

J. L. GRETHER.

SASH LOCK.

APPLICATION FILED APR. 24, 1908.

931,194.

MODEL.

Patented Aug. 17, 1909.

2 SHEETS—SHEET 1.

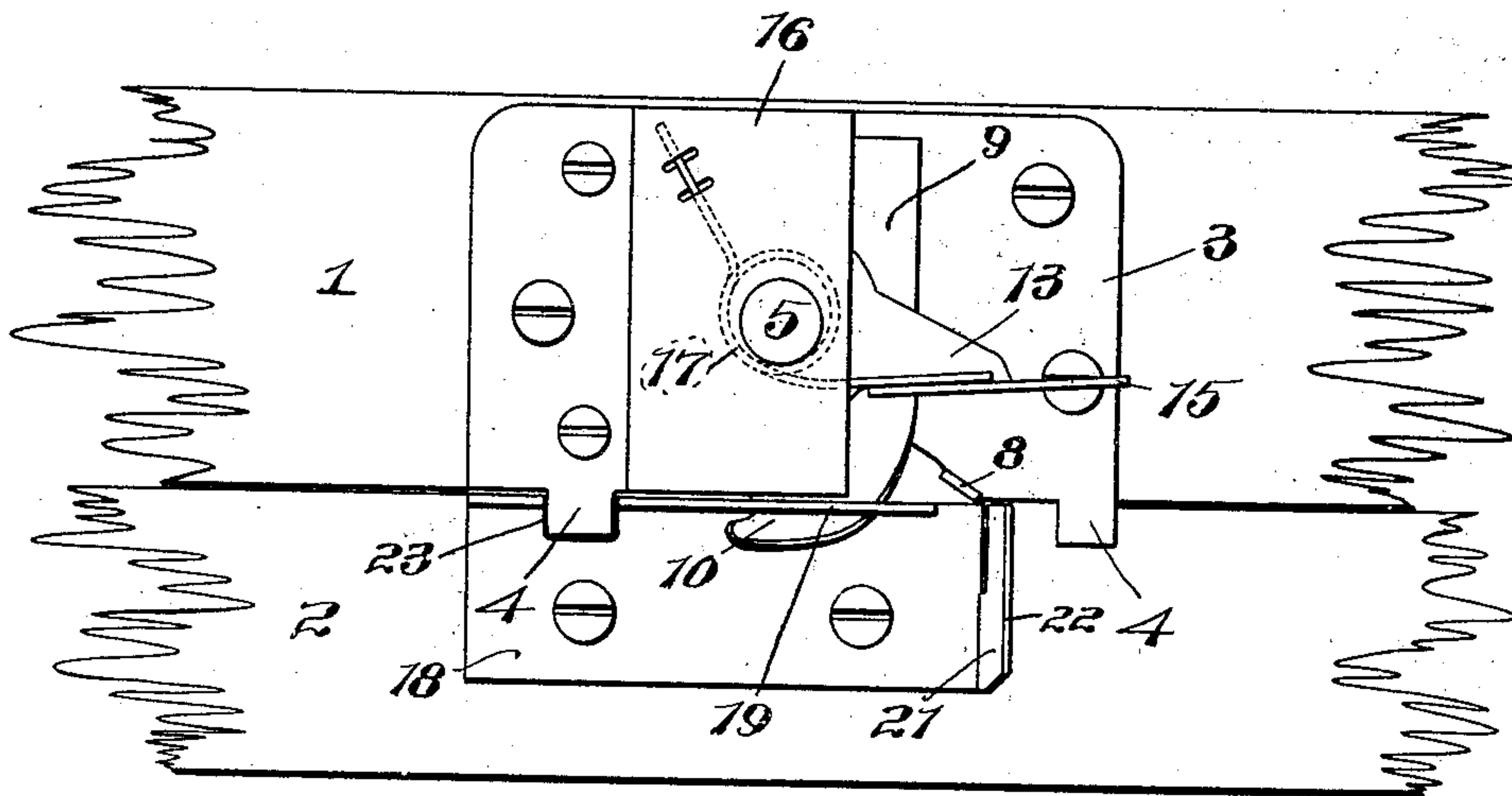


Fig 1.

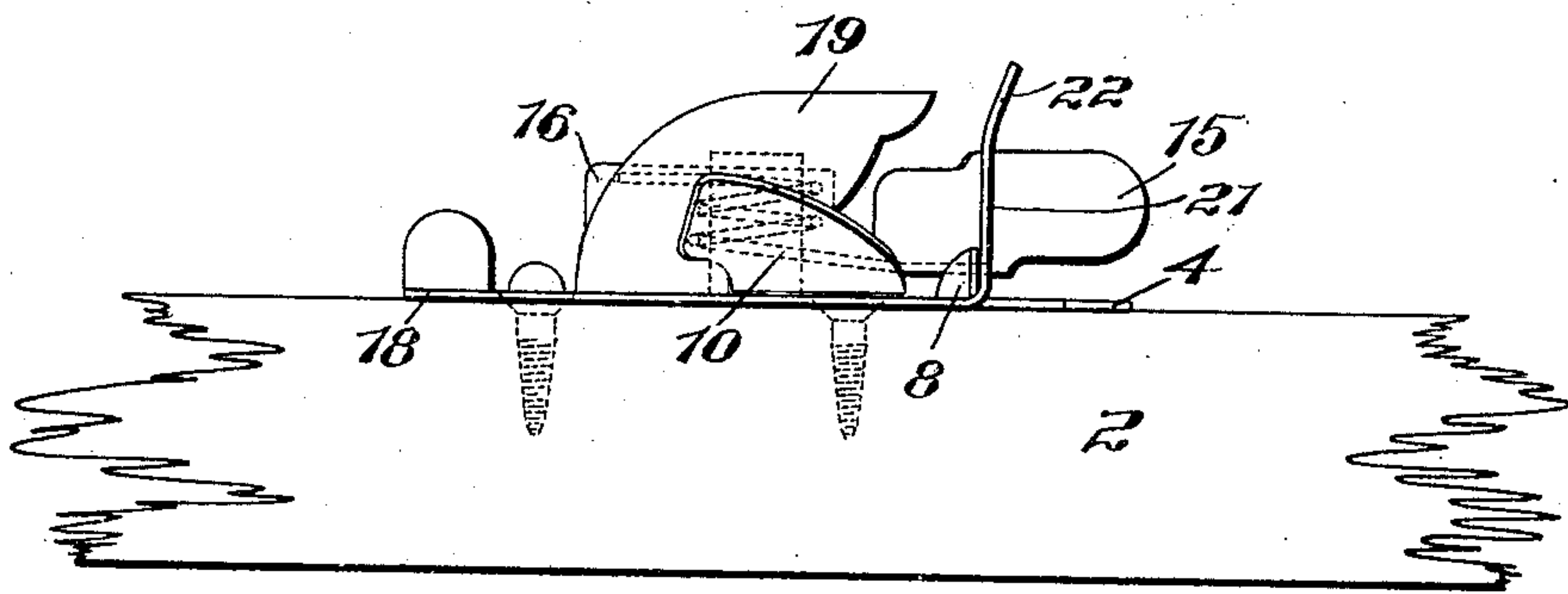


Fig 2.

Witnesses

M. P. Smith
E. J. Fletcher

Inventor.

JOHN L. GRETHER.

By Nigdon Foucar.

Att'ys.

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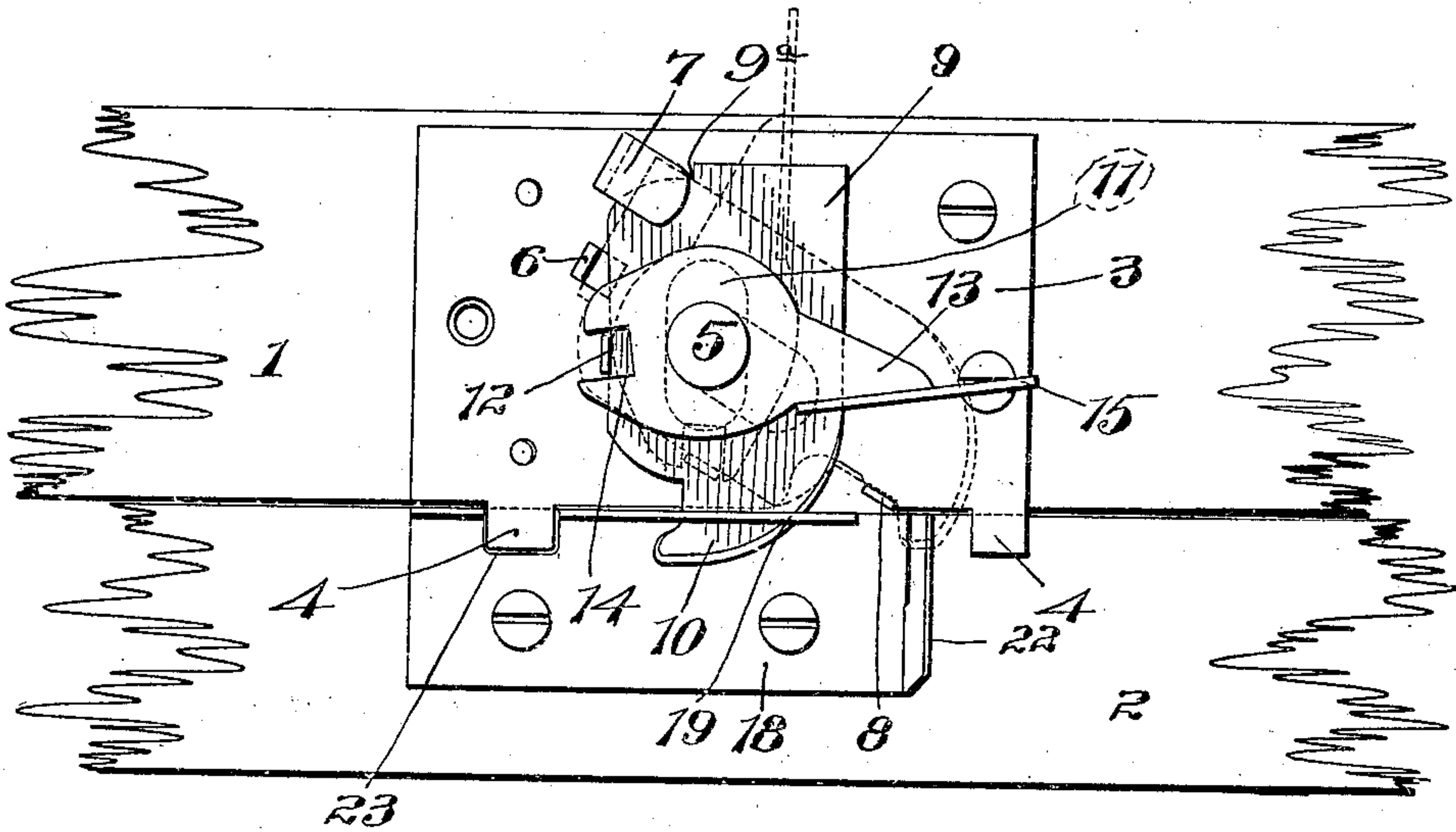


Fig 3.

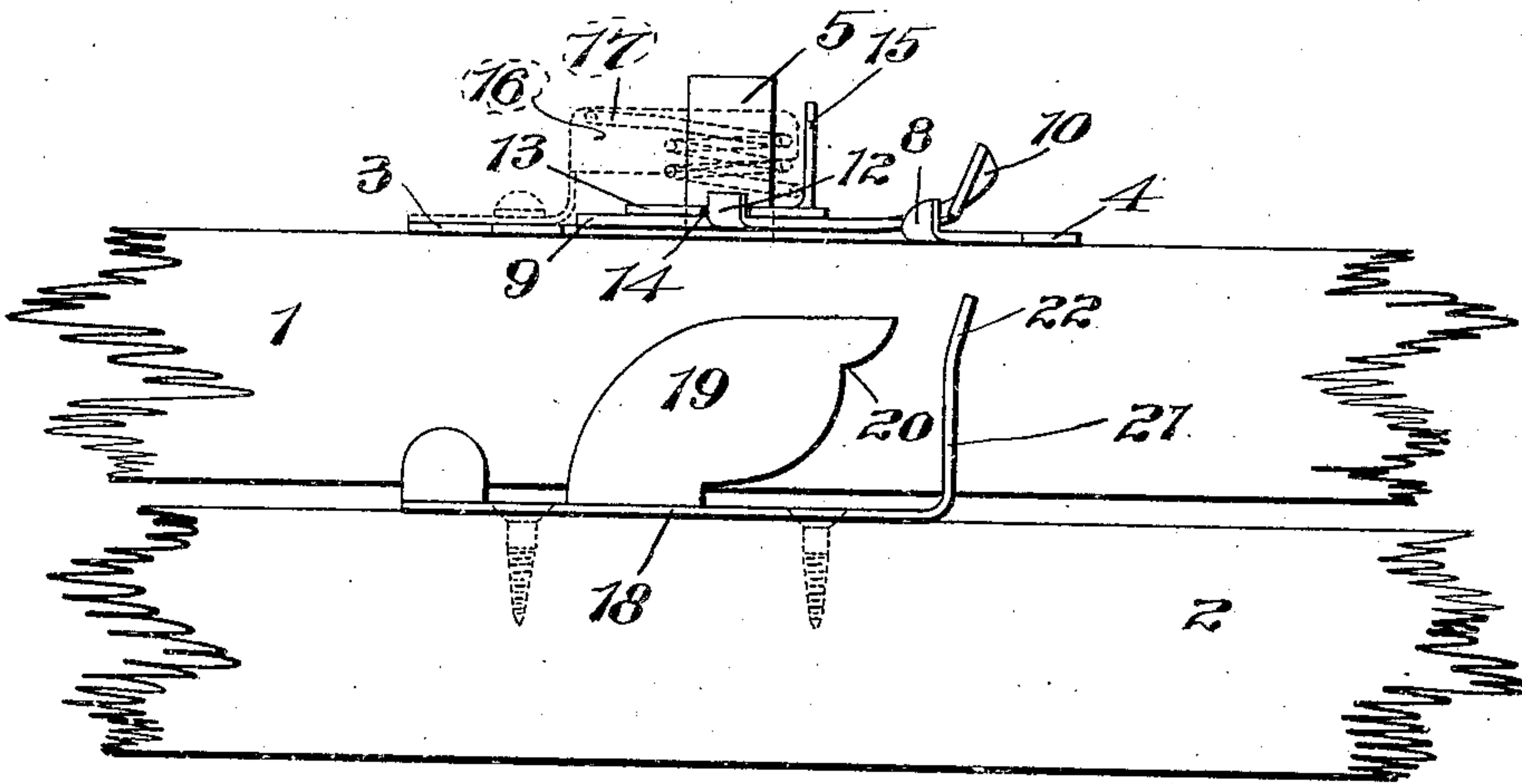


Fig 4.

Witnesses

M. P. Smith
A. J. Fletcher.

Inventor

John L. GRETHER.

By Nigdon Zougan.
Attys.

UNITED STATES PATENT OFFICE.

JOHN L. GREETHER, OF ST. LOUIS, MISSOURI, ASSIGNOR TO HERMAN BATAVIA, OF ST. LOUIS, MISSOURI.

SASH-LOCK.

No. 931,194.

Specification of Letters Patent.

Patented Aug. 17, 1909.

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To all whom it may concern:

Be it known that I, JOHN L. GREETHER, a citizen of the United States, and resident of St. Louis, Missouri, have invented certain new and useful Improvements in Sash-Locks, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to a sash lock, my object being to construct a simple, inexpensive sash lock comprising a minimum number of parts, and which is designed to automatically lock two sash frames together, and the locking bolt of which sash lock automatically draws the two sash rails together when moving into a locked position, thereby taking up the space between said rails, and said locking bolt being positively locked against reverse motion by the introduction of any instrument from the exterior of the window.

To the above purposes, my invention consists in certain novel features of construction and arrangement of parts, which will be hereinafter more fully set forth, pointed out in the claims, and illustrated in the accompanying drawings, in which:

Figure 1 is a plan view of a sash lock of my improved construction applied to the meeting rails of a pair of sashes; Fig. 2 is an elevation of the lock in position on the sash rails; Fig. 3 is a plan view of the lock with the housing removed; and Fig. 4 is an elevation of the lock with the bolt shifted into an unlocked position.

Referring by numerals to the accompanying drawings: 1 designates the top rail of the lower sash and 2 the bottom rail of the upper sash, and rigidly fixed on the rail 1 is a bed plate 3, provided on its rear edge with a pair of projecting lugs 4, and formed integral with or fixed to said bed plate at a point adjacent its center is a post or pin 5. Formed integral with this bed plate to one side of the post 5 is a lug 6, and formed on or fixed to the plate 3 adjacent this lug 6 is a horizontally disposed plate or keeper 7, which occupies a plane slightly above and parallel with said base plate 3.

Formed integral with the rear edge of the base plate 3 and on the opposite side of the post 5 from the lug 6 is a lug 8. 9 designates the locking bolt, which is in the form of a plate, the forward end of which is

curved upward, as designated by 10, and formed through this locking bolt is a slot 11, through which the post 5 projects. The end of this locking bolt opposite from the upwardly bent end 10 operates beneath the plate or keeper 7, and formed integral with one side of said locking bolt is an upwardly projecting lug 12. Formed in the rear edge of the locking bolt 9 is a notch 9^a, in which the lug 6 engages when the locking bolt is partially shifted into a locked position, and the forward end of said bolt occupies a notch in a keeper hereinafter described.

13 designates a bolt actuating lever, which comprises a plate journaled on the post 5, and provided in its edge with a notch 14, which receives the lug 12, and formed integral with said lever on the opposite side from this notch 14 is a vertically disposed plate 15, which is engaged by the thumb and fingers when said lever is manipulated.

16 designates a housing which is arranged over the bolt 9 and lever 13, said housing being fixed to one side of the base plate 3, and fixed to said housing is one end of a coil spring 17, the coils of which encircle the post 5, and the opposite end of said spring bearing against the vertically disposed plate 15 on the lever 13.

Fixed on the bottom rail of the upper sash is a plate 18, with the front edge of which is formed integral a vertically disposed keeper 19, in the under side of which is formed a notch 20, and the edge of the under side of said keeper on both sides of the notch being curved. Formed integral with one end of the plate 18 is a vertically disposed arm 21, the upper end of which is slightly inclined, as designated by 22. Formed in the front edge of the plate 18 is a rectangular notch 23, which receives one of the projecting lugs 4 of the base plate 3, thus forming a guide to insure the correct positions of the plates 3 and 18 when the same are being attached to the rails of the sashes.

When a sash lock of my improved construction is applied to the meeting rails of a sash and the bolt on said lock is in a locked position, the parts occupy the positions seen in Figs. 1, 2 and 3, with the upturned end 10 of the bolt 9 engaged beneath the keeper 19, and with the opposite end of said bolt in position beneath the plate 7. When so locked, the power stored in the coil

spring 17 tends to rotate the lever 13 on the post 5, and as a result the locking bolt 9 is forced rearward to its limit of movement by reason of the lug 12 engaging in the notch 14, which movement draws the upturned end 10 of said locking bolt against the keeper 19, and this action maintains the meeting rails of the sash in close engagement.

Should an attempt be made to open the lock from the outside of the window by means of a thin instrument, such as a knife blade, inserted between the meeting rails of the sash, the locking bolt 9 will be prevented from reverse movement for the reason that one side of said bolt engages against the lug 6 and therefore said bolt cannot be rotated until drawn forward to such a degree as to pass said lug.

The device is shown in a locked position in Figs. 1, 2 and 3, and in order to disengage the locking bolt from the keeper in order that the window may be opened the plate 15 is manually engaged, and by pressure thereon the plate 13 is partially rotated on the post 5 against the pressure exerted by the spring 17, which action, by reason of the lug 12 engaging in the notch 14 in said plate 13, causes the entire locking bolt 9 to move forward or toward the bottom rail 2 of the upper sash, which movement is possible by reason of the slot 11 formed in said plate 9, and when the rear corner of the locking bolt 9 adjacent the notch 9^a passes the lug 6, said locking bolt will then rotate with the lever 13, and the curved forward end 10 of said locking bolt travels out from beneath the keeper 19 and rides over the lug 8 on the rear edge of the base plate 3, and as soon as this movement has been accomplished, the edge of the locking bolt adjacent the upturned end 10 engages behind said lug 8, owing to the normal downward pressure of the spring 17 on the lever 13 and locking bolt, and thus said lever and locking bolt are shifted into the positions shown by dotted lines in Fig. 3, with the extreme outer portion of the upturned end 10 immediately beneath the bent upper end 22 of the arm 21. When the locking bolt is thus disengaged and the lower sash is elevated or the upper sash lowered, the bent upper end 22 of the arm 21 will strike against the bent end 10 of the locking bolt 9 and shift the same to a sufficient degree to allow the contacting parts to pass one another, and this engagement, together with the downward pressure of the spring 17 tends to force the curved end of the locking bolt downward, and therefore said locking bolt is not disengaged from its position behind the lug 8, which thus performs the function of a stop for the locking bolt. When so positioned, the locking bolt is held in position to be automatically tripped when the windows are closed, and when this action takes place the under side

of the end 10 of the locking bolt 9 strikes against the bent end 22 of the trip arm 21, thus slightly elevating the forward end of said locking bolt against the pressure of the spring 17, which action disengages the bolt 9 from the lug 8, and immediately following this action the power stored in the coil spring 17 will rotate the lever 13 and locking bolt 9, and the end 10 of said locking bolt will swing into position beneath the keeper 19, and as the lever 13 returns to its normal position the locking bolt will move rearward as the notched portion of the lever 13 bears against the lug 12, thus causing the upturned end 10 of the locking lever to bear against the keeper 19, which action draws the meeting rails of the sash together. The upturned end 10 of the locking bolt is curved so as to approximately conform to the inclination of the upper end 22 of the arm 21, and the under side of the keeper 19 is curved in order that the curved end 10 of the locking bolt will readily ride into position beneath said keeper when swinging into a locked position. The notch 20 receives the end of the locking bolt when the meeting rails of the sash are brought together before the upper sash is fully closed and the lug 6 engages in the notch 9^a, and when the bolt is thus positioned the upper sash can be lifted and moved into a closed position by slightly raising the lower sash, and after this operation the lower sash is moved downward into a closed position, and the locking bolt will move into its locked position and draw the meeting rails of the sash together, as hereinbefore described.

When the bolt of my improved lock occupies a locked position, its rear end is held against elevation by an overlapping part of the bed plate and against reverse rotation by a lug on said bed plate, and when so held is prevented from being rotated or moved into an unlocked position until it is moved forward against the action of the spring. The forward end of said locking bolt is curved upward to permit it to readily enter the space between the keeper 19 and the arm 21, and said upturned end of the locking bolt also acts to engage the keeper when the bolt is forced rearward, thus drawing the meeting rails of the sash together.

The coil spring 17 bearing against one side of the lever 13 and the parts cooperating therewith, produces a rotating and withdrawing action of the bolt, and at the same time the downward pressure of the spring holds the bolt firmly in position on the bed plate and prevents the accidental displacement of the bolt when positioned behind the stop lug 8.

I claim:

1. In a sash lock, a base plate arranged on the lower sash, a keeper arranged on the up-

per sash, a locking bolt arranged to slide and rotate on the base plate, means whereby the locking bolt is held in an unlocked position, a spring actuated member arranged to automatically impart sliding and rotary movement to the locking bolt without increasing the lateral tension upon the spring when the locking bolt is released from its holding means.

2. In a sash lock, a base plate, a locking bolt arranged to slide and rotate horizontally on said base plate, a spring actuated lever adapted to impart sliding and rotary movement to the locking bolt, a keeper adapted to receive the forward end of the locking bolt and which keeper is provided with a notch into which the locking bolt engages before said locking bolt moves to its final locked position, and means whereby the rear end of the locking bolt is engaged and held against reverse motion while the forward end thereof is engaged in the notch.

3. In a sash lock, a base plate, a locking bolt arranged to slide and rotate horizontally on said base plate, a spring actuated lever adapted to impart sliding and rotary movement to the locking bolt, a keeper adapted to receive the forward end of the locking bolt and which keeper is provided with a notch into which the locking bolt engages before said locking bolt moves to its final locked position, means whereby the rear end of the locking bolt is engaged and held against reverse motion while the forward end thereof is engaged in the notch, means whereby the lever is held against the pressure of its spring after imparting an unlocking movement to the locking bolt, and which lever is adapted to automatically shift the locking bolt into a locked position without increasing the tension of the spring when said lever is released.

4. In a sash lock of the class described, a locking bolt arranged to rotate and slide on the meeting rail of one of the sashes, a spring held operating lever arranged adjacent the bolt and adapted to impart motion to said locking bolt, a keeper arranged on the meeting rail of the opposite sash and adapted to receive the end of the locking bolt, means whereby the locking bolt is held in an unlocked position, and tripping means for releasing the locking bolt when the meeting rails of the sash are being brought together, without increasing the lateral tension on the spring bearing on the operating lever.

5. A sash lock, comprising a base plate, a locking bolt arranged to rotate and slide thereon, spring held means whereby combined rotary and sliding motion is imparted to the locking bolt, a keeper adapted to receive one end of the locking bolt, means arranged on the base plate for holding the locking bolt against reverse motion when in

a locked position, means on the base plate for holding the locking bolt in an unlocked position, and a tripping arm adjacent the keeper for engaging and elevating the forward end of the locking bolt to release the same from its unlocked position when the parts on which the sash lock is fixed are being brought together, without increasing the lateral tension on the spring bearing on the operating lever.

6. In a sash lock, a base plate, a locking bolt arranged to slide and rotate horizontally on said base plate, a spring actuated lever adapted to impart sliding and rotary movement to the locking bolt, means whereby the lever is held against the pressure of its spring after imparting an unlocking movement to the locking bolt, which lever is adapted to automatically shift the locking bolt into a locked position without increasing the tension of the spring when said lever is released, means on the base plate for holding the locking bolt against sliding movement when in an unlocked position, a keeper adapted to receive the forward end of the locking bolt when the same is in a locked position, and tripping means adjacent the keeper for engaging the free end of the locking bolt to release the same from its unlocked position.

7. In a sash lock, a base plate, a locking bolt arranged to slide and rotate horizontally on said base plate, a spring actuated lever arranged for rotation above the locking bolt, a lug and notch connection between the locking bolt and the lever, a keeper adapted to receive the free end of the locking bolt, and a trip arranged adjacent the keeper and adapted to release the locking bolt without increasing the lateral tension on the spring which bears upon the lever.

8. In a sash lock, a base plate located on the top rail of the lower sash, a locking bolt arranged to slide and rotate on said base plate, spring held means for shifting said locking bolt into an unlocked position, a keeper arranged on the lower rail of the top sash adapted to receive the free end of the locking bolt, and means arranged adjacent the keeper whereby the locking bolt is automatically released to move in the position to engage the keeper when the meeting rails of the sash are brought together.

9. In a sash lock, a base plate located on the top rail of the lower sash, a locking bolt arranged to slide and rotate on said base plate, spring held means for shifting said locking bolt into an unlocked position, means on the base plate for holding the locking bolt in its unlocked position, a keeper arranged on the lower rail of the top sash adapted to receive the free end of the locking bolt, and means arranged adjacent the keeper whereby the locking bolt is automatically released to move in the position

tion to engage the keeper when the meeting rails of the sash are brought together.

10. In a sash lock, a base plate arranged on the top rail of the lower sash, a spring
5 held locking bolt arranged to slide and rotate on said base plate, means whereby the locking bolt is held in an unlocked position against the tension of its spring, a keeper
10 arranged on the lower rail of the top sash and adapted to receive the free end of the locking bolt when the same moves into a locked position, and tripping means ar-

ranged to automatically release the locking bolt from its unlocked position when the meeting rails of the sash are brought together.

In testimony whereof, I have signed my name to this specification, in presence of two subscribing witnesses.

JOHN L. GREATHER.

Witnesses:

M. P. SMITH,

E. L. WALLACE.