

No. 782,764.

PATENTED FEB. 14, 1905.

T. E. SMITH.  
SASH LOCK.

APPLICATION FILED JUNE 18, 1904.

Fig. 1.

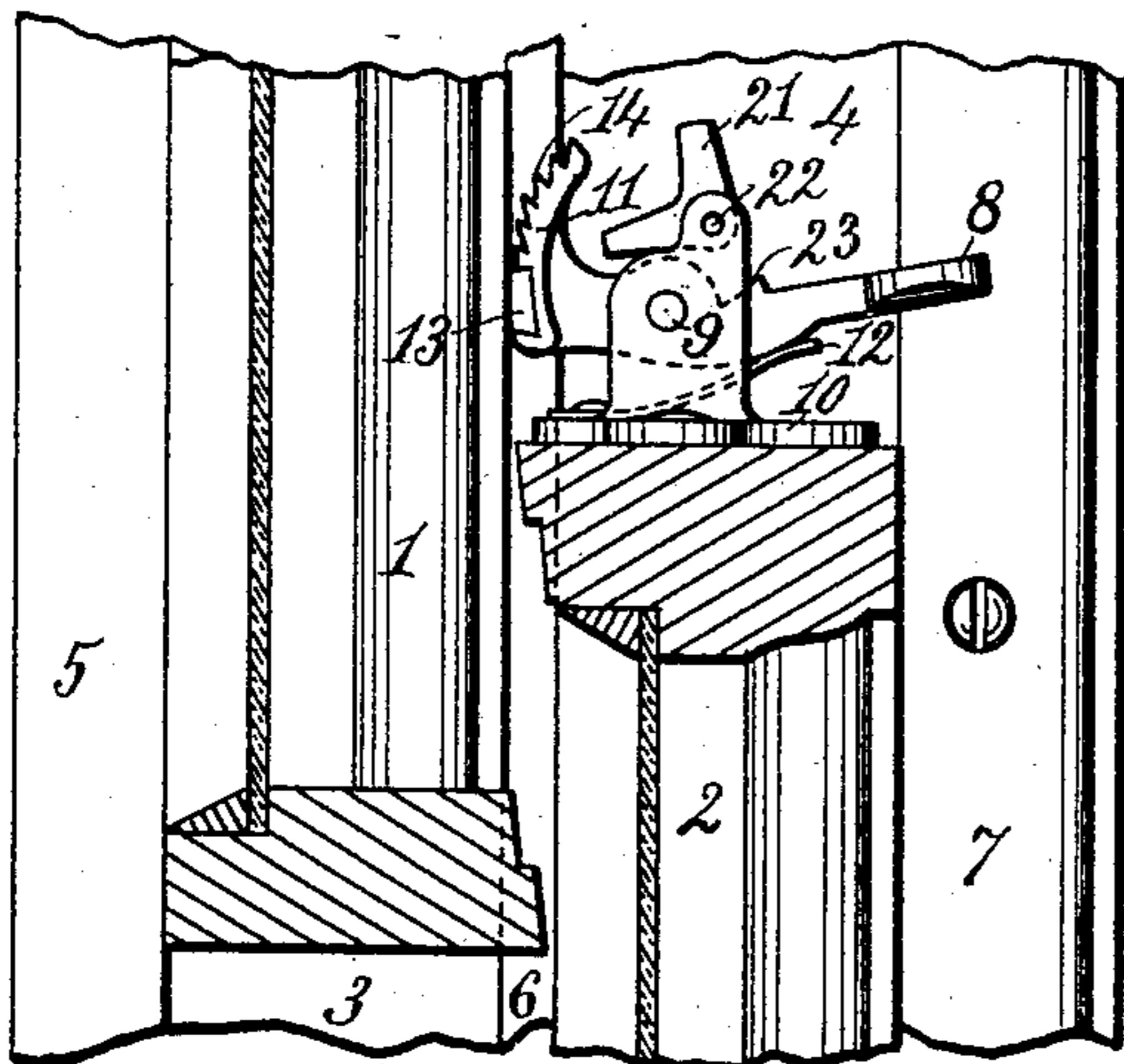


Fig. 2.

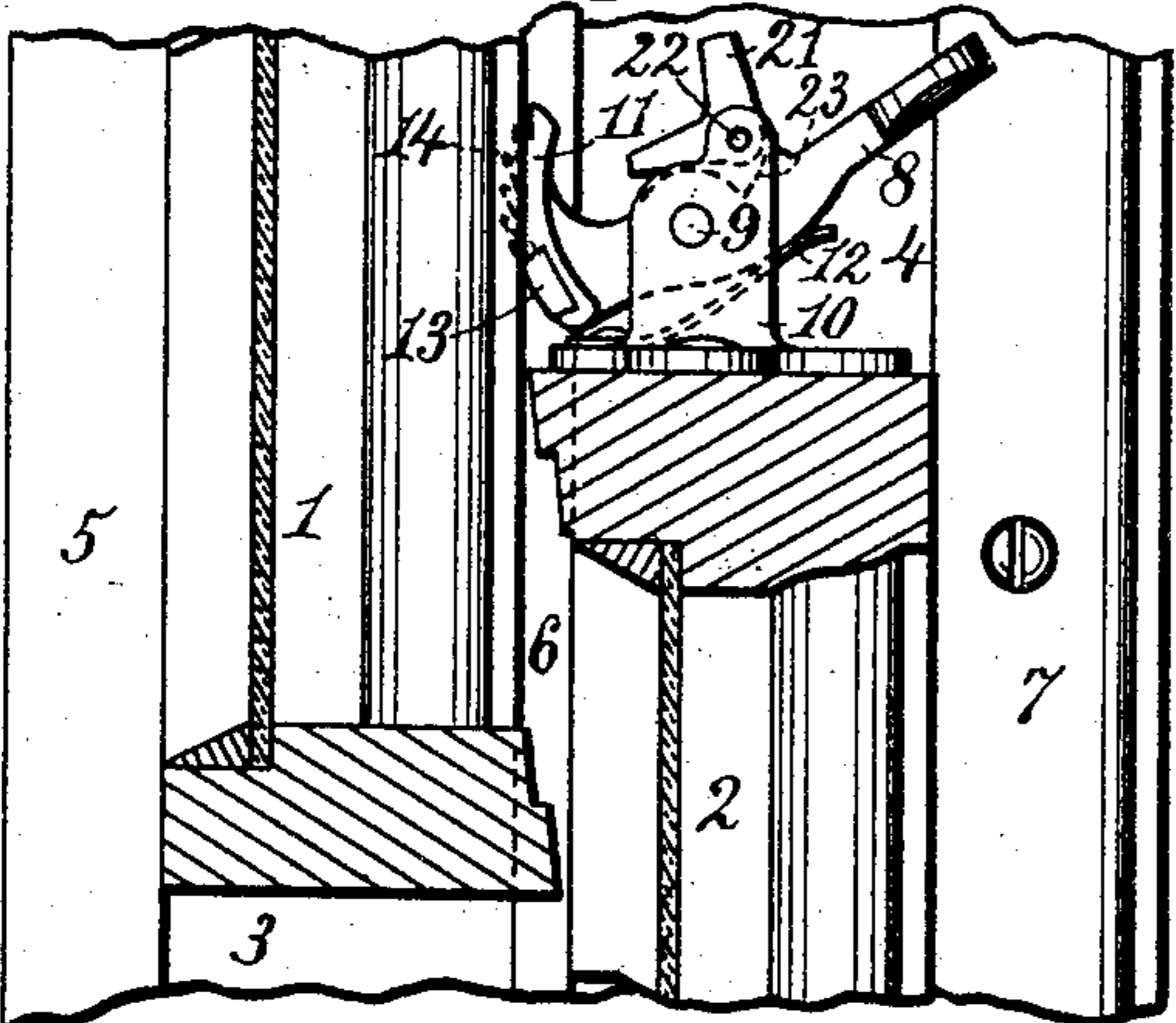


Fig. 3.

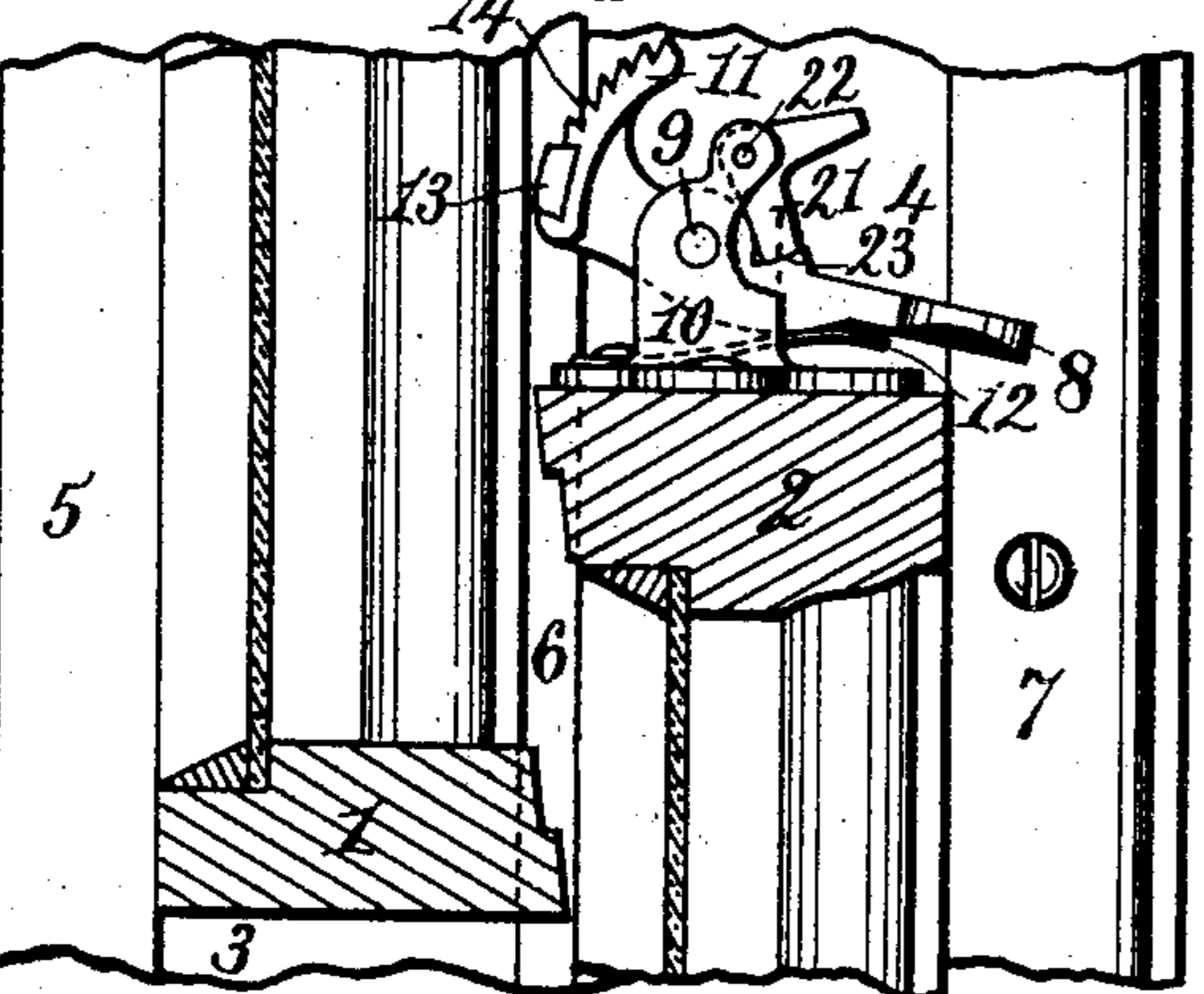


Fig. 4.

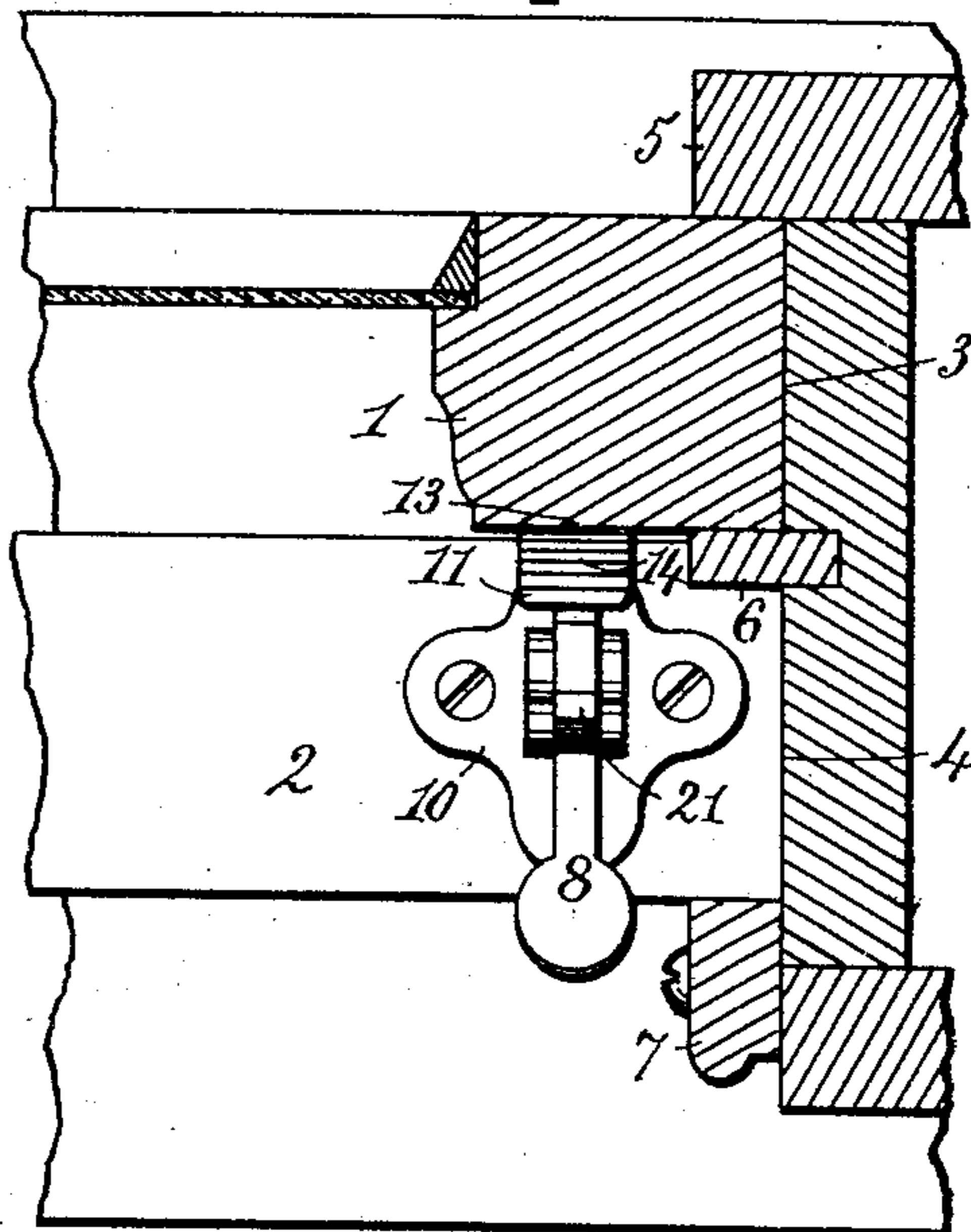
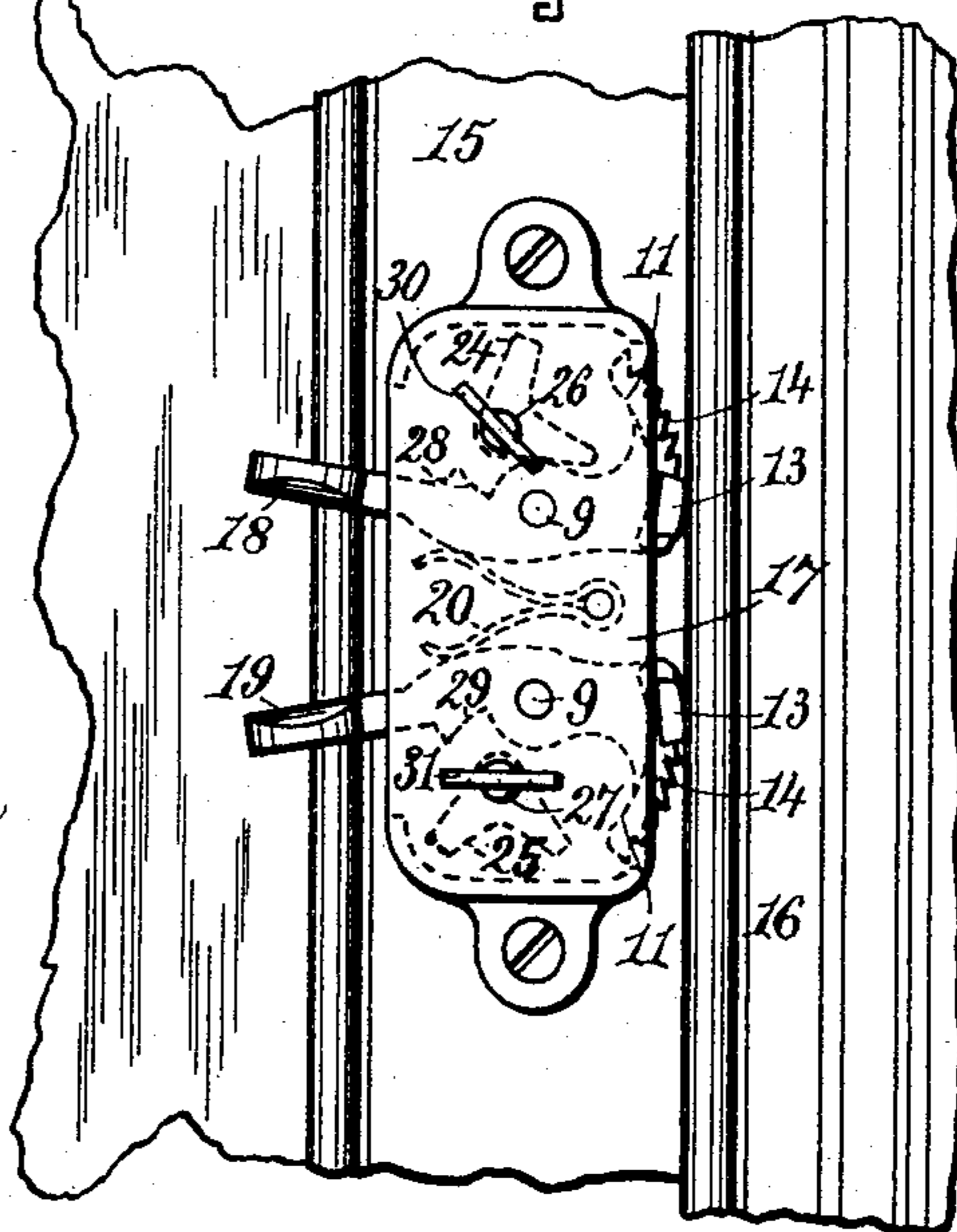


Fig. 5.



Witnesses

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Inventor

*Thomas E. Smith*  
by  
*Henry Chadburn*  
his atty.

# UNITED STATES PATENT OFFICE.

THOMAS E. SMITH, OF SOMERVILLE, MASSACHUSETTS, ASSIGNOR OF TWO-THIRDS TO ARTHUR J. SHAW, OF BRAINTREE, MASSACHUSETTS.

## SASH-LOCK.

SPECIFICATION forming part of Letters Patent No. 782,764, dated February 14, 1905.

Application filed June 16, 1904. Serial No. 212,876.

*To all whom it may concern:*

Be it known that I, THOMAS E. SMITH, of Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Sash-Locks, of which the following is a specification.

This invention relates to improvements in locks for slides—such as window-sash, sliding doors, and any other sliding object—to automatically prevent the sliding movement of the same in one direction, but allowing of the free and unobstructed movement of the same in the opposite direction.

The invention relates more particularly to improvements in that class of locks which consist of a lever pivotally attached to one member, as to the upper or the lower sash, and having one end of said lever made cam-shaped to engage a surface on the other member, as a surface on the other sash, which cam-lever allows either of the sashes to be freely moved in a direction to close the sash, but prevents either sash from being moved in a direction to open it without first operating the lever so as to withdraw its cam-surface from contact with the surface on the sash, and against which it is held normally by the action of gravity or by means of a suitable spring.

The invention is carried out substantially as illustrated on the accompanying drawings, which form an essential part of this specification, and whereon like characters of reference refer to like parts wherever they occur on the different parts of the drawings.

On the drawings, Figure 1 represents my improved lock applied to a common form of window-sash, consisting of an upper and a lower sash, which slide up and down in order to open or to close the window, showing a side elevation of my improved lock and a vertical cross-section of the parts of the sashes near their meeting-rails, the lock having been shown in its normal position when preventing the opening movements of either of the sashes.

Fig. 2 represents a view similar to that shown in Fig. 1, but showing the parts of my improved lock in the positions they occupy when an undue strain has been applied to either sash tending to open the sash. Fig. 3 repre-

sents a similar view to those shown in Figs. 1 and 2, but showing the parts of the lock held in inoperative positions, so as to allow of the free opening or closing of one or both of the sashes. Fig. 4 represents a horizontal section of a window frame and sash, showing one side of the frame and sash only and my improved lock in the position shown in Fig. 1. Fig. 5 represents a side elevation of my improved lock arranged for and applied to a car-window, which is movable up and down to open and close the window, only a portion of one side of the sash and frame having been shown on the drawings.

Although I have shown and will describe my improved lock as applied to a window-sash, consisting of a single sash and of a double sash, it will be understood that the lock may be used in connection with any device or devices in which one or more members are adapted to slide in relation to each other or to other parts—as, for instance, in connection with a sliding door and in connection with several other devices which have a sliding movement.

I shall describe my lock in connection with a window having a sliding upper and a sliding lower sash; but it will be understood that when I mention sash or sashes it is to include any object which is adapted to slide in relation to another object.

The upper sash 1 and lower sash 2 are mounted within the respective guide-grooves 3 and 4 of a common window-frame formed by the outer stop 5, the parting-bead 6, and the stop-bead 7 in any of the common and well-known manners. The sashes are capable of an up-and-down sliding movement within the guide-grooves in order to open or to close the window. My improved lock is preferably applied to the top or meeting rail of the lower sash; but it is not necessary to apply it at this place, as it may be applied in other places, if found to be more desirable.

A locking-lever 8, of a peculiar shape and construction and which will be more particularly described hereinafter, is pivotally mounted at 9 within upwardly-projecting ears on a frame 10, which frame is secured to the top or

meeting rail of the lower sash by means of screws or nails, as desired, the former being the more preferable. The locking-lever 8 is formed with a cam-shaped end 11, adapted to  
 5 come into contact with the surface of the upper sash when said lever is in operative position. This cam-surface is held in contact with the surface of the upper sash by means of the elliptic spring 12, having one end attached to  
 10 the frame 10 and the other or free end pressing against the under side of the lever 8 in such a position thereon as to accomplish the desired action of the cam-shaped end of the lever. The cam-shaped end of the lever 8 is  
 15 provided, in part, with a yielding friction-producing cushion 13, made of rubber, leather, felt, or any analogous material, which cushion is firmly secured to the lever 8 in any desired manner and is so located and is of such a size  
 20 or extent upon the cam-surface of the lever that it will be brought into contact with the surface of the upper sash by the action of the spring and will normally keep the remaining portion of the cam-surface of the lever from  
 25 contacting with the surface of the upper sash; but if an increased pressure is applied to the lever either by manual manipulation of said lever or by a forced attempt to open either of the sashes then this yielding cushioning 13 will  
 30 yield and allow the remaining part of the cam-shaped face of the lever to be brought into contact with the surface of the upper sash. This remaining portion of the cam-shaped face of the lever is provided with pro-  
 35 nounced serrations or teeth 14, which if sufficient pressure is applied to the lever will cause the projecting teeth thereon to enter the surface of the sash, and thereby increase the resistance of said lever to the opening move-  
 40 ments of the sashes. Although the toothed or serrated portion of the face of the lever 8 is very effective in preventing the opening movements of the sashes, said teeth or serrations tend to mar or disfigure the surface of  
 45 the upper sash which they come into contact with; but by the use of the cushion 13 this injury to the sash is obviated, as the serrations are only brought into contact with the sash in emergency cases, as when a burglar  
 50 attempts to open the window, while at all other times when the lever is in operative position the cushion 13 is in contact with the surface of the sash.

My improved lock may be used upon sashes  
 55 which are counterbalanced by a weight, as in the common house-windows, or it may be used to hold an unbalanced sash, as a car-window, in a raised position. When my lock is used upon an unbalanced sash, as on a car-window,  
 60 I prefer to arrange the lock substantially as shown in Fig. 5, in which 15 represents the sash, 16 the window-frame within which the sash slides up and down to open or to close the same. In such cases I prefer to make my  
 65 lock in a duplex form—that is to say, I pro-

vide the frame 17 of the lock with two locking-levers 18 and 19, having their cam-shaped ends arranged in opposite directions, so that the lock will prevent the sash from being  
 70 moved up or down without first withdrawing the cam-surfaces of the levers from contact with the frame. The locking-levers 18 and 19 used in this duplex form of my lock are made substantially duplicates of the lever 8,  
 75 being provided with the cam-shaped end 11, the yielding friction-cushion 13, and the serrations 14, and these levers are normally kept in contact with the window-frame by means of the spring 20.

My improved lock, as above described, acts  
 80 automatically to lock the sash against being opened or moved in one direction and requires the manual manipulation of the lever or levers against the influence of the springs  
 85 acting on said levers in order to open the sash. To provide means whereby the locking-levers may be held from operative position, and thus allow the free movements of the sash in either direction, I provide the frame 10  
 90 with the pawl 21, which is pivoted at 22 to the frame. This pawl is made in the form of a bell-crank lever, one arm of the lever acting as a handle by which the pawl is manipulated, and the other arm acts as a lock and  
 95 is arranged to be brought into and from contact with a surface 23 on the top of the lever 8. This surface 23 is made on a curve which is concentric with the fulcrum 22 of the pawl when the lever 8 is in an inoperative position,  
 100 as shown in Fig. 3, and the locking-arm of the pawl is of sufficient length to have its end come into contact with the curved surface 23 when the lever 8 is in the inoperative position. Thus the pawl 21 locks the lever 8 against  
 105 any motion due to the influence of the spring acting on said lever. The bell-crank shape of the locking-pawl is such that the arm of the pawl, by which it is turned on its fulcrum, will act as a weight to hold the locking-arm  
 110 of the pawl in contact with the curved surface 23 and the lever 8 locked thereby in an inoperative position, as shown in Fig. 3, and also as a weight to hold the locking-arm of the pawl out of engagement with the lever 8, as  
 115 shown in Figs. 1 and 2, after the pawl has been turned by hand into either of said positions. This manner of weighting the pawl, and the curve surface of the lever against which the locking-arm of the pawl contacts, prevents the accidental movement of the pawl  
 120 either to lock the lever 8 or to release the said lever.

The levers 18 and 19 (shown in Fig. 5) may also be provided with the respective locking-pawls 24 and 25, fulcrumed at 26 and 27 to  
 125 the frame 17 and with the respective curved surfaces 28 and 29, made substantially as the locking-pawls and the curved surface described above in relation to the lever 8. The locking-pawls 24 and 25 are provided with the  
 130

respective thumb-pieces 30 and 31, which are attached to the fulcrums for said pawls, but outside of the frame 17, and the pawls are moved into and out of engagement with the curved surfaces on the levers 24 and 25 by means of these thumb-pieces.

Having thus fully described the nature, construction, and the operation of my invention, I wish to secure by Letters Patent and to claim—

1. A lock for slides, consisting of a frame, a lever fulcrumed to said frame and having a cam-shaped contacting surface at one end thereof, a spring acting on said lever to cause its cam-shaped surface to lock the slide against movement in one direction, serrations on the high part of the cam-shaped surface of the lever, and a yielding friction-producing cushion on the lower part of the cam-shaped surface of the lever, said cushion forming the normal contacting part of the cam-shaped surface, but yielding under increased pressure and strain and allowing the serrated part of the cam-shaped surface of the lever to become the contacting part of said cam-shaped surface of the lever, and rigidly locking the slide against movement in one direction.

2. A lock for slides, consisting of a frame, a lever fulcrumed to said frame and having a cam-shaped contacting surface at one end thereof, a spring acting on said lever to cause

its cam-shaped surface to lock the slide against movement in one direction, a pawl fulcrumed to said frame, and a curved surface on the lever concentric with the fulcrum of the pawl and engaging the end of the pawl when the lever is turned on its fulcrum against the action of the spring thereon and into an inoperative position to keep the slide unlocked.

3. In a lock for slides, a frame, a lever fulcrumed to the frame and having a cam-shaped contacting surface at one end thereof, a spring acting on said lever to cause its cam-shaped surface to lock the slide against movement in one direction, a bell-crank-shaped block forming a weighted pawl fulcrumed to the frame, and a curved surface on said lever concentric with the fulcrum of the pawl and engaging the end of the pawl when the lever is turned on its fulcrum against the action of the spring thereon and into an inoperative position, the weighted portion of the pawl acting to keep the pawl in positions to lock or unlock said lever when the pawl is turned to said positions by hand.

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

THOMAS E. SMITH.

Witnesses:

WILLIAM H. HOWES,  
HENRY CHADBOURNE.