

No. 828,780.

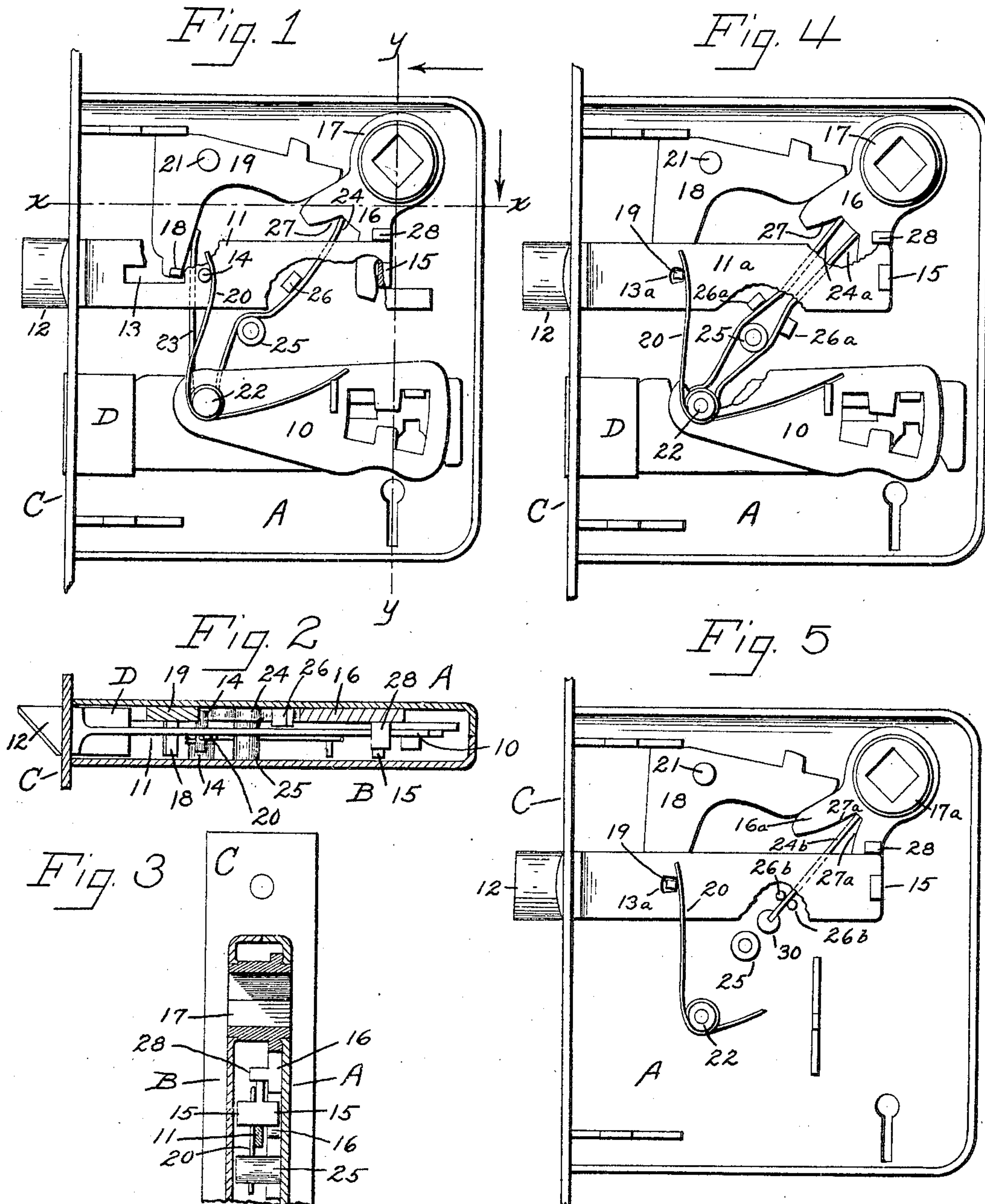
PATENTED AUG. 14, 1906.

A. SHEPARD.

LATCH.

APPLICATION FILED APR. 14, 1905.

2 SHEETS—SHEET 1.



Witnesses.
Fred E. Potter.
P. J. Egan

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2 SHEETS—SHEET 2.

Fig. 6

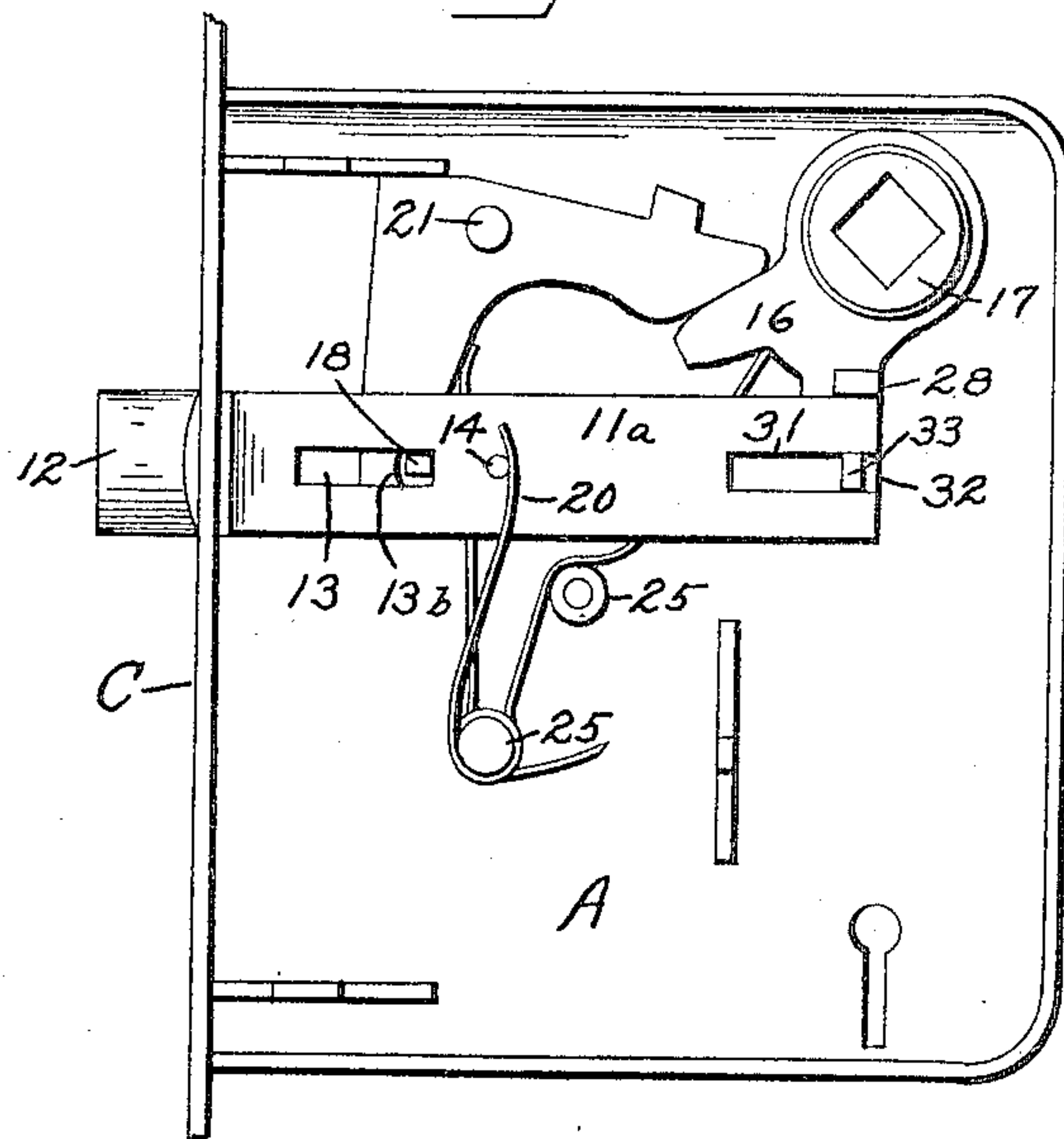


Fig. 7

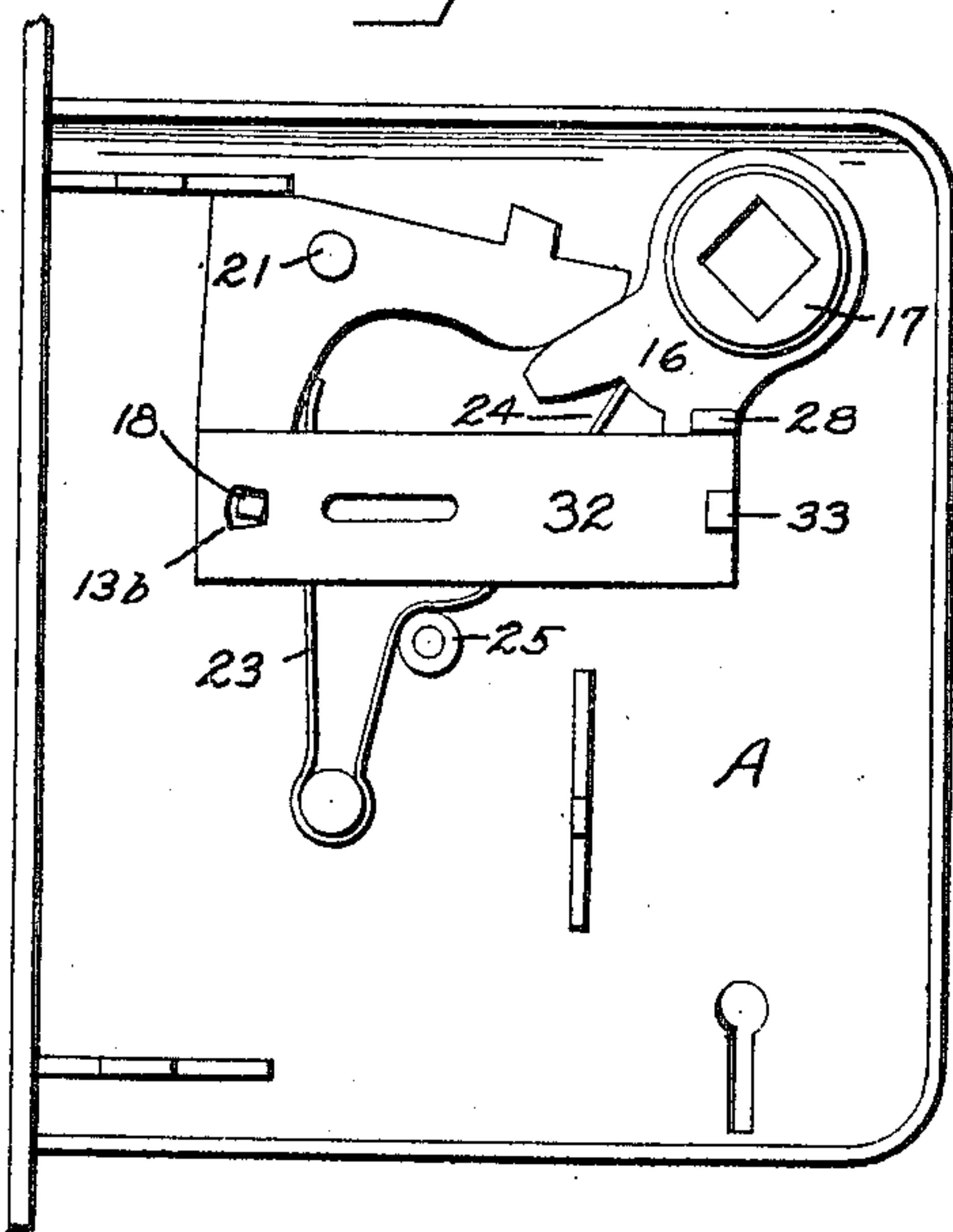


Fig. 8

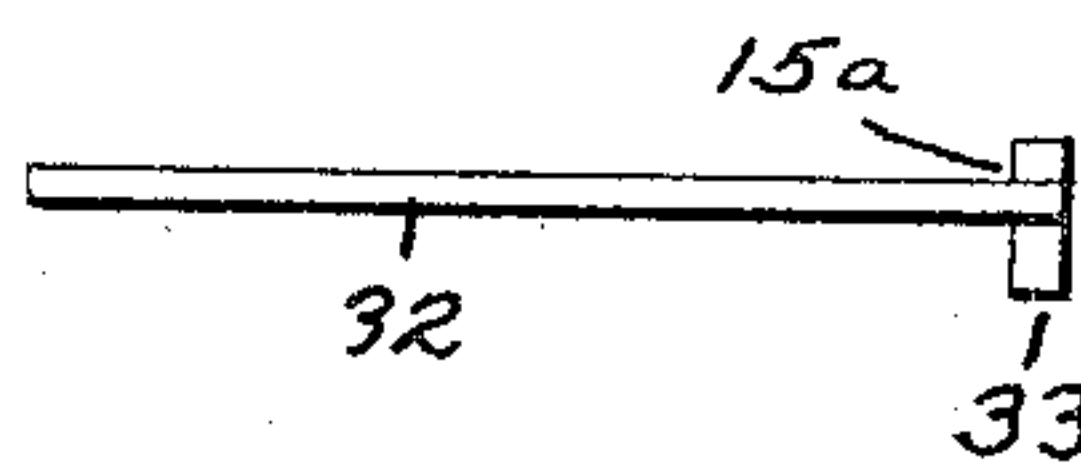
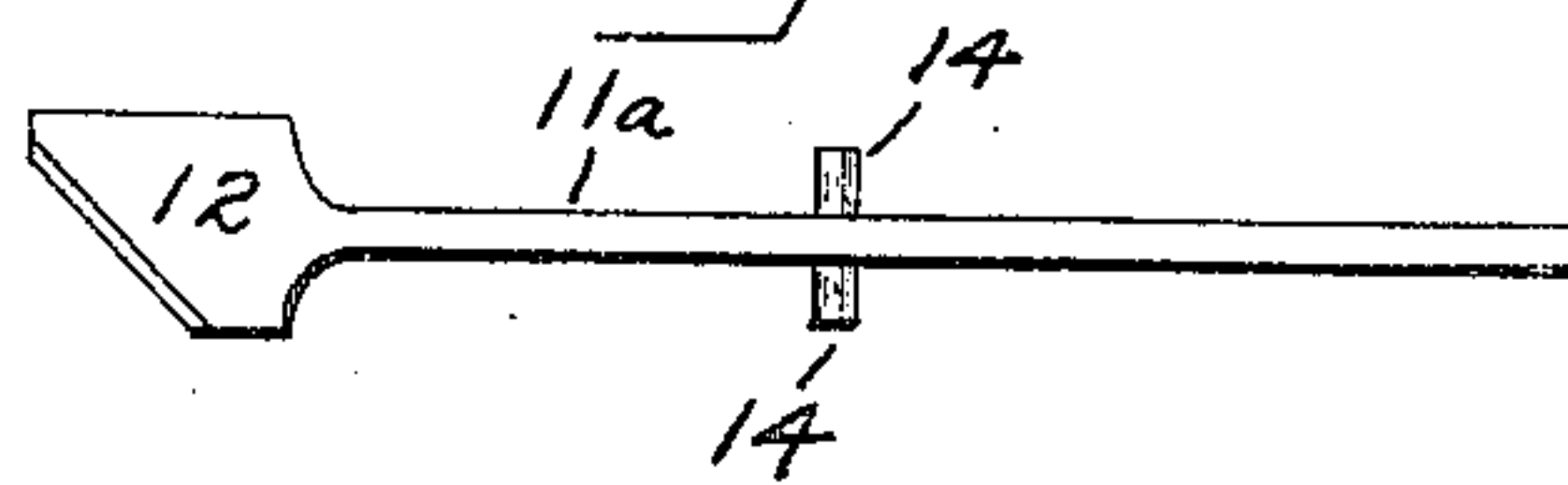


Fig. 9



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UNITED STATES PATENT OFFICE.

AMOS SHEPARD, OF PLANTSVILLE, CONNECTICUT, ASSIGNOR TO RUSSELL & ERWIN MANUFACTURING COMPANY, OF NEW BRITAIN, CONNECTICUT, A CORPORATION.

LATCH.

No. 828,780.

Specification of Letters Patent.

Patented Aug. 14, 1906.

Application filed April 14, 1905. Serial No. 255,496.

To all whom it may concern:

Be it known that I, AMOS SHEPARD, a citizen of the United States, residing at Plantsville, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Latches, of which the following is a specification.

My invention relates to improvements in latches; and the objects of my improvement are simplicity and economy in construction with efficiency in operation, and particularly to provide a simple construction for that class of latches in which the hub is located closely to the upper edge of the case.

In the accompanying drawings, Figure 1 is a broken-out front elevation of my latch with the cap-plate removed. Fig. 2 is a horizontal section of the same on the line $x x$ of Fig. 1. Fig. 3 is a vertical section of portions of the same on the line $y y$ of Fig. 1. Fig. 4 is a broken-out front elevation of my latch in a modified form. Fig. 5 is a like view showing another modification, the parts of the lock mechanism being removed. Fig. 6 is a front elevation showing another modification. Fig. 7 is a front elevation of the latch shown in Fig. 6, with a portion of the latch-bolt removed. Fig. 8 is an edge view of a part of the latch-bolt. Fig. 9 is an edge view of the other part of the latch-bolt.

A designates the case B, the front plate or cap, and C the face-plate, all of any ordinary construction as to their main features. The lock-bolt D and its tumblers 10 may also be of ordinary construction.

The latch-bolt 11 is provided with the usual beveled head 12, a slot 13, pins or studs 14, and lugs 15, the latter serving the double purpose of filling the space between the two plates of the case in the ordinary manner of similar latches and of furnishing a projection or shoulder for the wing 16 of the hub 17 to act against in withdrawing the latch-bolt. The pins 14 and lugs 15 are arranged on opposite sides of the latch-bolt to facilitate turning the bolt either side up for use as a right or left hand latch. The inner end of the slot 13 (the end nearest the latch-hub) serves as a shoulder or edge against which the forwardly-projecting end 18 of the angle-lever 19 acts to force the latch-bolt inwardly. The outer or head end 12 of the latch-bolt 11 is supported and guided by the face-plate C, through which the said head passes in the or-

dinary manner. Instead of having fixed guides on the case for the other end of the latch-bolt to slide in I hang the latch-bolt on the forwardly-projecting end 18 of the angle-lever 19, which end enters the slot or opening 13 in the latch-bolt, and the metal at the upper edge of the said opening rests upon the said projection to support the latch-bolt vertically. An easy spring 20 bears upon the front one of the pins 14, with a constant tendency to force the latch-bolt outwardly. The slot 13 in the latch-bolt enables the latch-bolt to move inwardly without moving the lever 19. The said lever is pivoted to the case on the pin 21, with the arm bearing the projection 18 extending downwardly to the latch-bolt, while its other arm extends toward the hub 17 in position to be engaged by one edge of the wing 16 of the said hub. A spring passes around the tumbler-post 22 of the lock mechanism, with one arm 23 extending upwardly and bearing on the edge of the lever 19, with a constant tendency to force the said lever into the position it has when the latch-bolt is projected, as shown. The other arm 24 of the spring passes upwardly by the side of cap-screw post 25 and stop-lug 26 to a shoulder 27 on the wing 16 of the hub 17, with a constant tendency to return the said hub to the position shown whenever the hub is turned in the direction for forcing the wing 16 against the lug 15 of the latch-bolt. The stop-lug, however, limits the action of the spring-arm 24, so as to relieve the shoulder 27 from the pressure of the said spring-arm when the hub is turned in the direction for forcing the wing 16 against the angle-lever 19. The notch or recess in the wing, of which notch the shoulder 27 forms one side, is wide enough to permit the necessary motion of the wing toward the angle-lever without any interference by the said spring-arm. A lug 28 on the wing 16 of the latch-hub serves as a guide for the upper edge of the latch-bolt to prevent the said bolt from rising out of place.

When the latch-bolt is pressed inwardly from its outer end, as by the engagement of the usual strike plate or keeper, it moves inwardly and puts the easy spring 20 under tension for returning the said latch-bolt without any movement of the lever and hub. When the hub is moved in one direction—as, for example, so as to carry the wing

16 toward the right—the said wing engages one of the lugs 15 on the latch-bolt to withdraw the said bolt, and at the same time the springs 20 and 24 are put under tension to return the said hub and bolt when released. Turning the hub in the opposite direction causes the opposite edge of the wing 16 to engage the lever 19 and withdraw the latch-bolt, thereby putting the springs 20 and 23 under tension to return the said parts when released. The wing 16 extends obliquely downward from the hub. It may be said to be divided into two members or wings by the notch or recess made to form the shoulder 27 for the spring 24, but it is practically only a single wing, one edge of which acts directly on a part of the latch-bolt to withdraw it when the hub is turned in one direction and the other edge of which wing acts directly upon the angle-lever, which in turn acts upon a portion of the latch-bolt to withdraw it. The latch-hub is returned to its normal position when moved in one direction by the direct action of the spring 24 and by the indirect action of the spring 23, which acts directly on the angle-lever, when the said hub is moved in the other direction. The construction is simple and inexpensive. The hub is above the plane of the latch-bolt and none of the latch-operating mechanism (except the springs) extends below the latch-bolt.

In Fig. 4 the latch-bolt 11^a is provided with a perforation 13^a instead of a slot, so that the angle-lever moves both ways with the latch-bolt. The easy spring 20 acts directly on the projection 19 of the angle-lever, so that it returns the said lever, as well as the latch-bolt, to their normal positions. The latch-hub 17 is returned in both directions by the direct action of the springs and there is no heavy spring on the angle-lever. The springs or spring-arms 24^a are formed of a single piece doubled upon itself and placed over the tumbler-post 22 and cap-screw post 25 and between the stop-lugs 26^a on the case, with their ends engaging the opposite shoulders of the slot or notch in the wing 16. Their action is the same as that of the spring 24, only there is a pair of springs for acting directly on the hub when turned in either direction instead of only a single spring acting directly on the hub when turned only one way. The other parts are or may be the same as in the construction first described.

In Fig. 5 the construction is the same as in Fig. 4, only a double-acting single spring 24^b is employed in place of the two-armed or double spring. This is preferably a flat sheet-metal spring with one end in a slot in the stud 30 and its other end between the confronting shoulders 27^a of the slot in the wing 16^a of the hub 17^a. Two stop-lugs 26^b are employed to limit the movement of the said spring.

In Figs. 6, 7, 8, and 9 the construction is

substantially the same as that first described, only the latch-bolt is made in two parts. One part has the head 12 and body 11^a with the pins 14 and is slotted, as at 13, and also slotted at its inner end, as at 31, to receive the guiding-lug 33 on the second part of the latch-bolt, which second part I will call a "slide" 32. This slide, besides having the guiding-lug 33, is provided with a lug 15^a for being directly acted upon by the wing 16 of the hub to withdraw the latch-bolt. A perforation 13^b is made in the opposite end of the slide to receive the projection 18 of the angle-lever and to necessitate the movement of the said angle-lever with the said slide. In this modification the part of the latch-bolt carrying the head 12 has the same independent movement as does the latch-bolt in Figs. 1, 2, and 3, while the slide, angle-lever, and hub have the simultaneous movement of the latch-bolt, angle-lever, and hub in the construction shown in Figs. 4 and 5.

In all of the constructions shown the inner end of the latch-bolt is supported vertically by hanging it on the lower end of the angle-lever. In all of them the double-acting hub is actuated in one direction by a spring, the action of which spring is released or removed whenever the hub is moved in the opposite direction. The construction is simple and inexpensive and the parts work easily with but little friction.

I claim as my invention—

1. In a latch, the combination of a latch-bolt having a lug at its inner end projecting from the broad side of said bolt, with an angle-lever pivoted on the case above the latch-bolt, and having at its lower end a projection within an opening in the latch-bolt, whereby the inner end of the latch-bolt is supported vertically on the lower end of the said angle-lever at a point between the head of the latch-bolt and the side lug at the inner end thereof, a hub having a wing that engages the other arm of the said angle-lever and which wing extends down by the broad side of the latch-bolt at its inner end to engage the aforesaid lug, and springs for returning the said parts to their normal position.

2. In a latch, the combination of a latch-bolt with a spring for projecting the said bolt, an angle-lever, a hub having a wing interposed between the said lever and the latch-bolt, and a special spring acting directly on the said hub to return the hub to its normal position independently of the said latch-bolt spring.

3. In a latch, the combination of a latch-bolt with a spring for projecting said bolt, an angle-lever, a double-acting hub having a wing interposed between the said lever and latch, a spring acting directly on the said double-acting hub for returning the said hub to its normal position when moved in the direction for acting on the latch-bolt, and a

stop to release the hub from the action of the said spring when the hub is moved in the opposite direction for acting on the angle-lever.

5 4. In a latch, the combination of a latch-bolt, mechanism comprising a double-acting hub for withdrawing the said latch-bolt, a spring acting directly on the said hub to return it to its normal position when moved in
10 one direction, and a stop to release the hub from the action of the said spring when the hub is moved in the opposite direction.

15 5. In a latch, the combination of a latch-bolt having a lug projecting from the broad side of said bolt, with an angle-lever pivoted on the case and having a projection within an opening in the latch-bolt for supporting the latch-bolt vertically on the said angle-lever, and a hub having a wing that engages
20 the other arm of the said angle-lever and which also extends down by the broad side of

the latch-bolt to engage the aforesaid lug of the latch-bolt, the said wing also being provided with a lug to serve as a guide for the upper edge of the latch-bolt to prevent the
25 inner end of the said bolt from rising out of place.

6. In a latch, the combination of a latch-bolt with an angle-lever, a double-acting hub having a wing interposed between the said
30 lever and latch-bolt, a spring acting on the angle-lever to return the said lever and hub to their normal position when the hub is moved in one direction, and a spring acting
35 directly on the said hub to return it to its normal position when it is moved in the opposite direction.

AMOS SHEPARD.

Witnesses:

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