

No. 608,229.

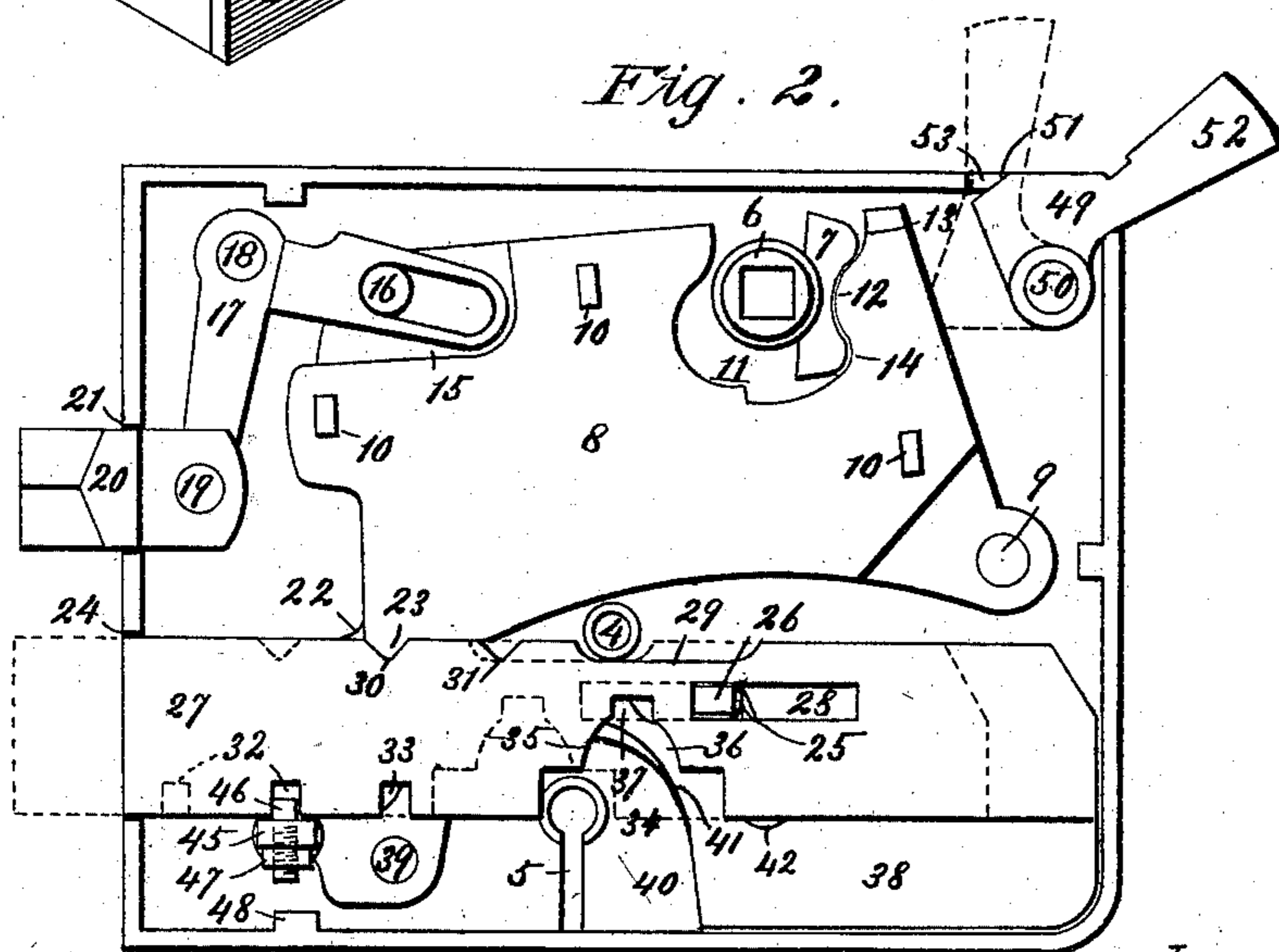
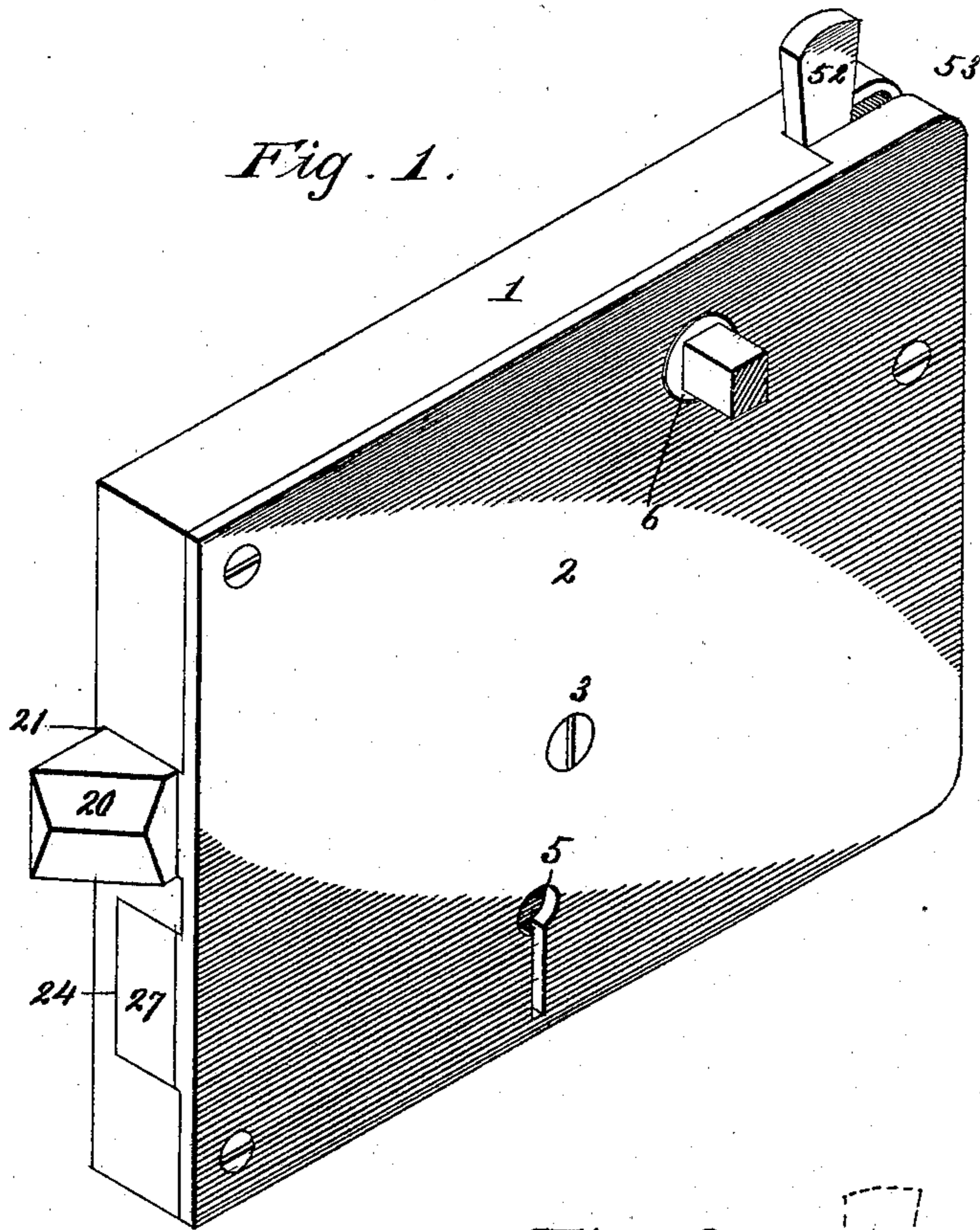
Patented Aug. 2, 1898.

G. H. SCHWEDLER.
LOCK.

(Application filed Aug. 2, 1897.)

(No Model.)

2 Sheets—Sheet I.



Witnesses:

F. G. Fuescher
G. J. Horner

Inventor

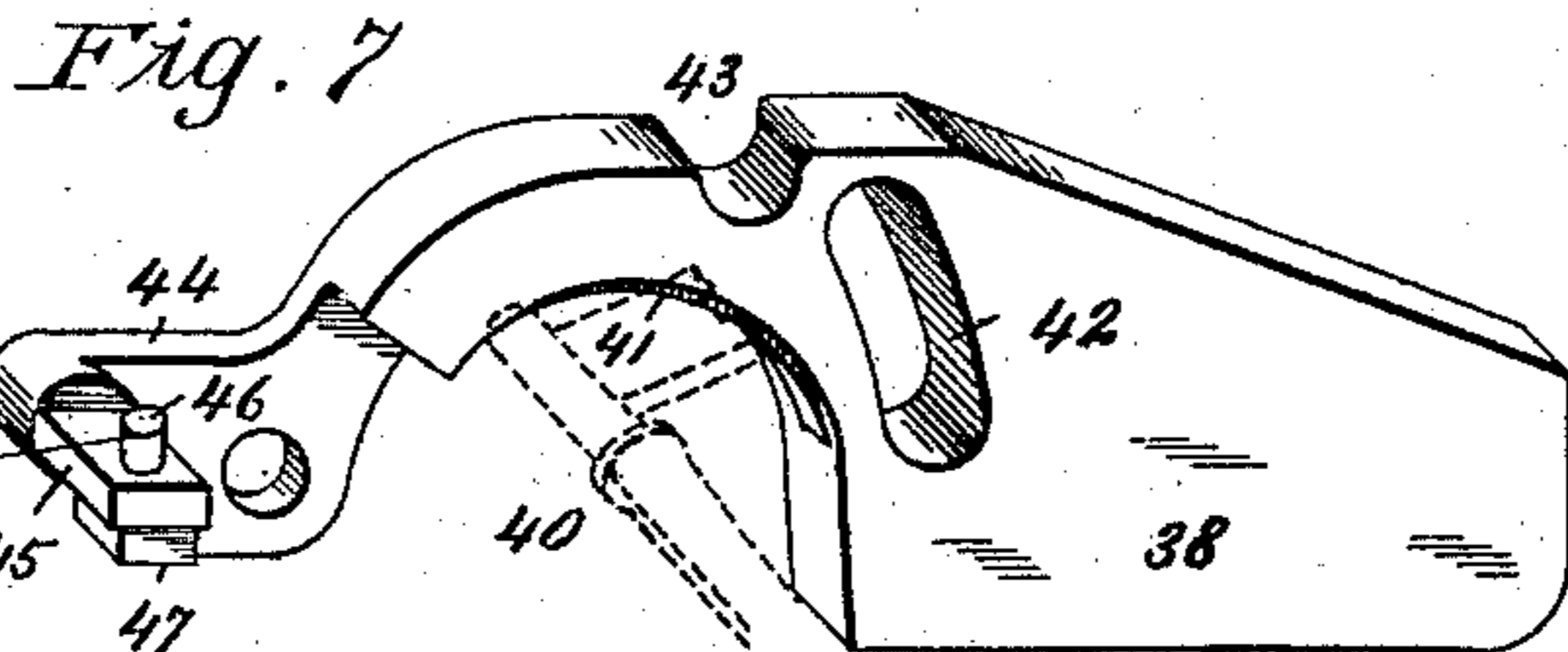
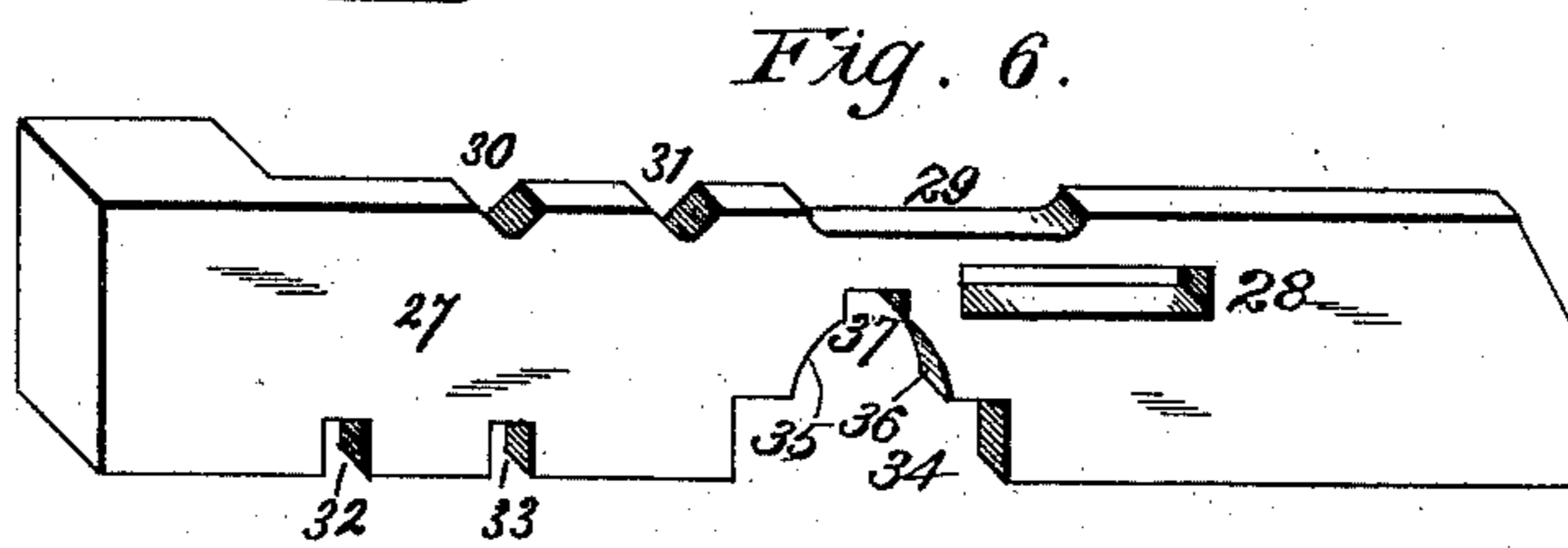
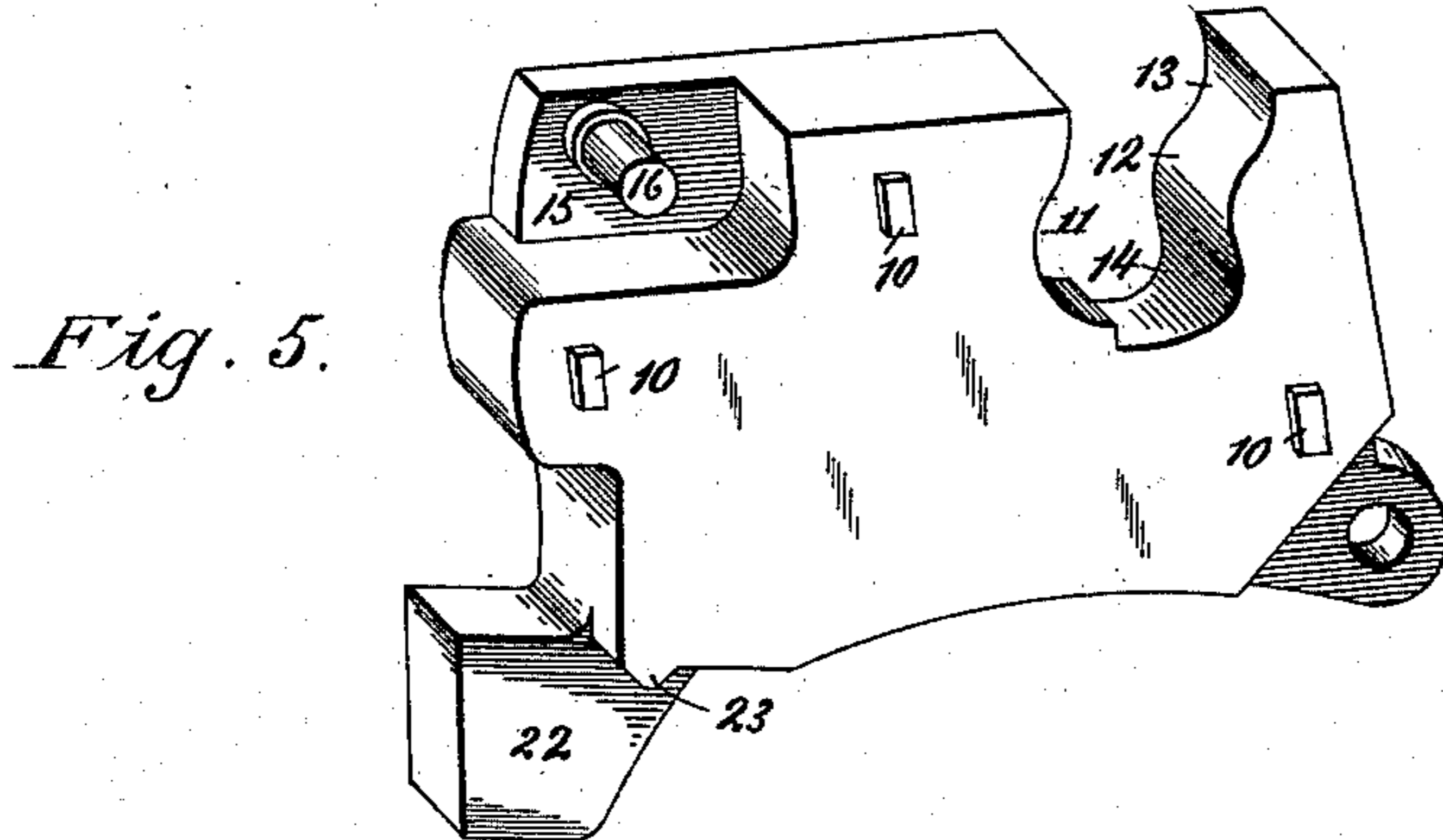
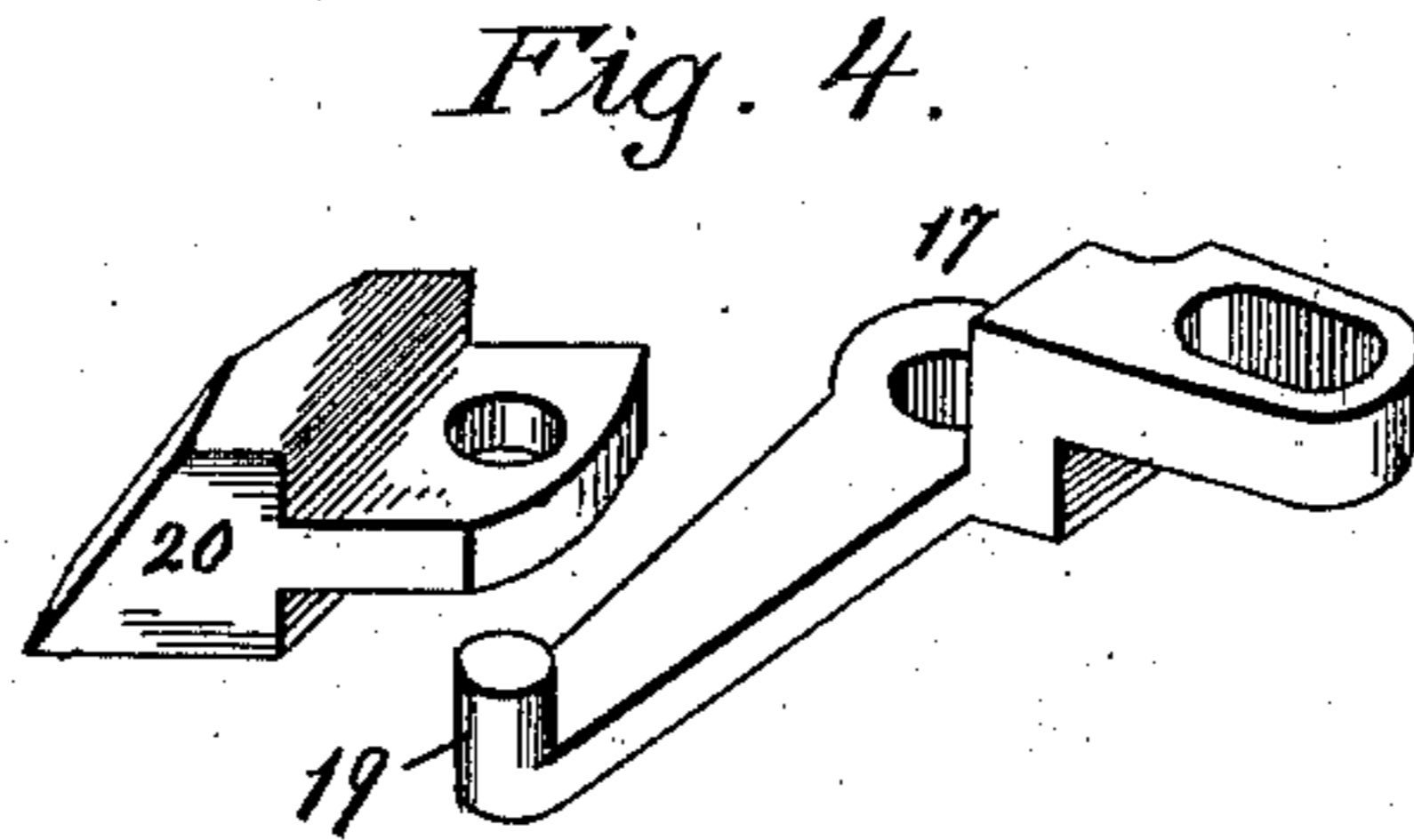
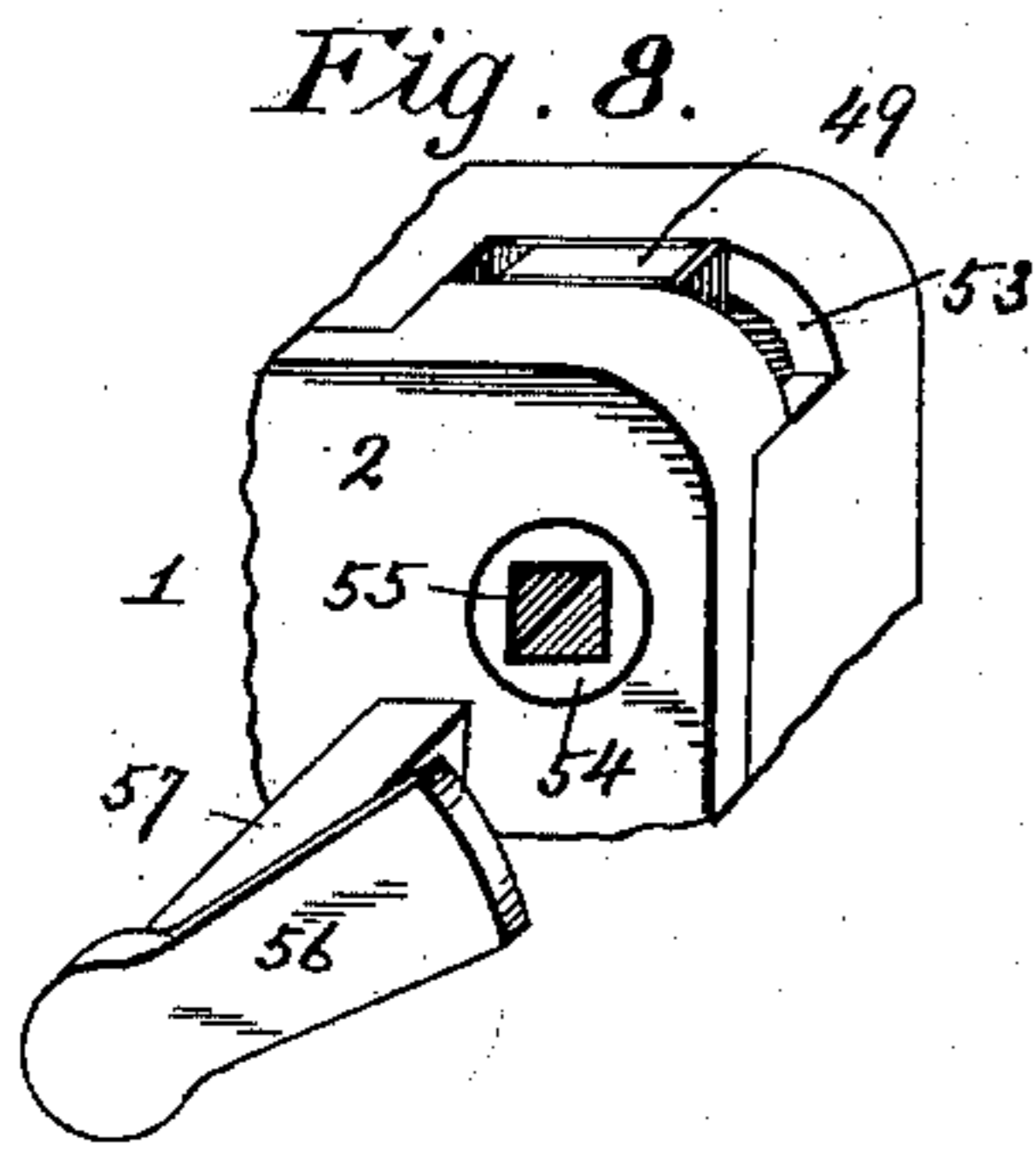
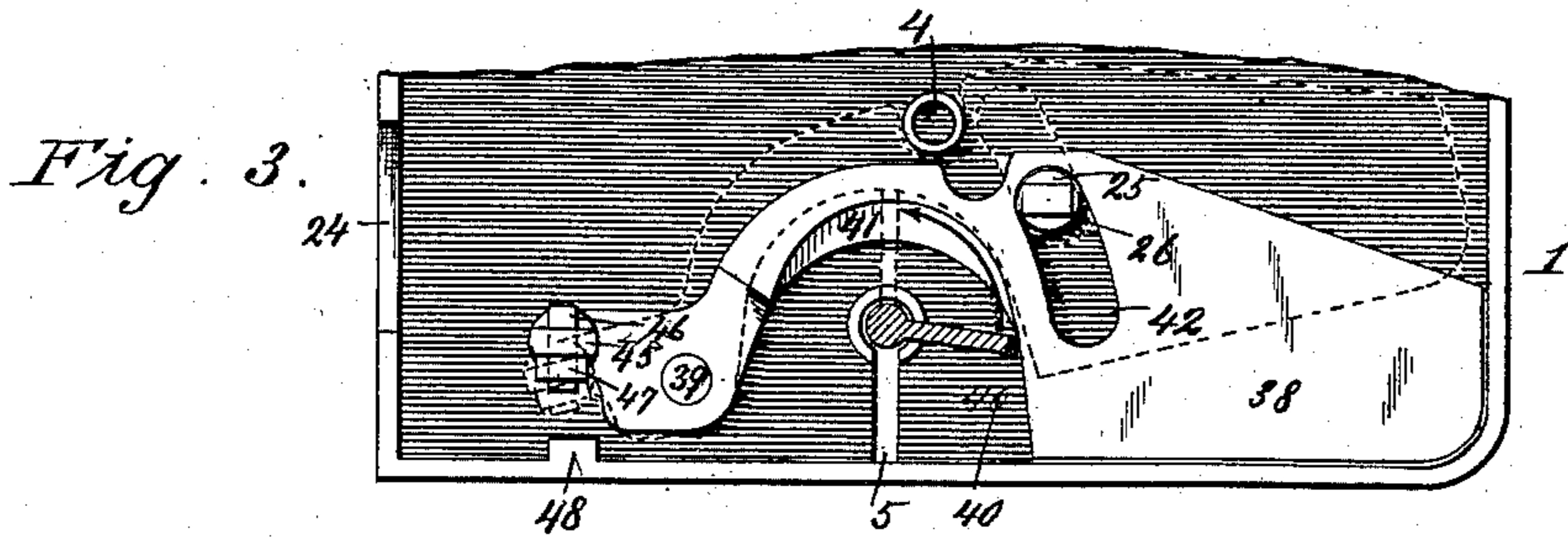
G. H. Schwedler
By Higdon & Higdon
attys.

G. H. SCHWEDLER.
LOCK.

(Application filed Aug. 2, 1897.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses:
F. G. Fischer
G. H. Schwedler

Inventor
G. H. Schwedler

By *Wigdon & Wigdon*
 Attys.

UNITED STATES PATENT OFFICE.

GUSTAV H. SCHWEDLER, OF KANSAS CITY, MISSOURI, ASSIGNOR OF ONE-HALF TO GEORGE W. LORING, OF SAME PLACE.

LOCK.

SPECIFICATION forming part of Letters Patent No. 608,229, dated August 2, 1898.

Application filed August 2, 1897. Serial No. 646,838. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV H. SCHWEDLER, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improvements in Door-Locks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to springless or gravity door-locks; and it consists in certain novel and peculiar features of construction and combinations of parts, as will be hereinafter described and claimed.

My object is generally to improve this class of locks, and one special object is to provide a lock which cannot be unlocked by means of a key varying only slightly in length of bit or web, but which can be easily adjusted to accommodate a key which does vary in the length of its bit or web.

In order that the invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 represents a perspective view of a door-lock embodying my invention. Fig. 2 represents an internal face view of the same, the face-plate being removed. Fig. 3 represents a similar view of the lower half of the lock, but showing only the key and the tumbler for securing the bolt in its locked or unlocked position. Fig. 4 represents in perspective views of the latch and latch-lever detached. Fig. 5 represents in perspective the tumbler for advancing the latch automatically and for engaging the bolt. Fig. 6 represents a perspective view of the bolt. Fig. 7 represents a perspective view of the bolt-controlling tumbler. Fig. 8 represents in perspective the corner of a mortise-lock and a key for operating the dog employed for preventing movement of the lock and bolt.

In the said drawings, 1 designates a rectangular lock-casing, and 2 the face-plate thereof secured by means of screws in the customary manner. One of these securing-screws 3 engages the cylindrical lug 4, projecting forwardly from the back plate of the lock and located, preferably, above the keyhole 5, which is of the ordinary form, comprising an

eye and a communicating slot. Above the cylinder 4 and to the right thereof when viewing it from the face-plate side the knob-barrel 6 is journaled in the casing and face-plate, said barrel being provided with the customary rectangular opening, in which the shank of the knob fits snugly in the customary manner, and said knob-barrel is provided at one side with the concave arm 7.

8 designates a tumbler which serves both as a latch-operating tumbler and a bolt-securing tumbler. It is pivoted within the casing at one end, as shown at 9, and is provided at suitable points with outwardly-projecting lugs 10, which, because of their small size, play with a minimum of friction against the walls of the casing to prevent lateral movement of the tumbler.

In its upper edge the tumbler is provided with an opening 11, partly surrounding the knob-barrel 6, and said opening is of outline to form a rounded hump 12 and concave surfaces 13 and 14 above and below said hump, respectively, said hump being of form to fit snugly against the concave arm 7 of the knob-bolt when the latch (hereinafter referred to) is in its normal or advanced position.

To withdraw the latch, the knob is turned in either direction. When turned downward to the right, the upper rounded end of the arm 7 rides down from the concave surface 13 upon the hump 12, and thereby pivotally operates and raises the free end of the tumbler, or by turning the knob in the opposite direction the rounded lower end of the arm 7 rides upwardly from the concave surface 14 upon the hump 12 and raises the free end of the tumbler. By such manipulation the tumbler is disengaged from the bolt and withdraws the latch by means of parts to be presently described, and when released it gravitates back to its original position, reengages the bolt, and readvances the latch. The said tumbler at its free and upper corner is recessed, as at 15, and pivotally engaging its pin 16 and adapted to play in said recess is the slotted arm of an angle or bell-crank lever 17, fulcrumed, as at 18, within the casing and pivoted, as at 19, to the diminished shank of the latch 20, projecting through the

opening 21 in the end of the casing at the free edge of the door. (Not shown.) Projecting from the lower corner at its free edge is an arm 22, designed principally to limit the withdrawal movement of the bolt, and also as a means for increasing the weight of the tumbler at its most effective point, so as to positively insure its automatic operation. This arm is of less thickness than the body of the tumbler, and depending from the latter coincident with said arm is an approximately V-shaped lug 23.

The rectangular opening 24, through which the bolt is adapted to be shot and withdrawn, is arranged, as usual, just below the latch-opening, and projecting from the back wall of the casing, to the right of and below the cylinder 4, is a guide-pin for the bolt, comprising a cylindrical portion 25 and a rectangular portion 26 of diminished size, so as to form a shoulder at the junction of said cylindrical and rectangular portions.

The bolt 27, arranged horizontally, fits in the opening 24 at one end and is provided with a rectangular slot 28 near its opposite end, which snugly embraces the rectangular portion 26 of the pin, the bolt finding a bearing at such end against the shoulder of said pin and the face-plate of the casing. In its upper edge it is provided with a longitudinal recess 29, wherein the cylinder 4 projects without interfering with the bolt movement. In advance of said recess it is also provided with the approximately V-shaped notches 30 and 31 in its upper edge, the same being adapted for engagement alternately with the lug 23 of the tumbler 8. In its lower edge it is provided in advance of the notch 30 with a notch 32, and rearward of the same is a similar notch 33, the distance between said notches and the notches 30 and 31 being the same and equal to the bolt movement. Rearward of said notches its inner edge is also provided with the key-receiving recess 34, having rounded shoulders 35 and 36, against which the key operates in shooting or withdrawing the bolt, and with an extension 37 of said recess, having abrupt walls against which the key strikes and presses to move the bolt in either direction.

38 designates the bolt securing or locking tumbler, pivoted at its front end, as at 39, to the casing and arranged between the bolt and the back wall of the casing. It is provided with an approximately semicircular large recess 40, which is arranged eccentrically of the eye of the keyhole and is provided with a segmental rib 41, adapted to fit into the ward of the key. It is also provided with a segmental slot 42, concentric of its pivotal point 39, and with a recess 43 in its upper edge for the cylinder 4 to enter as the tumbler is pivotally operated by the key. It is provided, furthermore, with an arm 44, projecting forwardly of its pivot, and a pin 45 at the front end of said arm, projecting toward the face-plate. A set-screw 46, provided with

a check-nut 47, is mounted adjustably in said arm and is adapted at its lower end to strike against the lower wall of the casing or a lug 48, projecting therefrom, to limit the pivotal movement of the tumbler, the upper end of said screw engaging the notch 32 or notch 33, accordingly as the bolt is withdrawn or shot forward. Said pin prevents any key of less or more than a certain length of bit or web from advancing or withdrawing the bolt, but may be adjusted, if desired, to accommodate a key having a web of greater length or a key having a smaller web. In the former case the screw should be projected farther up through the pin 45 in order to permit of a greater pivotal movement of the tumbler before said pin strikes the lug 48 and limits such movement. In the latter case the pin should be adjusted farther downward in order that a shorter pivotal movement of the tumbler may reliably disengage the screw from the notch 32 or 33, as the case may be. It will thus be seen that a lock provided with this adjustable screw is practically a combination-lock, as the ward of the key may be filed a little deeper and then the screw adjusted slightly downward, so as to accommodate the shorter pivotal movement of the tumbler due to the use of a key having a diminished bit or web.

From the above description and drawings it will be seen that when the latch is advanced and the bolt withdrawn—the normal condition of the lock—the V-shaped lug 23 of the latch-tumbler engages the notch 30, while the upper end of the screw 46 engages the notch 32 of the bolt, and as a result to advance the bolt it is necessary to employ the proper key, which first, by engaging the rib 41, projecting into the recess 40, pivotally elevates the weighted end of the tumbler 38 and throws the screw 46 out of the notch 32. The continued movement of the key in the same direction then causes the bolt to advance, because the key strikes against the front abrupt wall of the recess 37 and applies a positive pressure against the bolt. This pressure, though only slight, is great enough to raise the tumbler 48, owing to the fact that the rear sloping edge of the lug 23 is engaged by a correspondingly-sloped surface—viz., the rear wall of the V-shaped notch 30. When the bolt is shot, it is held in such position by the screw 46 engaging the notch 33 and the lug 23 engaging the notch 31, and to withdraw it the key is inserted and rotated in the opposite direction or rearward and upwardly. This movement pivotally operates the tumbler 38 and withdraws the pin out of the notch 33. The movement being continued, the key next comes against the rear abrupt wall of the notch 37 and forces it rearward, the tumbler 8 swinging upwardly, as before described, to accommodate this movement, owing to the fact that one sloping surface—viz., the front wall of the notch 31—presses against the front wall of the V-shaped lug 23. Neither the

locking nor unlocking operations withdraw the latch, owing to the fact that the movement of the tumbler 8 is very short.

In order to prevent a door provided with this lock from being unlocked, even by the proper key in the hands of a person outside, I have provided the dog 49, pivoted, as at 50, in the upper rear corner of the casing, and provided it with a flat face 51 for engagement with the rear edge of the tumbler 8, so as to prevent the bolt from raising said tumbler, as described, and thereby being withdrawn under any longitudinal application of power. Said dog is provided with an arm 53, which projects through a slot of the casing, so as to be easily manipulated by a person within the house. This dog is made operative by swinging it from the position shown in full to the position shown in dotted lines, Fig. 2, and inoperative by swinging it back to its original position, as illustrated in full lines, same figure. When the dog occupies its operative position, the latch-tumbler 8 becomes a positive and reliable lock for the bolt and also for the latch.

Where the mechanism described is inclosed in a mortise-lock casing, the handle 52 of the dog 49 is dispensed with, and instead of being mounted on a pivot, as at 50, it is provided with a cylindrical barrel 54, journaled in the casing and provided with a rectangular passage 55. To turn this barrel and thereby operate the dog, I provide a short lever or handle 56, provided with a rectangular stem 57, engaging said passage 55, as shown clearly in Fig. 8.

As the various operations have been referred to in detail, a recapitulation is not deemed necessary, and it will be obvious from a careful examination of the foregoing description, taken in connection with the drawings, that the lock, in addition to possessing the desirable features enumerated in the statement of invention, is also simple, compact, and durable of construction, and has no small parts to get out of repair.

It is to be understood, of course, that various changes in the form, detail construction, or arrangement may be resorted to without departing from the spirit of the invention.

Having thus described the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A door-lock, comprising a casing, provided with a keyhole, a sliding bolt therein provided with a key-receiving notch and two other notches, and a tumbler pivoted within the casing and provided with a segmental recess registering with the key-receiving recess of the bolt and arranged eccentrically of the axis of the keyhole, and with an adjustable pin for engaging one of said other notches of the bolt, substantially as described.

2. A door-lock, comprising a casing, provided with a keyhole-opening, a sliding bolt provided with a key-receiving opening or notch registering with the keyhole-opening and with two other openings, a tumbler pivoted within the casing, provided with a segmental recess extending eccentrically of the keyhole-opening and registering with the same and the key-receiving opening of the bolt, and at the opposite or front side of its pivot with an arm, and a pin adjustably mounted in said arm and engaging one of said other openings of the bolt, substantially as described.

3. A door-lock comprising a casing, a sliding bolt therein provided with a key opening or notch, and two pairs of other notches; one pair of V shape, a tumbler provided with a V-shaped lug to engage said V-shaped notches alternately, a sliding latch connected to said tumbler, a tumbler provided with a pin adapted to engage alternately the other pair of notches and with a key-receiving opening eccentric of, but registering with the keyhole and key-opening of the bolt, and a dog engaging the first-named tumbler and thereby securing the last-named tumbler from disengagement with the bolt, substantially as described.

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

GUSTAV H. SCHWEDLER.

Witnesses:

M. R. REMLEY,
E. B. TINKER.