

No. 696,980.

Patented Apr. 8, 1902.

J. H. KINTER & W. H. ROMIG.

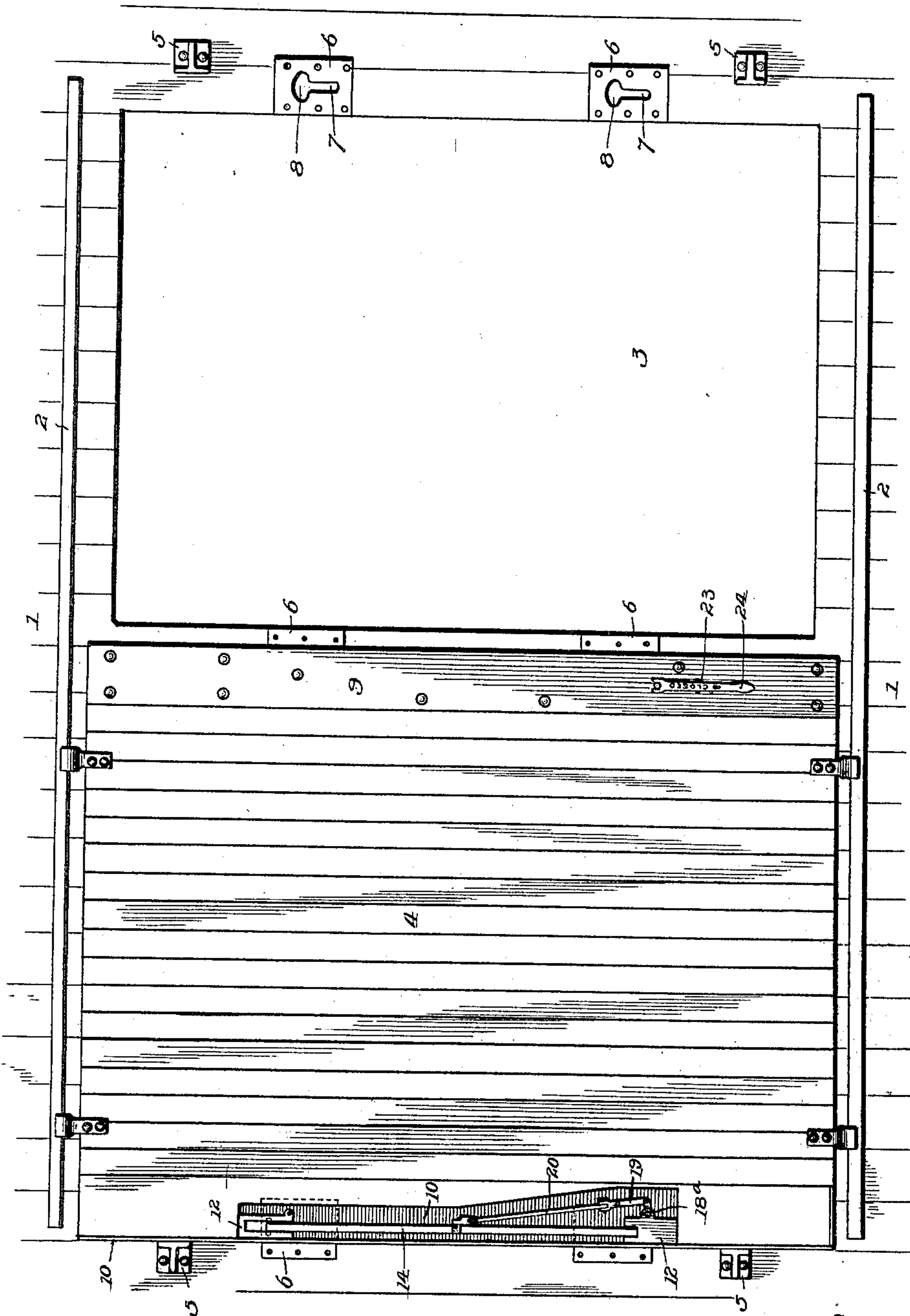
SLIDING DOOR FASTENER.

(Application filed June 25, 1901.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



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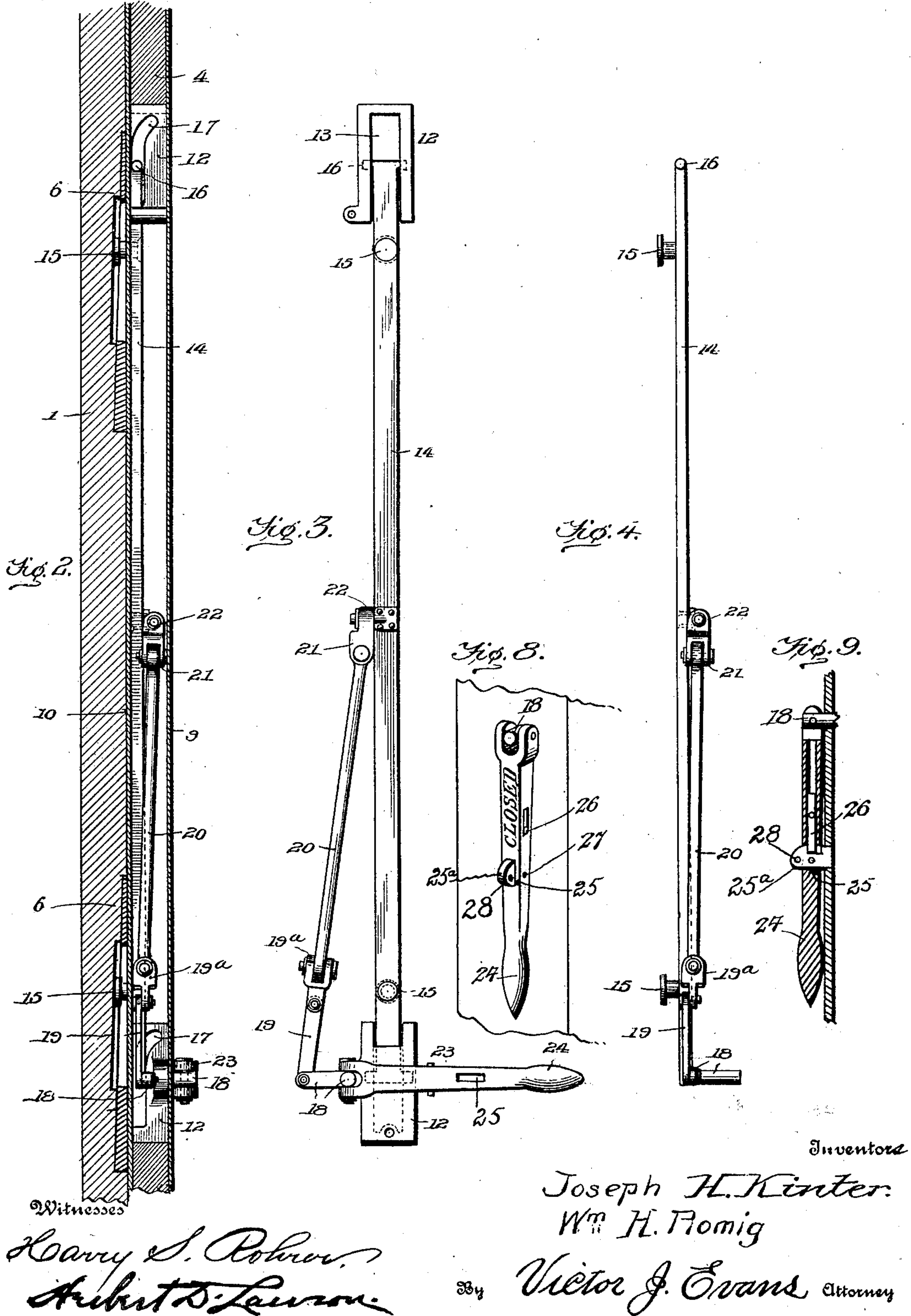
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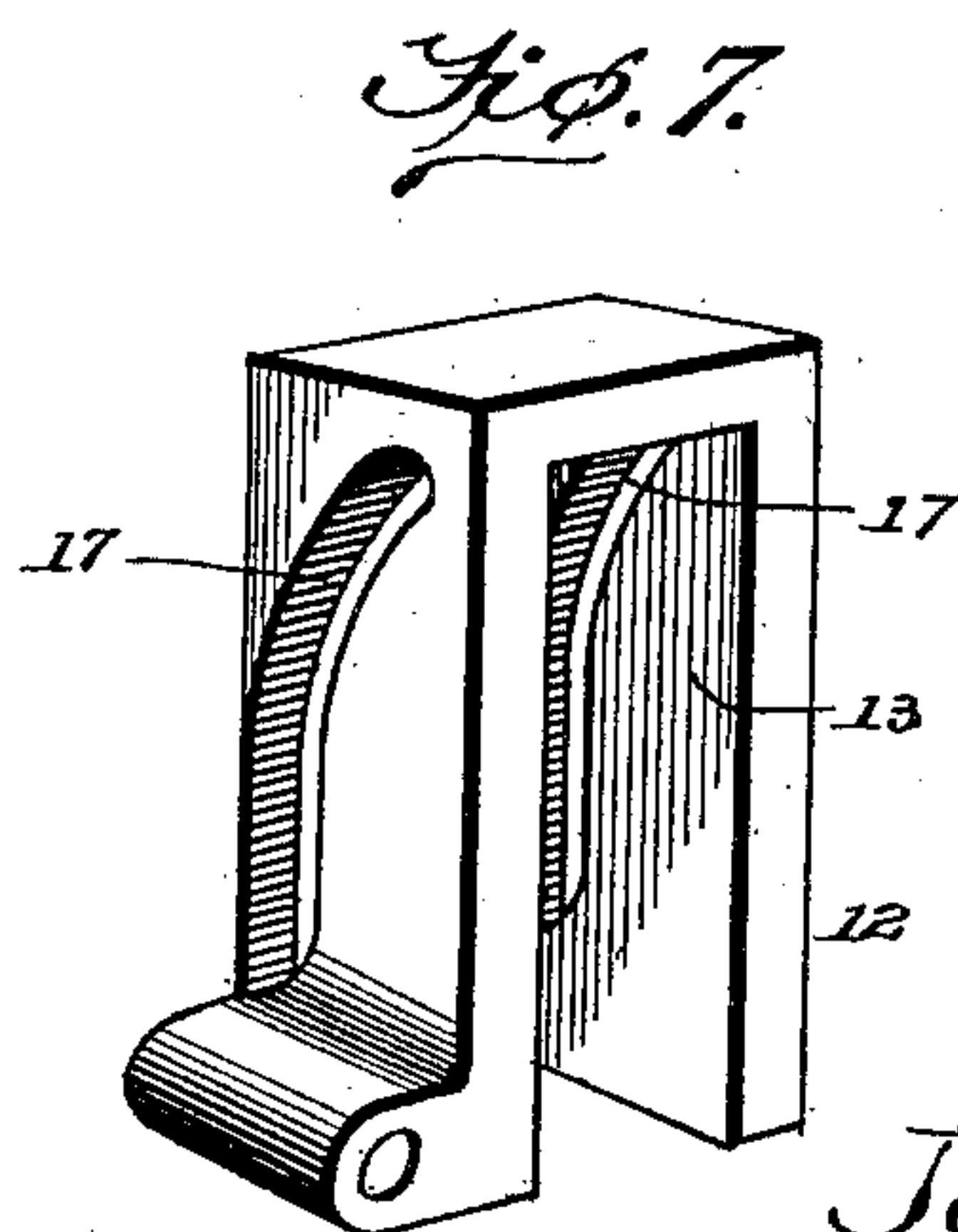
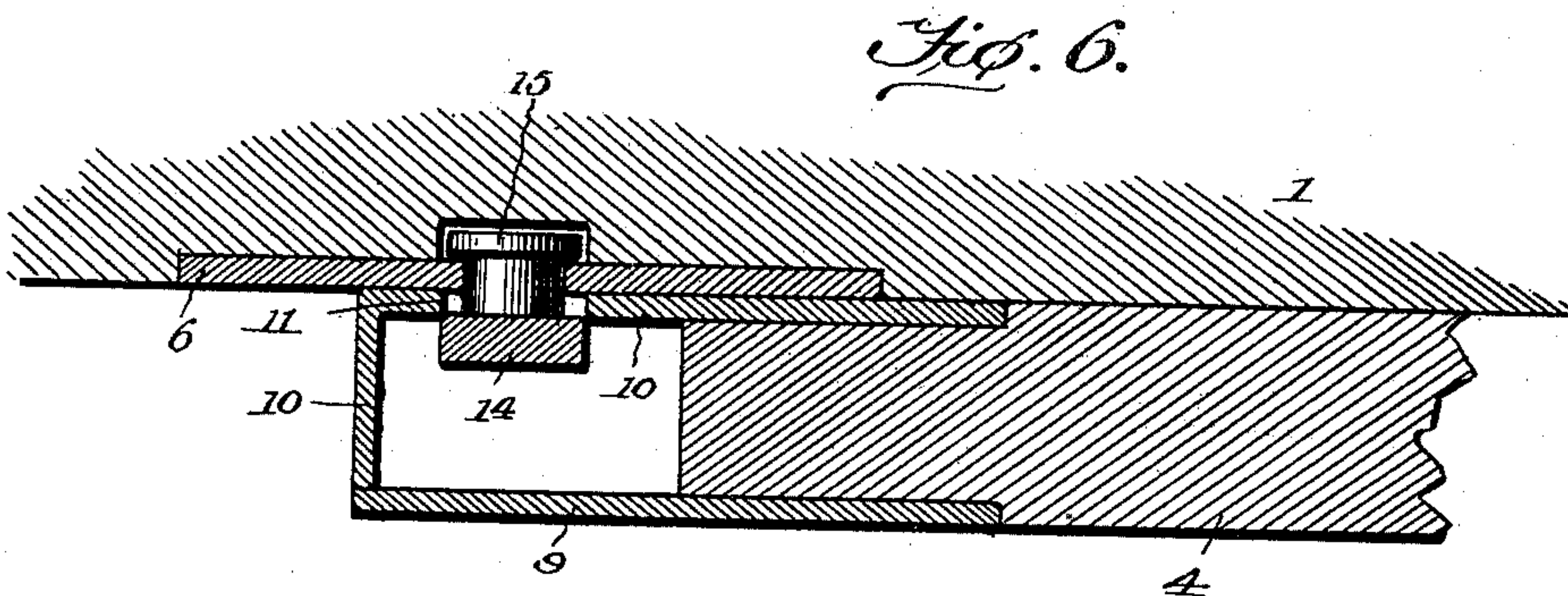
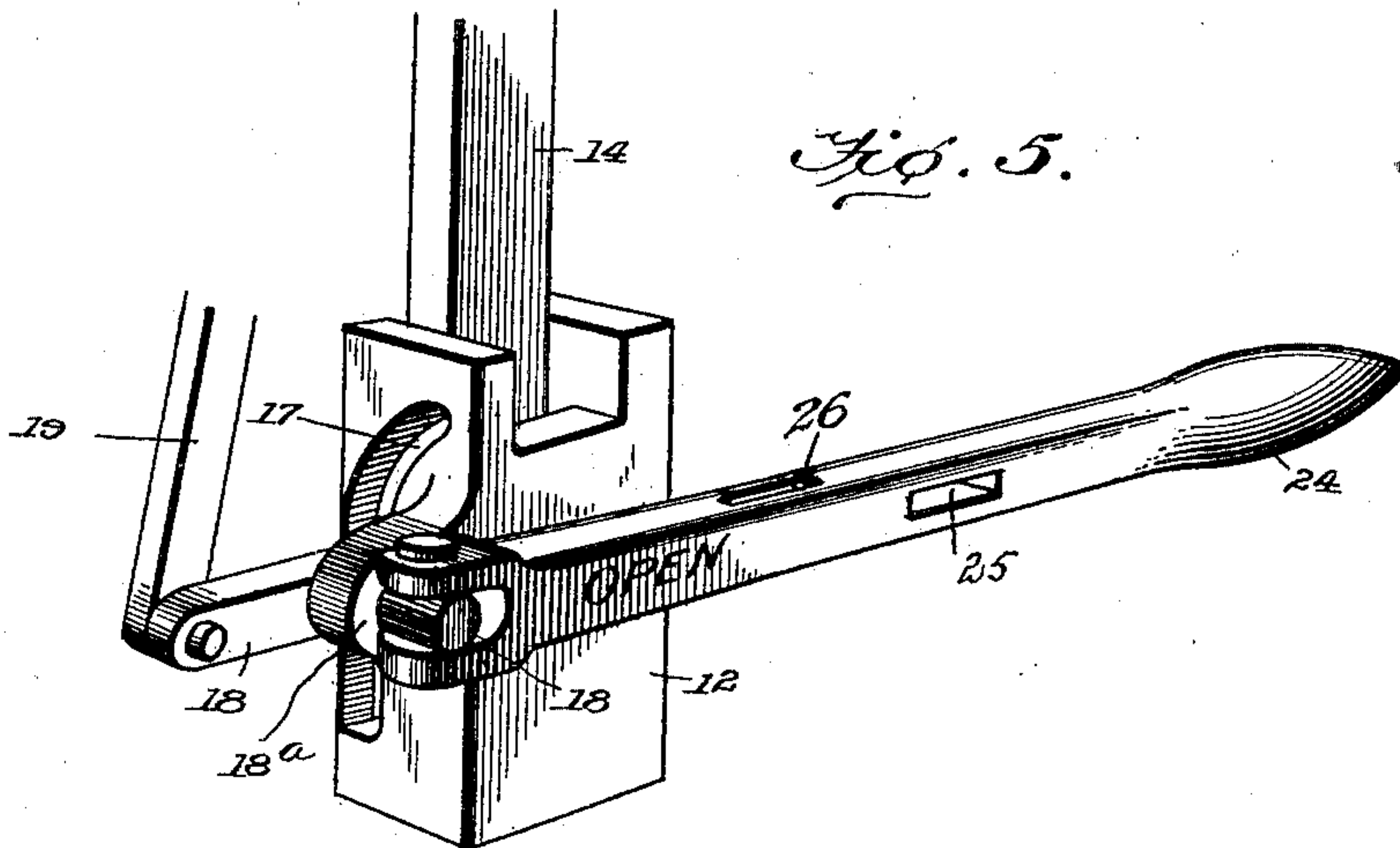
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UNITED STATES PATENT OFFICE.

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SLIDING-DOOR FASTENER.

SPECIFICATION forming part of Letters Patent No. 696,980, dated April 8, 1902.

Application filed June 25, 1901. Serial No. 66,024. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH H. KINTER and WILLIAM H. ROMIG, citizens of the United States, residing at Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented new and useful Improvements in Sliding-Door Fasteners, of which the following is a specification.

This invention relates to new and useful improvements in locks especially adapted for use upon sliding doors of box or furniture cars, &c.; and its primary object is to provide a device which may be readily attached to doors at slight cost and which will prevent them from being knocked off or forced in any manner.

A further object of the invention is to provide an improved fastening means for a door to readily secure the latter in either open or closed position.

With these and other objects in view the invention consists in providing a sliding door within each end of which is secured the lock. This lock comprises a vertically-movable rod, the ends of which extend into castings of suitable construction and are slidably mounted therein. Pins extend laterally from the rod into curved slots formed within the end of the casting and are adapted, when said rod is raised, to retract the same from the rear face of the door. Buttons project from the rear face of the rod and are adapted to extend into slots formed within plates which are secured to the door-casing when the rod is in its lowest position and projected. A crank-shaft is journaled within the door adjacent to the rod and is connected by means of links with the rod, whereby when said crank is turned the rod may be moved either upward or downward, as desired. A lever or handle is secured to the outer end of the crank-shaft, whereby the same may be readily turned.

The invention also consists in the further novel construction and combination of parts hereinafter more fully described and claimed, and illustrated in the accompanying drawings, showing the preferred form of our invention, and in which—

Figure 1 is a side elevation of part of a car, showing the door with our improved lock applied thereto and locked in open position, the

outer face-plate of one of the locks being removed. Fig. 2 is a vertical section through the lock, the door, and the casing, showing the same fastened together. Fig. 3 is an elevation of the lock detached from the door. Fig. 4 is an end view. Fig. 5 is a perspective view of the lower portion of Fig. 3. Fig. 6 is a horizontal section through the lock on a line with a button 15, and Fig. 7 is a detail view of the casting or socket. Fig. 8 is a detail perspective view of the locking-lever, and Fig. 9 is a longitudinal sectional view through the same.

Referring to the figures by numerals of reference, 1 is a car having rails 2 arranged above and below the door-opening 3 therein. A door 4 is slidably mounted between the rails 2, and stops 5 are located at each side of the door-opening and are adapted to limit the movement of the door in both directions. The plates 6 are secured to the door-casing at points adjacent to the top and bottom thereof and are wedge-shaped in cross-section. These plates are provided with buttonhole-slots 7, the large portion 8 of which slot is arranged, preferably, at the top thereof, the thickest portion of the plates being at the lower end of the slots.

Each edge of the door is cut away for a suitable distance for the reception of the lock, hereinafter more fully described, and an outer face-plate 9 is secured along each side edge of the door, while substantially L-shaped plates 10 are secured to the inner face and over the sides of the door, thereby inclosing the recesses formed in the edges thereof and before referred to. These plates, which form the casings of the locks, may be constructed of any desired material, such as pressed steel or iron, and they serve not only to protect the lock, but also prevent the door from breaking or getting out of shape. Longitudinally-extending slots 11 are formed within the inner face of each of the L-shaped plates of the casing, said slots being arranged in horizontal alinement with the slots 7 within the plates 6, before mentioned. Castings 12, having recesses 13 therein of any desired depth, are arranged one at each end of each recess in the door, and each casting in these recesses receives one end of a rod 14, which is slidably

mounted therein. Buttons 15 extend from the inner face of the rod 14 at right angles thereto. These buttons are adapted to be projected through the slots 11, as hereinafter described.

5 Pins or studs 16 extend laterally from each rod 14 at the ends thereof and are slidably mounted within curved slots 17, formed within the castings 12, before referred to, said slots being so arranged that when the rod is

10 raised the studs 16 will be thrown outward from the L-shaped plate of the casing, thereby retracting the buttons 15 through the slots 11. A crank-shaft 18 extends transversely through an ear 18^a upon the lower casting 12

15 and projects through the plate 9 of the casing, and the crank thereof is connected to a link 19, the opposite end of which is pivoted to a block 19^a, pivotally connected to a rod 20, the pivot-pins thereof being arranged in

20 planes at right angles to each other. The remaining end of this rod 20 is pivoted within ears 21, extending from a block 22, which is bolted or otherwise secured to the inner side of the rod 14.

25 Pivotally secured to the outer end of each crank-shaft is a lever 23, having a suitable handle, as at 24. Formed within the handle and intermediate the ends thereof is an aperture 25, adapted to fit over a suitable notched

30 strike 25^a on the door. Immediately above this aperture and fitting in a recess is a sliding gravity-bolt 26, which is adapted to normally drop partially within the aperture 25 to engage the notch on the strike. The sides of

35 the lever are perforated, as at 27, for the reception of a suitable lock. (Not shown.) On each side of the lever 23 suitable reading material is arranged. For instance, on one side may be stamped, printed, or cast the word "Open,"

40 while the opposite side may have the word "Closed" thereon.

It is believed that from the foregoing description the operation of the lock will be clearly understood.

45 When it is desired to secure the door in closed position, the same is slid over the door-opening 3 until it contacts with the stops 5 in the path thereof. The slots 11 will then register with the buttonhole-slots 7, formed

50 within the plates secured to each side of the door-casing. When the lever 23 is swung upward, the rod 14 will be slid downward, motion being imparted thereto from the crank 18 through the link 19 and the rod 20. As

55 the rod 14 continues its downward movement the studs 16 thereon will be guided inward within the curved slots 17 in the castings 12, thereby moving the rod toward the L-shaped plate 10 and causing the buttons 15 to slide

60 through the slots 11 and into the large portion 8 of the buttonhole-slots 7. As the upward movement of the lever 23 is continued the rod 14 will continue to move downward and the buttons will slip into the reduced portions of the buttonhole-slots 7, thereby

65 securely binding the door to the casing. By reason of the fact that the plates 6 are wedge-

shaped in cross-section the weight of the door will be sufficient to cause the buttons to drop into the lower portion of the buttonhole-slot 7, thus causing the door to be drawn toward the casing and bind against the same. When the lever has reached a vertical position and the rod 14 has completed its downward movement, said lever can then be swung downward upon its pivot and the word "Closed" will appear upon the upper surface thereof. The remaining edge of the door is then locked to the opposite side of the door-casing in a similar manner. The aperture 25 in the lever is adapted to receive a strike projecting from the side of the car, and by placing a padlock in the perforations 28 in the strike 25^a the lever can be locked in position.

When it is desired to unlock the door, the motion heretofore described is reversed. It will be understood that when the lever 24 is swung downward from its raised position the rod will be moved upward, and the studs 16 within slots 17 will cause said rod to be retracted after the buttons arrive within the enlarged portions 8 of the buttonhole-slots 7. The door is then slid open until it contacts with the stops in the path thereof, and the buttons are then moved into engagement with the slots in the plate 6, arranged at the adjacent edge of the door-casing and upon the side of the car under the remaining edge of the door.

It will be seen that the device is extremely simple and durable in construction and that when the door is locked in position the same is securely bound to the side of the car and cannot be removed until the lever has been turned one-half of a revolution. If desired, any suitable securing means may be provided for locking said lever against rotation.

As hereinbefore stated, this lock is especially adapted for large furniture-cars, &c., thereby preventing the damage to property such as has heretofore occurred, the same being occasioned by the displacement or accidental detaching of doors.

In the foregoing description we have shown the preferred form of our invention; but we do not limit ourselves thereto, as we are aware that modifications may be made therein without departing from the spirit or sacrificing any of the advantages thereof, and we therefore reserve the right to make such changes as fairly fall within the scope of our invention.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination with a slotted casing; of a rod slidably mounted in the casing, a button thereon, means for imparting longitudinal motion to the rod, and means whereby said button will be projected laterally through the slot in the casing at the beginning of the movement of the rod in one direction and whereby said button will be retracted from the slotted plate at the end of its reverse movement.

2. The combination with a slotted casing; of a rod slidably mounted therein, a button extending from the rod, a stud upon the rod, a casting adapted to receive the rod and having a curved slot engaged by the stud, whereby the button is adapted to be projected through the slot in the casing at the limit of the movement of the rod in one direction, and retracted at the beginning of its reverse movement, and means for imparting motion to the rod.

3. The combination with a casing, of a recessed casting within each end thereof, each casting having curved slots therein, a rod within the casing, studs at the ends of the rod slidably mounted within the curved slots, a button extending from the rod and adapted to be projected through the slot in the casing when said rod reaches the limit of its movement in one direction and to be retracted at the beginning of its reverse movement and means for imparting motion to the rod.

4. The combination with a slotted casing, of a recessed casting within each end thereof, each casting having curved slots therein, a rod, studs extending from the rod and slidably mounted within the curved slots, a button extending from the rod and adapted to be projected through the slot in the casing when said rod reaches the limit of its movement in one direction and to be retracted from said slot at the beginning of its reverse movement, a crank-shaft journaled within the casing, a lever thereto and a link connection between said crank-shaft and the rod whereby motion is imparted thereto from the lever.

5. The combination with a structure having a slotted plate secured thereto, of a second structure, a casing secured thereto, a rod slidably mounted within the casing, a button projecting therefrom, means for imparting motion to the rod and means whereby said button will be projected into engagement with the slotted plate at the beginning of the movement of the rod in one direction and whereby said button will be retracted from the slotted plate at the end of its reverse movement.

6. The combination with a door-casing having plates secured at each side thereof and provided with buttonhole-slots, of a sliding door, a lock-casing secured to each side edge thereof and each casing containing a sliding rod, a recessed casting adapted to receive each end of said rod and having curved slots therein, studs extending from the rod and slidably mounted within the curved slots, buttons extending from the rod, a crank-shaft journaled within the casing, a lever pivoted thereto and a link connection between the crank-shaft and rod whereby motion is imparted thereto from the lever, said buttons being adapted, when the rod is moved in one direction, to project into and slide within the buttonhole-slots and to slide within and be retracted from said slots during the reverse movement of said rod.

In testimony whereof we affix our signatures in presence of two witnesses.

JOSEPH H. KINTER.
WILLIAM H. ROMIG.

Witnesses:

GEORGE ACKMAN,
G. D. WITTER.