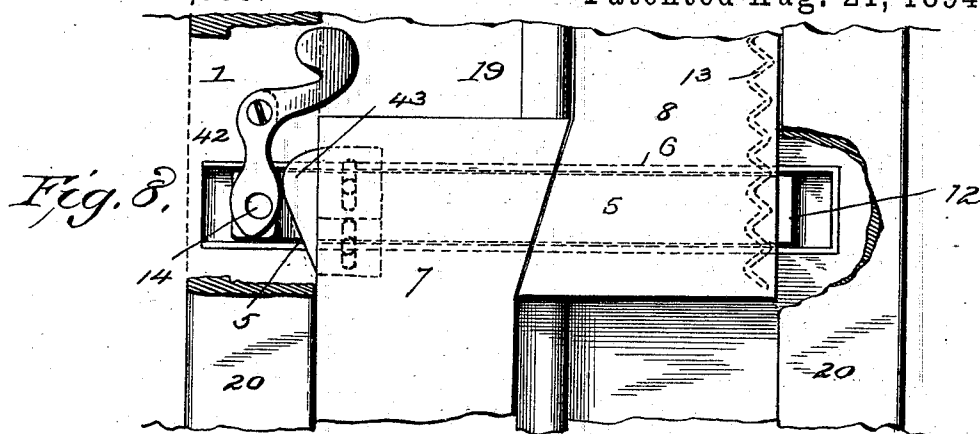
(No Model.)

3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

LEWIS CASS MILLER, OF ST. LOUIS, MISSOURI.

SASH-FASTENER.

SPECIFICATION forming part of Letters Patent No. 524,905, dated August 21, 1894.

Application filed December 30, 1893. Serial No. 495,204. (No model.)

To all whom it may concern:

Be it known that I, LEWIS CASS MILLER, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Sash-Fasteners; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to sash fasteners or locks, and has primarily for its object to produce a fastener or lock which will be entirely concealed from view and securely lock the sash and which will also permit either the top or bottom sash to be locked in one or more positions. It is also designed to have the fastener or lock of such construction that it will also serve to prevent the sash from rattling, and it may be termed an invisible anti-rattler sash fastener or lock.

To the accomplishment of the foregoing and such other objects as may hereinafter appear the invention consists in the construction and in the combination of parts hereinafter particularly described and then sought to be specifically defined by the claims reference being had to the accompanying drawings forming a part hereof and in which—

Figure 1 is a front elevation of a portion of a window frame showing one sash and a portion of the top sash with my invention applied thereto. Fig. 2 is an enlarged detail view with parts in section showing the bottom sash lock. Fig. 3 is a cross section on the line 3—3 of Figs. 1 and 2 of the drawings. Fig. 4 is a perspective detail of the two hooks that may constitute the lock to the bottom sash. Fig. 5 is a side view looking in the direction of the arrow in Fig. 1 with parts in section on the line 2—2 of Fig. 1, the outline of the meeting rails being shown in dotted lines. Fig. 6 is a cross section through a portion of the window frame and the bottom and top sash with parts broken away along the line where the lock for the top sash is applied. Fig. 7 is a perspective of the lock for the top sash with a portion of the wedge or cam broken away. Fig. 8 is a side view of a modi-

fied form of the invention. Fig. 9 is a detail perspective of a portion of the modified construction that may be employed; and Fig. 10 is a side view with parts broken away and other parts in section showing a modified form of lock for the lower sash.

In the drawings the numeral 1 designates the sash frame and 2 the sill, and 2^a the glass, while 3 designates the bottom sash and 4 the top sash.

The fastener or lock consists of two main parts which are separated from each other but which must be employed together in order to form the complete fastener or lock in order to fasten the bottom and the top sash so that neither can be opened, the arrangement being such that the manipulation of one of the main parts is necessary before the other main part can be operated.

I will now proceed to describe the construction and application of each of the two main parts of the fastener or lock and show the dependence of one upon the other.

One of the main parts is applied at or adjacent to the meeting rails of the bottom and top sash, and the other main part is applied at or adjacent to the lower portion of the bottom sash. The part applied at or adjacent to the meeting rails of the bottom and the top sash is composed of what I will for convenience designate as a bolt 5 which preferably works in a case or shell 6 which is placed in a suitable opening or cavity made therefor in one side of the sash frame at a point opposite the meeting rails 7 and 8 and extending across the two meeting rails as is illustrated in Figs. 5, 6 and 8 of the drawings. The bolt 5 reciprocates in its case or shell and is held therein and the shell or case in its cavity, preferably by the plates 9 and 10 which may be secured to the side of the window frame by screws 11 as illustrated in Fig. 5 of the drawings. The sliding bolt 5 is provided at one end with a tooth or teeth 12 adapted to engage with a serrated plate 13 secured along one edge of the stile of the top sash 8 as illustrated in Figs. 5, 6 and 8 of the drawings, this serrated plate being either cast or preferably made of a corrugated strip of metal secured by screws, or otherwise, as indicated by dotted lines in Fig. 6 to the sash stile. The other end of the

bolt 5 is formed with a pin or projection 14 so that a cam acting thereon may serve to slide the bolt. The preferred form of cam for actuating the bolt is designated by the numeral 15 and consists of a metal plate secured to the forward edge of the stile of the bottom sash next to the side of the window frame so that it will project beyond the stile and have its face engage the pin or projection 14 of the bolt as illustrated clearly in Figs. 5 and 6 of the drawings. This plate is secured to the stile by screws 16, and the openings in the plate through which the screws pass are preferably elongated as illustrated by dotted lines in Fig. 5 so as to allow the plate to be adjusted vertically to the extent desired.

The face of the plate which engages the projection 14 of the bolt is preferably made partly inclined and partly straight as illustrated in Fig. 5, the inclined portion serving to move the bolt in one direction so as to bring its tooth into engagement with the corrugated plate 13 to lock the top sash and also permitting the bolt to move in the opposite direction when the tooth is to be disengaged from the corrugated plate when the top sash is to be unlocked, and the straight portion serving to hold the bolt in locking engagement with the corrugated plate of the top sash at different points within the length of the straight portion thereby permitting the lower sash to be partially raised without unlocking the top sash, the lower sash being provided with suitable means such as that hereinafter illustrated by means whereof it may be locked in its partially raised position while the top sash at the same time remains locked.

The top sash can be lowered and locked at any point within the length of the corrugated plate 13 by simply raising the bottom sash until its cam releases the bolt 5 when the top sash can be lowered to the extent desired after which the bottom sash will be lowered so that its cam will act on the projection 14 to slide the bolt into locking engagement with the corrugated plate of the top sash thereby locking the top sash so that it cannot be moved until the bolt is released by lifting the bottom sash.

I prefer to employ a suitable spring for the purpose of retracting or moving the bolt 5 out of locking engagement with the corrugated plate of the top sash but it is not necessary. However it may be employed and in that event it may be a coiled spring 17 located in the shell or case 6 back of the bolt 5 as illustrated in Figs. 5 and 6 of the drawings, and said spring may be held in place by the plate 10 which preferably is formed with a lip 18 to close the opening of the case or shell 6 as illustrated in Figs. 6 and 7 of the drawings. This construction also serves to prevent the sash from rattling for as the cam on the bottom sash presses against the projection of the bolt 5 to throw it into locking engagement the bottom and the top sash are by the same

means drawn toward each other at the meeting rails of the two sashes and being thus drawn toward each other and against the dividing bead 19 between the two they are prevented from rattling.

It will be observed that the lock is concealed in the side of the sash frame beneath the beads 20 and to one side of both the top and bottom sash so that no portion is exposed to view and therefore the parts cannot be reached by any person from the outside who desires to surreptitiously gain an entrance through the window. In order to render this lock thoroughly efficient to hold the top sash against movement it is necessary to employ in connection therewith a lock for the bottom sash because unless the bottom sash is locked the locking of the top sash will serve no useful purpose except that of binding the bottom and top sash so as to prevent them from rattling. The necessity therefore of a lock for the bottom sash will be apparent.

The lock for the bottom sash may be of various forms and constructions but the construction which I consider best is that illustrated in the drawings, two forms of that feature of this invention being illustrated. One form is shown in Figs. 1 to 4 of the drawings and it consists of a gravity latch or pawl 21 which is set into the lower rail of the bottom sash preferably by pivoting the pawl in a shell or casing 22 which will be set into a cavity formed in the bottom rail as illustrated clearly in Figs. 2 and 3 of the drawings.

A suitable catch 23 is secured to the sill of the sash frame for the gravity latch or pawl 21 to engage with. This catch is preferably of a form illustrated in Figs. 2 to 4 of the drawings and has an opening 24 for the hooked end of the latch or pawl to enter and is preferably formed with a hook 25 to enter an opening 26 formed in the pawl or latch as illustrated in Fig. 2 so that the latch or pawl and catch will lock with each other as illustrated in Fig. 2. It will be observed that this gravity pawl or latch and its catch are both concealed from view.

For the purpose of disengaging the latch and its catch a pivoted lever 27 is employed from which extends a rod or finger 28 which will extend through an opening 29 made in the bottom rail of the bottom sash and engage the gravity pawl or latch 21 as illustrated in Figs. 2 and 3 of the drawings, the latch or pawl preferably being formed with a slot 30 in its tail end for the rod or finger to enter. This lever 27 is preferably pivoted to the inside of the sash lift 31 and is concealed by the lift and is reached by inserting the finger under the lift. When the lever is pressed upward the latch or pawl is thrown out of engagement with its catch and the sash can be raised, and when the sash is lowered the pawl or latch swings by gravity and locks with its catch so that the sash cannot be raised. This lower sash lock is illustrated in connection with a single sash lift located at

the middle of the lower rail of the sash, but it is obvious that it can be operated in the same way when two sash lifts are employed, one located near each stile of the sash that
 5 being a mere matter of location of the lock and its application being obvious to the skilled in the art and therefore needs no separate illustration.

Instead of the particular form of lock for
 10 the bottom sash just described I may employ its equivalent form which is illustrated in Fig. 10 of the drawings wherein the operating lever 32 is shown as pivoted inside of the sash lift 31 and to this lever is connected one end
 15 of a finger or rod 33 which will extend through an opening 34 made in the lower rail of the sash and have its other end connected to the gravity latch or pawl 35 which is pivoted in a shell or casing 36 set into an opening formed
 20 in the stile of the bottom sash and adapted to have its hooked end engage a catch 37 which may be a metallic plate formed with a series of openings 38 and set into the side of the sash frame as illustrated clearly in Fig. 10 of
 25 the drawings. This illustration of another form of the sash lock operates in substantially the same way as the form illustrated in Figs. 2 and 3 of the drawings.

When the lever 32 is pressed by the fingers
 30 the gravity latch or pawl 35 is thrown out of engagement with its catch and when the lever is released the pawl or latch engages by gravity with its catch and locks the sash. By having the series of openings in the catch
 35 37, the sash may be locked at different heights so that if it be desired to have the window slightly raised from the bottom for the purpose of ventilation the sash can be adjusted for that purpose and be locked in its
 40 adjusted position, the lock being concealed from view the same as in the form illustrated in Figs. 2 and 3 of the drawings.

Inasmuch as the top sash can be lowered
 45 so as to leave an opening at the top of the window for ventilation as previously described, and as the bottom sash can be raised and be locked in its raised position as just specified, it will be seen that ventilation can be had through both the top and the bottom
 50 of the window and both the bottom and the top sash be locked so that they cannot be moved except by operation of the locks to both the bottom and top sash.

The straight portion of the cam 15 admits
 55 of the adjustment of the bottom sash to an extent proportionate to the length of the straight portion of the cam without unlocking the top sash, and in the manner described provision is made for locking both sashes or
 60 one sash alone if desired in a position to give ventilation at top and bottom of the window. As the lock for both the bottom and the top sash is concealed and there is nothing exposed to view to indicate the location of the
 65 two locks, neither sash can be opened except by a person having knowledge of the location of the two locks and therefore the greatest

protection and security is afforded by the invention.

As security against manipulation of the
 70 lock to the bottom sash by a person outside of the window who might have obtained knowledge of the location of the lock, I may provide a bolt 39 operating inside of the stile
 75 to the bottom sash and adapted to be thrown down by a set screw or thumb nut 40 so that its lower end will be brought close enough to the gravity latch or pawl as to prevent it being
 80 oscillated on its pivot so that when the latch or pawl is thus locked it cannot be operated to unfasten the bottom sash. When the bolt 39 is thrown down or raised it can be held to its position by simply tightening
 85 the thumb nut or set screw 40. This thumb nut may be located at such point on the stile that it cannot be reached by insertion of the hand under the bottom sash when the sash is raised.

The numeral 41 indicates merely a face plate or escutcheon to the bolt 39 and set
 90 screw 40.

Some of the advantages of the lock to the
 95 top sash can be obtained by the employment of a different construction from that illustrated in Fig. 5 of the drawings. For instance I may employ a crank lever 42 illustrated in
 100 Figs. 8 and 9 of the drawings, this lever being set into the side of the sash frame and pivoted therein as illustrated in Fig. 8 so that only a small portion of its upper end will be exposed
 105 to view from under the inside bead 20 while its lower arm will be loosely connected to the pin or projection 14 of the bolt 5 so that by actuating this crank lever the bolt will be moved so as to throw it into its locking and
 110 also into its unlocking position.

The upper portion or arm of the lever 42
 115 which projects from under the bead 20 lies in the line of movement of the bottom sash so that when that sash is raised the edge of its meeting rail will strike the under side of the projecting portion of the lever and turn
 120 the lever so as to throw the tooth of the bolt 5 out of engagement with the corrugated plate 13, thus unlocking the top sash.

From the edge of the stile, in line with the
 125 meeting rail of the bottom sash projects the cam 43 which when the bottom sash is raised passes behind the lever 42 without engaging the lever, the lever being cut away on that side as indicated in Fig. 9 so as to allow the
 130 cam to pass. When however the bottom sash is lowered, the cam 43 strikes against the lower arm of the lever which has been thrown into the line of travel of the cam by the top of the sash striking the upper end of the lever, and when the cam thus engages the lower arm of the lever it moves the bolt 5 so that its tooth will engage the corrugated plate 13 and thus lock the top sash, which movement
 135 of the cam at the same time throws the upper end of the lever out from behind the bead 20 so that it will be struck by the top of the bottom sash when the sash is raised. This form

of the lock to the top sash is automatic in its operation the same as the other form of lock is automatic; and the operation of this form is dependent upon the bottom sash and upon the locking of the bottom sash the same as in the case of the other form. This form also serves as an anti-rattler as the two sashes are drawn toward each other in the operation of the lock so as to firmly bind the sashes against the sash beads and thus prevent rattling of the sash. The first form of the invention however is preferred as all of the parts in that form are entirely concealed and greater protection thereby afforded.

I have set forth the main advantages of this anti-rattler sash fastener or lock but other advantages than those I have particularly specified will suggest themselves from a careful consideration of the features illustrated and described. I have also described and illustrated what I consider to be two of the best forms of the invention but various modifications thereof are obvious and will be apparent to the skilled in the art and therefore while illustrating and describing with particularity the details of construction in the two preferred forms, I do not mean to be understood as restricting the invention to the particular details of construction and arrangement shown and described.

Having described my invention and set forth its merits, what I claim is—

1. In a sash lock or fastener, a sliding bolt placed transversely across the meeting rails of the bottom and top sashes and adapted to engage a locking plate secured to one of the sashes, and means operated by movement of one of the sashes to actuate said bolt, and to hold said bolt in engagement with the locking plate, substantially as and for the purposes described.

2. In a sash lock or fastener, a sliding bolt placed transversely across the meeting rails of the bottom and the top sash and set into the window frame, a locking plate secured to one sash in a position to be engaged by that bolt, and means carried by the other sash and actuating the bolt in the movement of that sash, said bolt, locking plate, and bolt actuating means being inclosed by the window frame and two sashes to conceal the same from view substantially as and for the purposes described.

3. In a sash lock or fastener, a sliding bolt

placed transversely across the meeting rails of the bottom and the top sash and adapted to engage a locking plate secured to one of the sashes, and a cam secured to the other sash and adapted to actuate said bolt in the movement of the sash, said cam having an actuating face so formed that during a partial movement of the cam it will actuate the bolt and during the further movement of the cam it will not actuate the bolt whereby the sash carrying the cam may be held at various adjustments without actuating the bolt to unlock the other sash, substantially as and for the purposes described.

4. In a sash lock or fastener, a sliding bolt placed transversely across the bottom and the top sash and adapted to engage a locking plate secured to one of the sashes, means carried by the other sash to actuate said bolt automatically in the movement of the sash, and means carried by the same sash to prevent the bolt actuating means from being moved except when released by said means, substantially as and for the purposes described.

5. In a sash lock or fastener, a sliding bolt placed transversely across the bottom and the top sash and adapted to engage a locking plate secured to one of the sashes, a cam carried by the other sash for actuating said bolt and having a portion of its face formed to permit movement of the cam without actuating the bolt, and means carried by the same sash for locking it at various adjustments, whereby the top sash can be lowered and the bottom sash raised and both sashes be locked in their adjusted positions, substantially as and for the purposes described.

6. In a sash lock or fastener, the combination with automatically operating mechanism for locking the top sash by the downward movement of the bottom sash, of means for locking the bottom sash in its lowered position to prevent the opening of the top sash until the locking means of the lower sash is released substantially as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

LEWIS CASS MILLER.

Witnesses:

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RUFUS J. DELANO.