

(No Model.)

2 Sheets—Sheet 1.

B. D. COPPAGE.  
LATCH LOCK.

No. 527,944.

Patented Oct. 23, 1894.

FIG. 1.

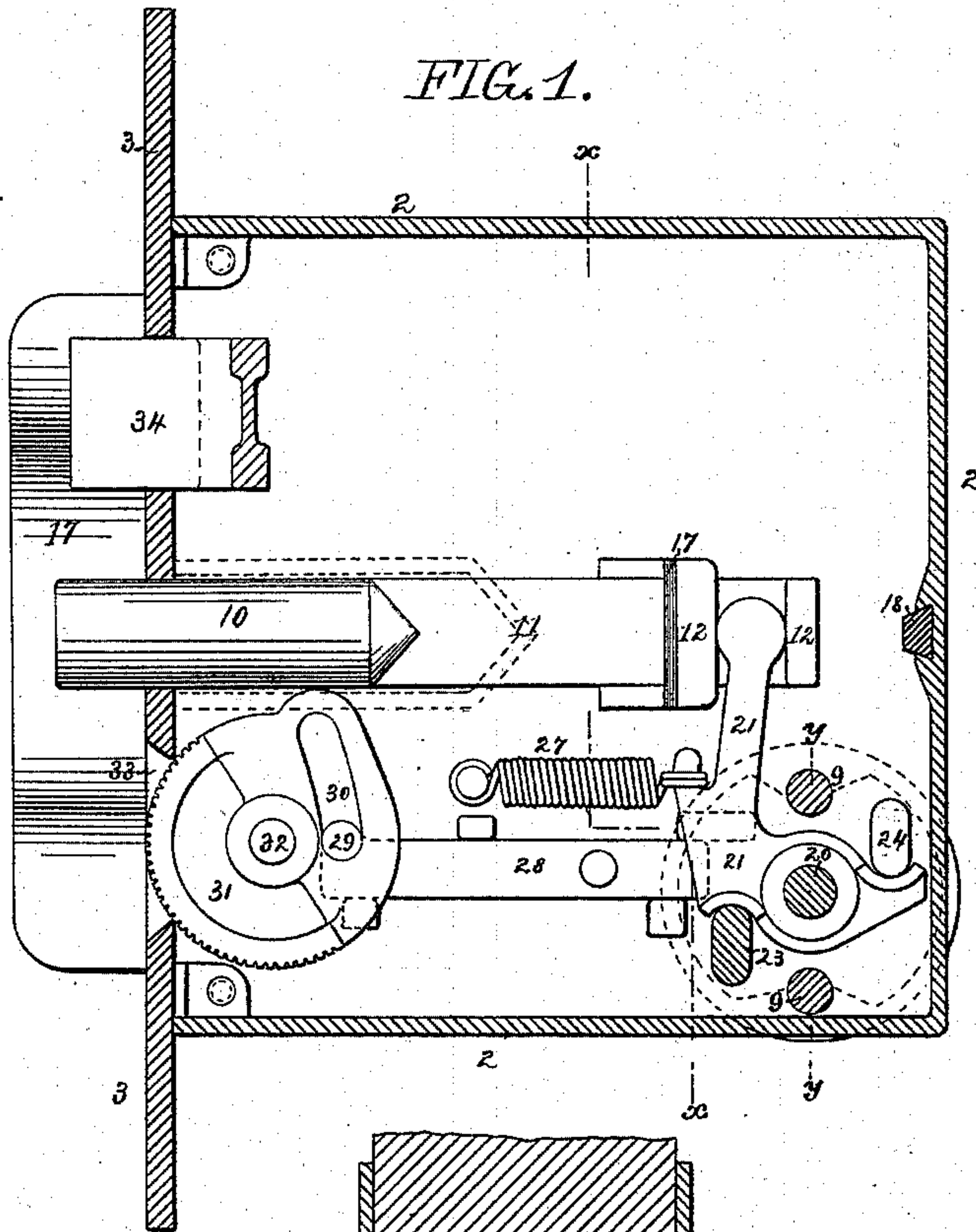


FIG. 3.

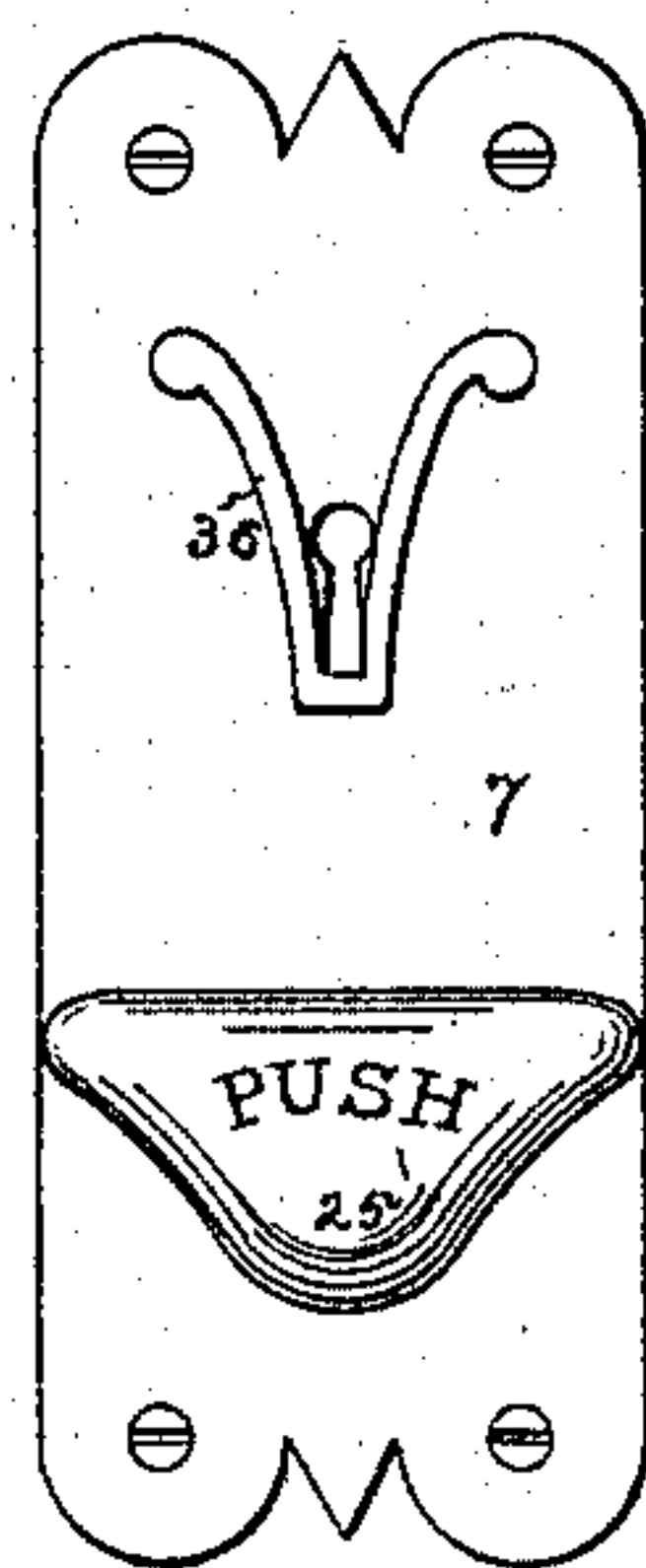


FIG. 4.

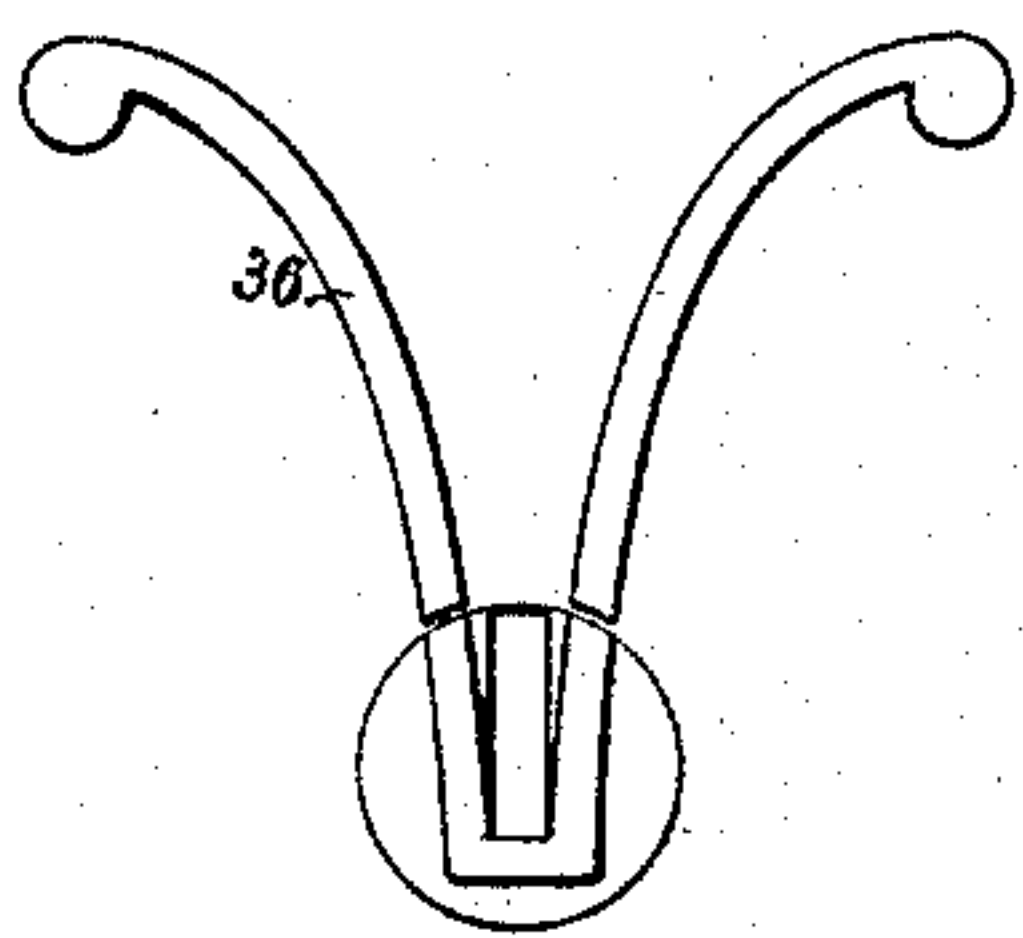
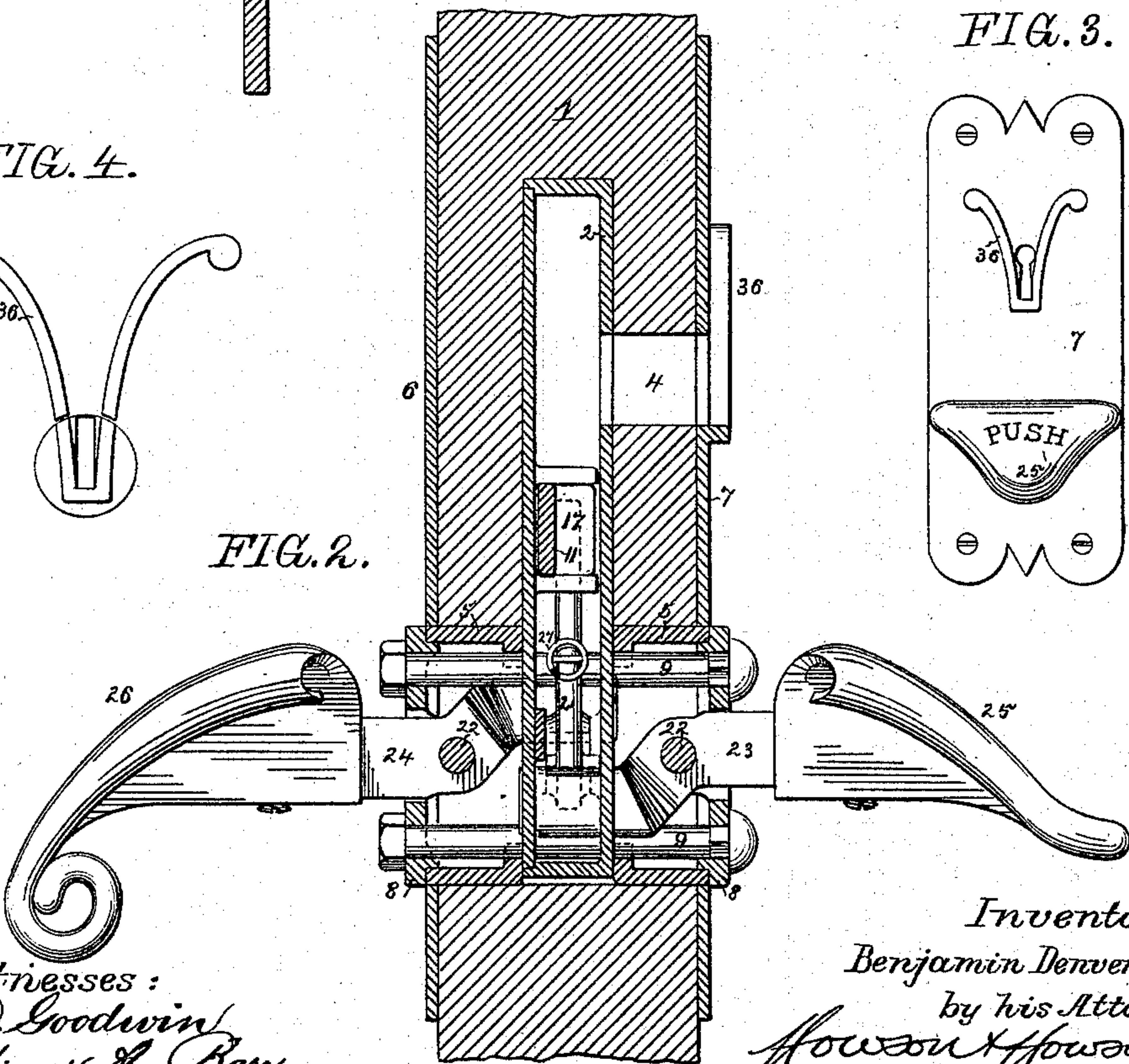


FIG. 2.



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FIG. 5.

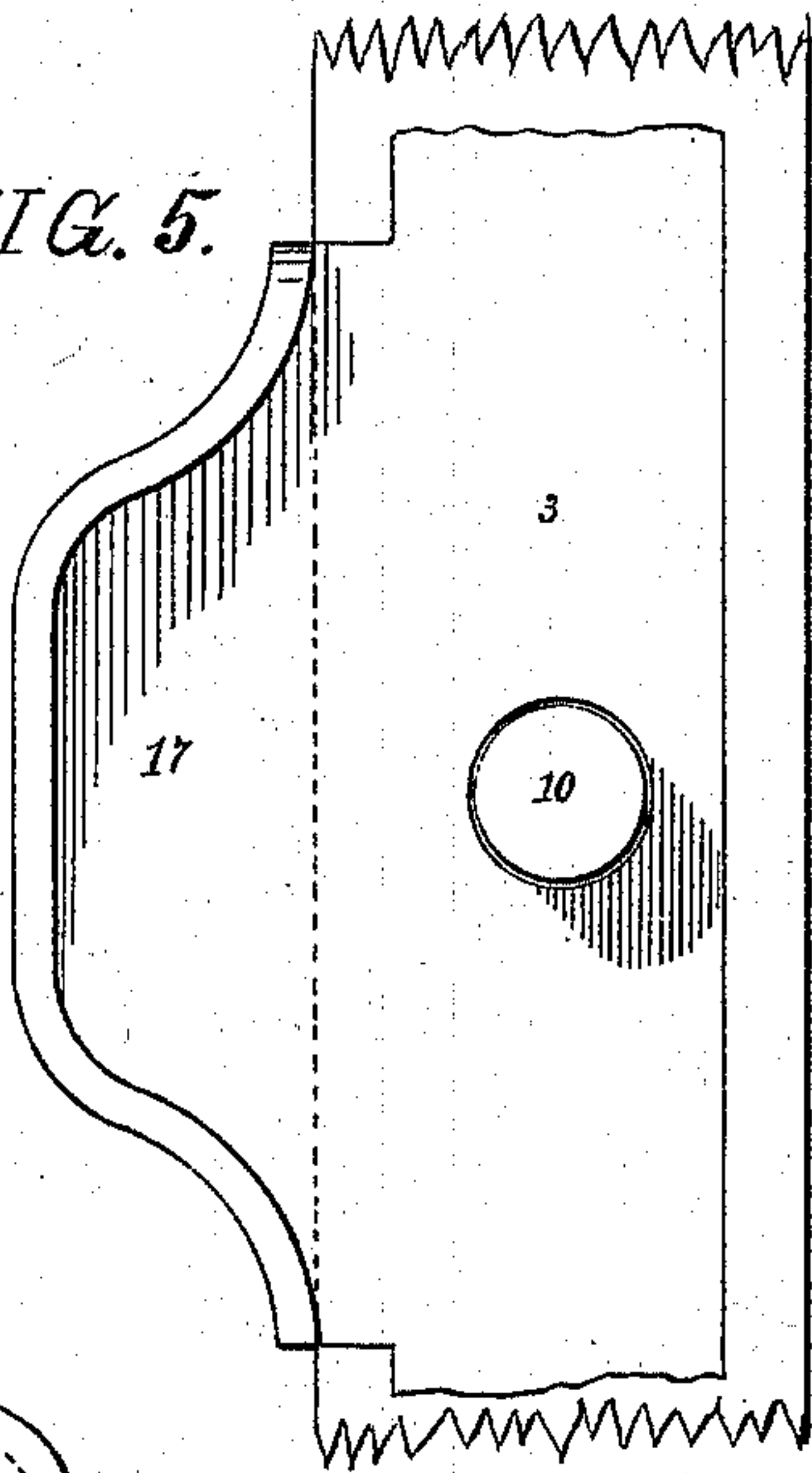


FIG. 6.

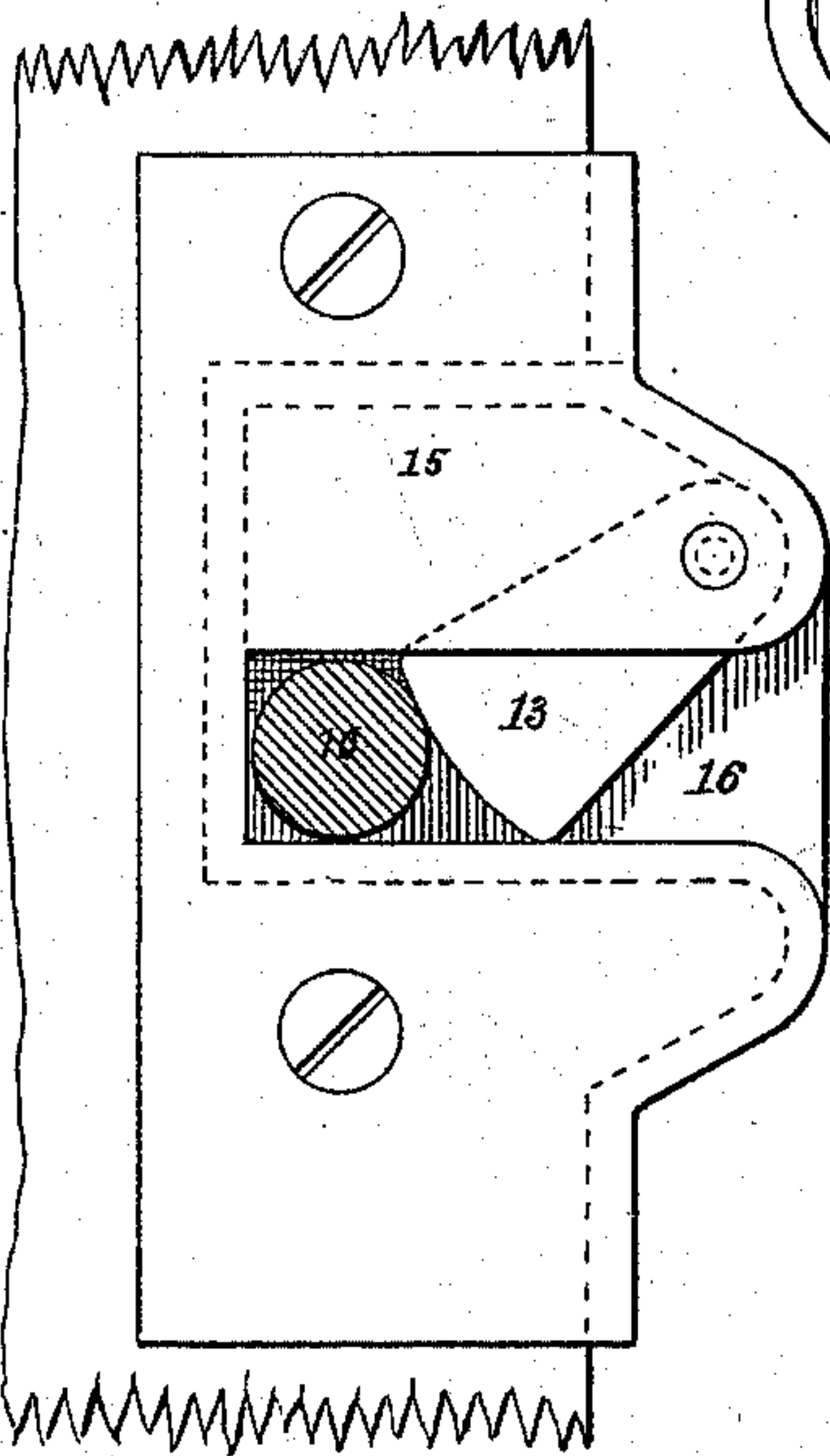


FIG. 7.

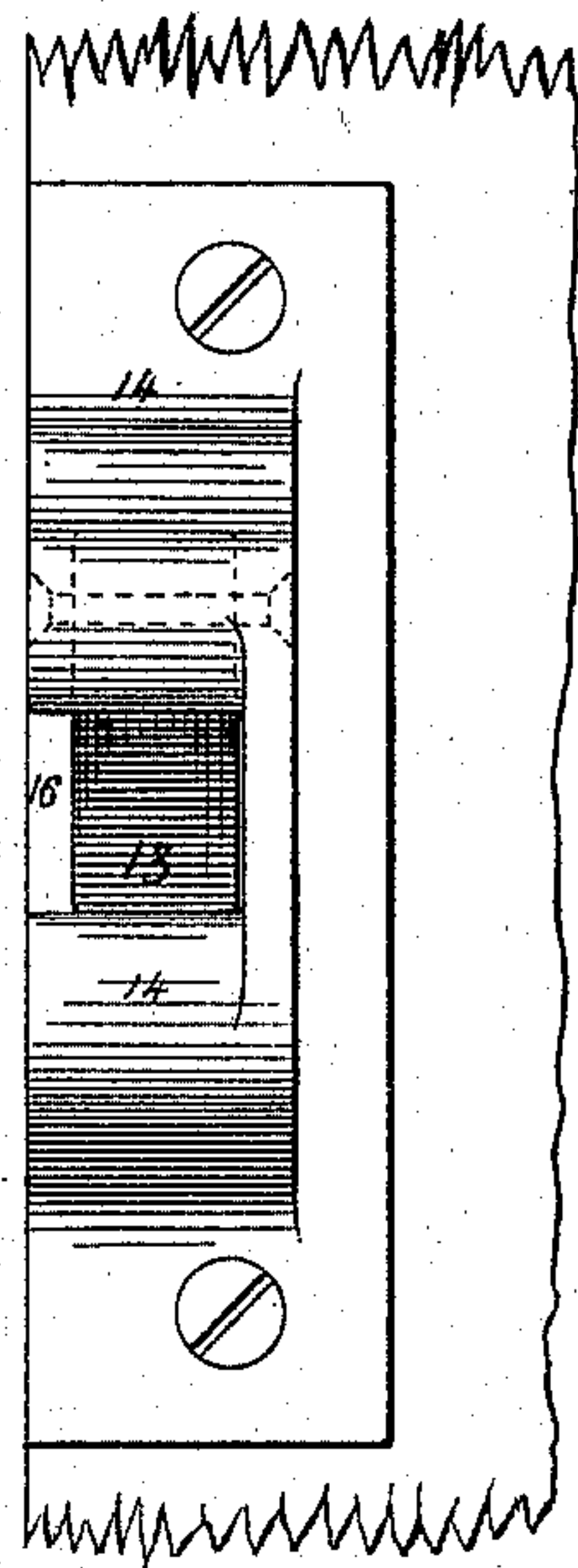


FIG. 8.

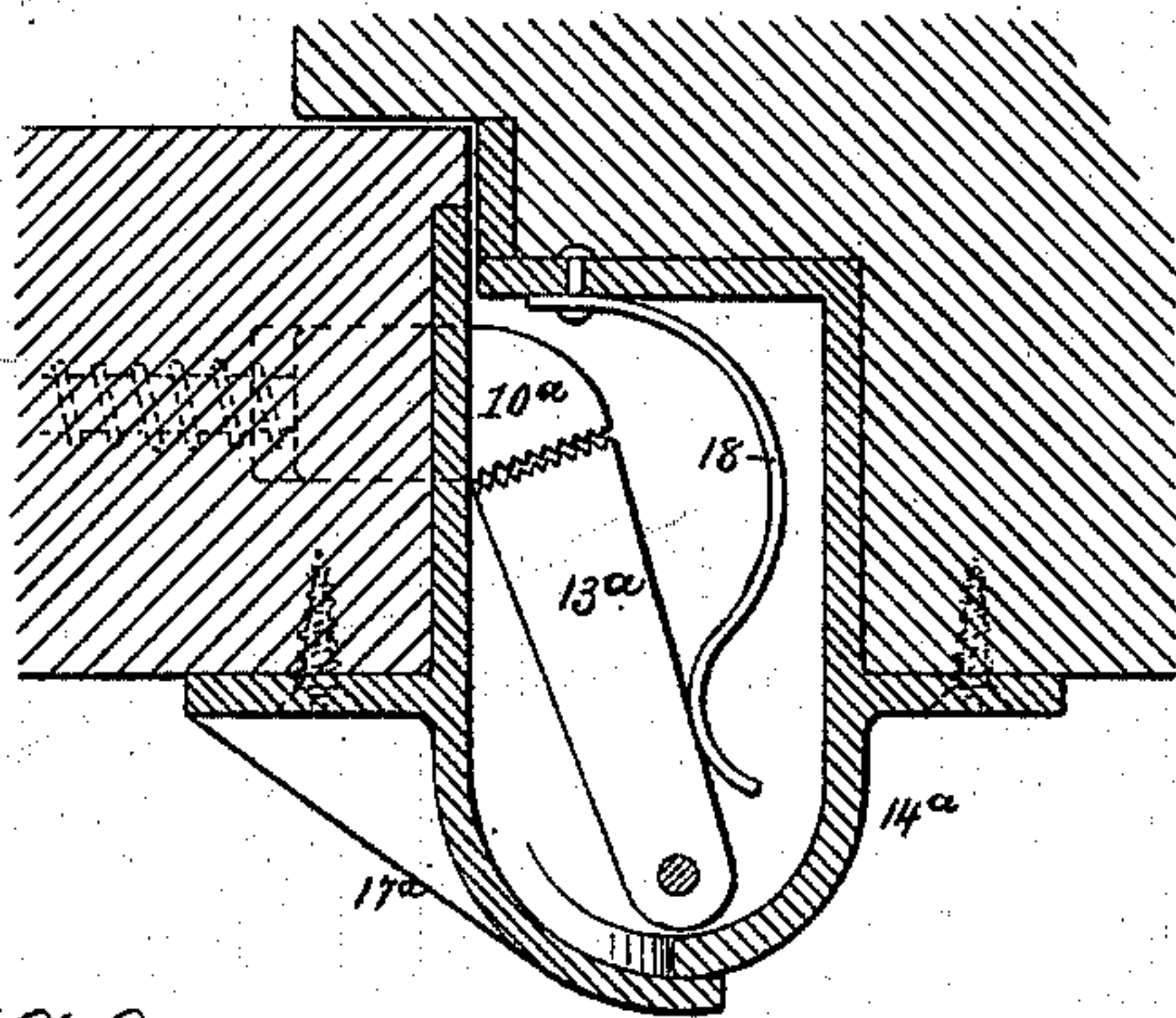
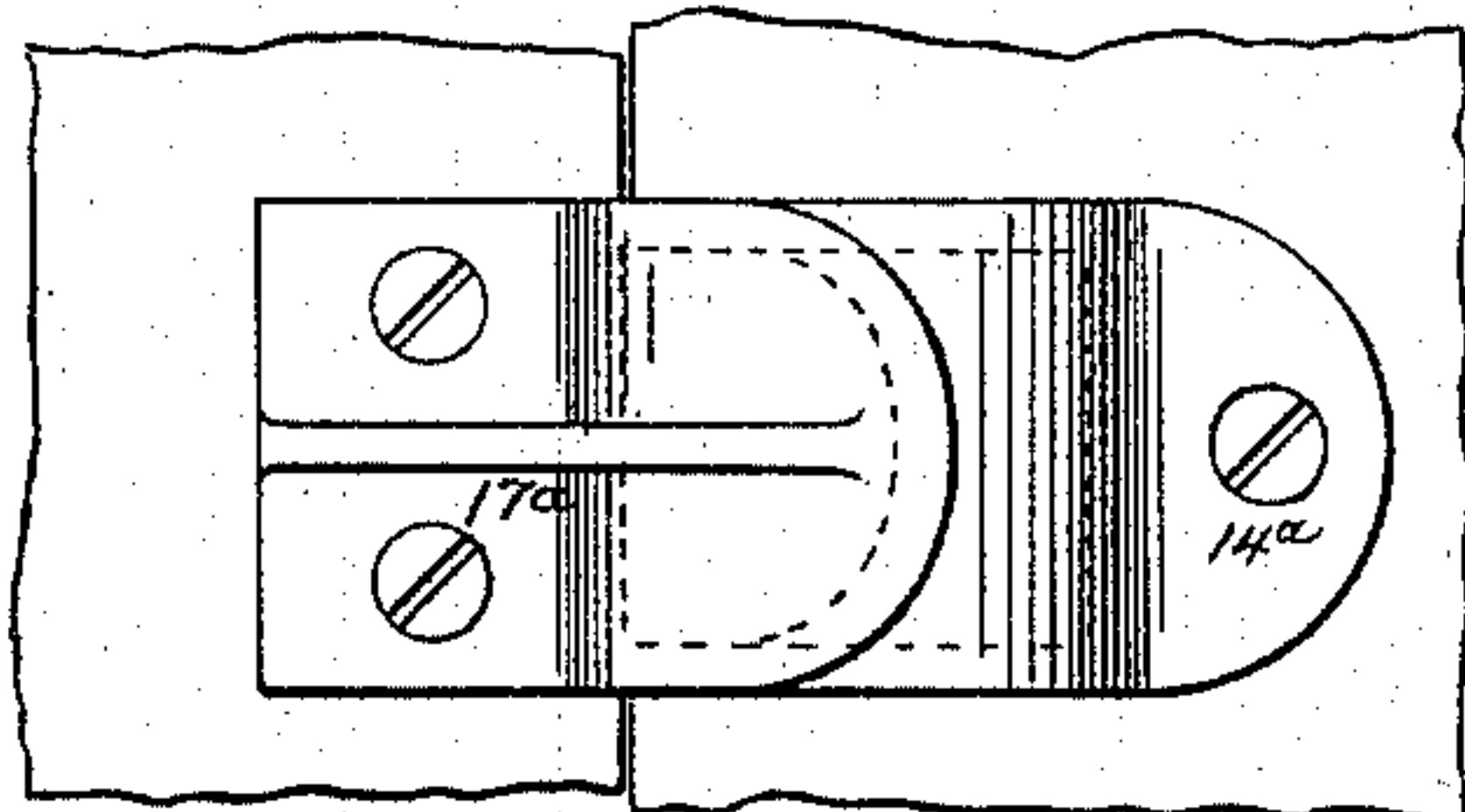


FIG. 9.



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# UNITED STATES PATENT OFFICE.

BENJAMIN DENVER COPPAGE, OF WILMINGTON, DELAWARE.

## LATCH-LOCK.

SPECIFICATION forming part of Letters Patent No. 527,944, dated October 23, 1894.

Application filed September 21, 1893. Serial No. 486,093. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN DENVER COPPAGE, a citizen of the United States, and a resident of Wilmington, New Castle county, Delaware, have invented certain Improvements in Latch-Locks, of which the following is a specification.

One object of my invention is to so construct a latch lock that the same may be opened from either side of the door by a push or pull in the direction in which such push or pull would naturally be exerted in order to open said door, another object being to improve the construction of the keeper for the latch bolt, a further object being to provide a simple means for preventing the operation of the latch from the outside of the door, and a still further object being to insure the proper guidance of the key to the key hole of the lock. These objects I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1, is a longitudinal section, partly in elevation, of a lock constructed in accordance with my invention. Fig. 2, is a view partly in elevation, partly in transverse section on the line  $x-x$  Fig. 1, and partly in transverse section on the line  $y-y$  Fig. 1, showing the lock applied to a door. Fig. 3, is a front view of one of the escutcheon plates of the lock and of the push plate for operating the latch. Fig. 4, is a view illustrating a modified form of key guide. Fig. 5, is an edge view of the door showing part of the face plate of the lock. Fig. 6, is an edge view of part of the frame showing the keeper plate and keeper for the latch bolt. Fig. 7, is a front view of the same; and Figs. 8 and 9, are respectively sectional and front views illustrating a modified construction of keeper.

1 represents part of a door which is mortised as usual for the reception of the lock casing 2, the latter having a face plate 3 let into the edge of the door and secured thereto in the manner customary with the ordinary mortise locks. In the door is also formed a key hole 4 and circular openings for the reception of a pair of thimbles 5 which flank the casing 2 of the lock and extend to the opposite sides of the door and preferably

through the escutcheon plates 6 and 7 which are secured respectively to the inner and outer sides of the door, the ends of the thimbles being closed by cover plates 8 and said cover plates being secured to the thimbles and the latter to the lock casing 2 by means of transverse bolts 9 or other suitable means.

The latch bolt 10 is guided in an opening in the face plate 3 of the lock and has a stem 11 which is provided at the inner end with shoulders 12, forming a slot or recess for the reception of the arm of a bell crank lever 21.

Extending transversely across the lock casing is a pin 20 to which is hung said bell crank lever 21 having an upwardly projecting arm for acting upon the shoulders 12 of the latch bolt stem, and hung to transverse pins 22 carried by lugs on the inner sides of the cap plates 8 of the thimbles 5 is a pair of levers 23 and 24, one of these levers projecting from one side of the door and the other lever projecting from the opposite side of the door.

The lever 23 which projects from the outer side of the door is provided at the outer end with a push plate 25, the upper surface of which is suitably formed for receiving a downward pressure of the hand, while the lever 24 which projects on the inside of the door is provided with a pull plate 26 so shaped as to be conveniently grasped by the hand in order to impart an upward pull thereto.

The inner end of the lever 23 is bent downward and extends across the lock casing in such position as to act upon the under side of the lever 21 on one side of the fulcrum pin 20, while the lever 24 is bent upward at the inner end and extends across the lock casing in such position as to act upon the upper side of the bell crank lever 21 on the opposite side of the fulcrum pin 20. Hence either a downward pressure upon the push plate 25 or an upward pull upon the plate 26 will cause inward movement of the upwardly projecting arm of the bell crank lever 21 and consequently an inward movement of the latch bolt.

A spring 27 acts upon the lever 21 so that after pressure is removed from either the push or pull plate, a quick return of the same to its normal position is insured, the motion of the latch bolt in either direction being



checked without shock, jar or noise by the latch bolt coming in contact with stops 17 or 18 of fiber or other sound deadening material.

The thimbles 5 have at their inner ends 5 notched lugs for the reception of the bolts 9 so that the thimbles are rigidly held in position, thereby insuring corresponding rigidity for the fulcrum pins of the latch operating levers, this rigidity being a necessity in a lock such 10 as forms the subject of my invention, because the operating levers must always preserve a certain fixed relation to the mechanism within the lock case 2. The thimbles 5 are cylindrical, are duplicates, and are arranged in 15 line with each other, so that a single cylindrical opening bored through the door from side to side serves to receive said thimbles, and thus facilitates the fitting of the lock to the door.

20 In order to prevent the operation of the latch from the outside of the door I prefer to use a sliding bolt 28 which is suitably guided in the lock casing so that its inner end may be projected above the inner end of the lever 25 23 in order to prevent any movement of said lever when pressure is applied to the push plate 25, said bolt 28 having at the front end a lug or pin 29 which is adapted to an eccentric slot 30 in a disk 31 hung to a transverse 30 pin 32 on the lock case, this disk having a milled or serrated edge which projects into a slot 33 formed in the face plate 3 of the lock. Hence by applying pressure to this milled or serrated edge of the disk the latter can be 35 partially turned in order to project or retract the bolt 28 and thus lock or unlock the lever 23.

Any desired form of key operated mechanism may be employed in connection with the locking bolt 34, the latter forming no part of 40 my present invention.

In order to facilitate the insertion of the key into the key hole, the escutcheon plate 7 has a flaring guide flange 36, the lower contracted portion of which approaches closely to the 45 sides of the key hole so that a key will be automatically directed by this flange into line with the key hole and the insertion of the key thereby facilitated at night when the key hole is not visible, or in the event of a person 50 desiring to unlock the door, being gloved so as to be prevented from properly locating the key hole by the sense of touch.

In order to adapt the lock to a door opening in either direction, the levers 23 and 24 55 and the cap plates of the thimbles 5 are so constructed as to be reversible.

In practice the fulcrum pins 22 of the levers 23 and 24 may be riveted or otherwise secured in place on the cap plates so that each plate 60 and its lever will be handled as a unit in fitting up the lock, the cap plate being turned until the lever assumes the desired position.

It will be observed that my improved latch lock is such as will admit of the easiest and 65 most natural operation in connection with the pushing or pulling of the door in order to open the same, the latch being withdrawn by a

downward pressure or an upward pull at an angle of about forty-five degrees from the horizontal, this motion being just such as 70 would be employed by the average person in opening the door by a push or pull, so that my invention overcomes the difficulty experienced in operating the ordinary twist knob when the hands are full or are wet and likely 75 to slip upon such twist knob.

My invention also overcomes the objection to that form of push and pull latch in which the motion is horizontal, such motion being a very awkward one unless the latch is placed 80 very high.

The form and motion of the push and pull plates in my improved lock are such that they may be readily operated by contact with any 85 part of the person when the hands are otherwise occupied, and they are such that strength and beauty can be combined in a degree much greater than is possible when the ordinary twist knob is employed.

In applying the key directing flange to that 90 class of locks which use flat keys and have the key-way formed in the rotating barrel, the lower portion of the guide flange may be formed upon and may rotate with said barrel as shown, for instance, in Fig. 4. 95

In order to render the retraction of the latch bolt necessary only in opening the door, I provide a yielding latch bolt keeper, which will permit of the closing of the door when said 100 latch bolt is projected.

In the construction shown in Figs. 6 and 7 the keeper consists of a weighted finger 13 105 hung within a box 14 which is let into the door frame and also projects slightly beyond the same, said box having a plate 15 which is secured to said frame. In the box is 110 formed a passage 16 for the projecting end of the latch bolt, and into this passage depends the weighted keeper 13, so that as the door closes, the said keeper will be lifted by the 115 end of the bolt and will fall behind and retain the same when the door is closed, as shown in Fig. 6.

In Figs. 8 and 9 I have shown a modified 120 construction in which the keeper 13<sup>a</sup> swings horizontally and is acted on by a spring 18, the projecting end of the latch bolt in this case being shown beveled on the approaching side, so that it may be permitted to yield if 125 desired.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. A latch lock having a horizontally sliding latch bolt, a pair of laterally projecting 125 levers hung so as to swing in a vertical plane, and secondary lever mechanism between said bolt and levers, whereby the latch bolt will be retracted on a downward movement of one of the projecting levers or by an upward 130 movement of the other projecting lever, substantially as specified.

2. The combination of the sliding latch bolt, a pair of levers hung so as to swing in a



vertical plane, and one carrying a push plate, and the other a pull plate, a bell crank lever acting upon the latch bolt and so hung in respect to the push and pull levers that one of said levers will act upon the under side of the bell crank lever on one side of the fulcrum, and the other will act upon the upper side of the bell crank on the opposite side of the fulcrum, substantially as specified.

3. The combination of the lock casing and its sliding latch bolt, the push and pull levers, detachable thimbles bearing upon the sides of the lock casing and having cap plates carrying said levers, means for securing said thimbles to the lock casing, and means for transmitting the movement of the levers to the latch bolt, substantially as specified.

4. The combination of the latch bolt, a bell crank lever engaging with the head of the latch bolt stem, push and pull levers acting on said bell crank lever, thimbles having cap plates with fulcrum pins for said levers, and transverse securing bolts adapted to lugs on the thimbles, substantially as specified.

5. The combination of the sliding latch bolt, the pair of levers hung so as to swing in a vertical plane, one of said levers carrying a push plate, and the other a pull plate, means for transmitting the movement of

either of the levers to the latch bolt, and a sliding bolt for locking one of said levers the other lever being free to operate, substantially as specified.

6. The combination of the sliding latch bolt, the push and pull levers, means whereby either of said levers is caused to operate the latch bolt, the sliding locking bolt for one of said levers, and a cam disk for actuating said bolt, said disk having a peripheral portion projecting into the slot in the face plate of the lock, substantially as specified.

7. The combination of a lock having a rotating barrel with keyway therein, with an escutcheon having a flaring guide-flange, the lower portion of which extends closely to the edges of the key hole and is formed on and rotates with the barrel of the lock, substantially as specified.

8. The combination of the sliding latch bolt with stops of sound deadening material, substantially as specified.

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

BENJAMIN DENVER COPPAGE.

Witnesses:

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