

J. W. DAY.
Latch.

No. 216,316.

Patented June 10, 1879.

Fig1.

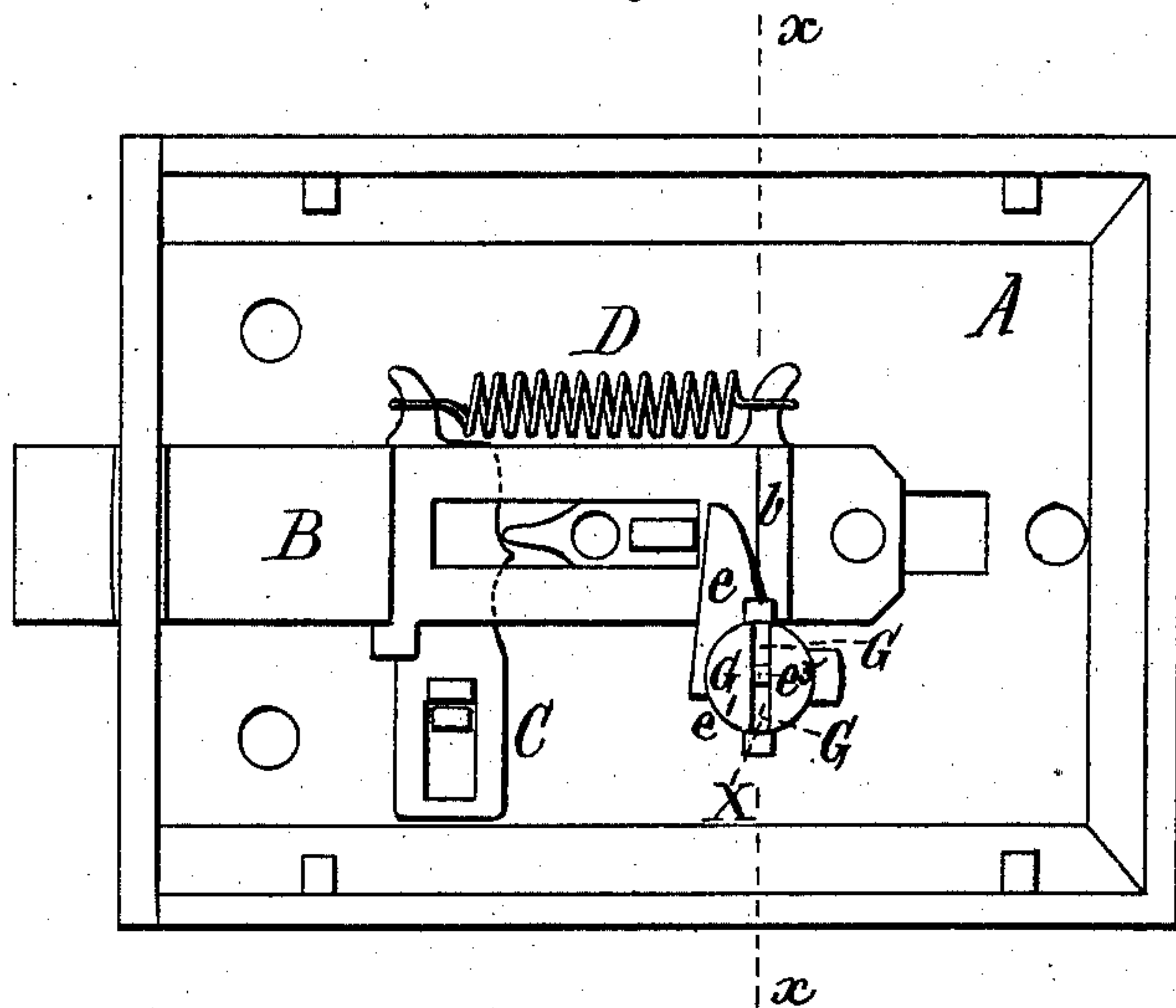


Fig.3.

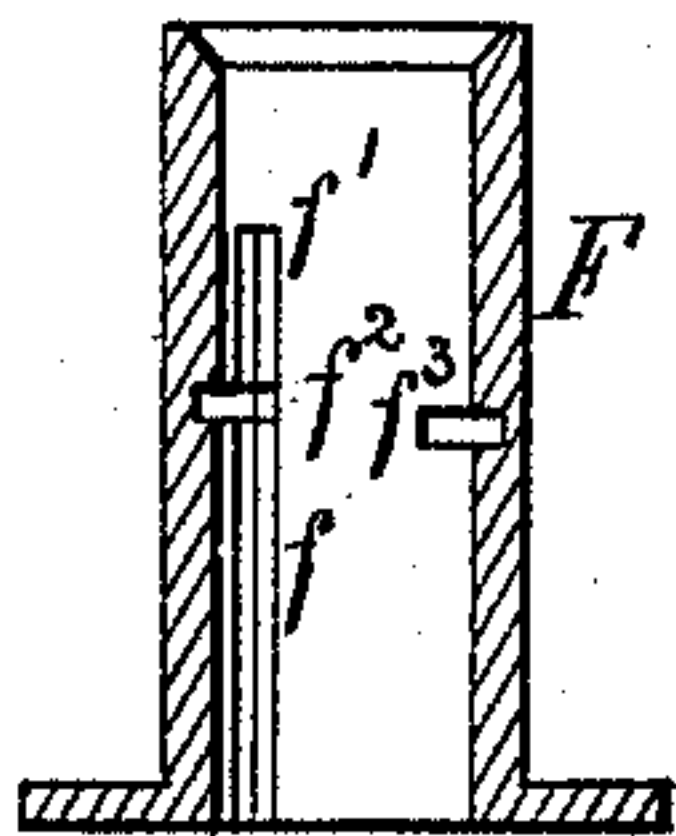


Fig2.

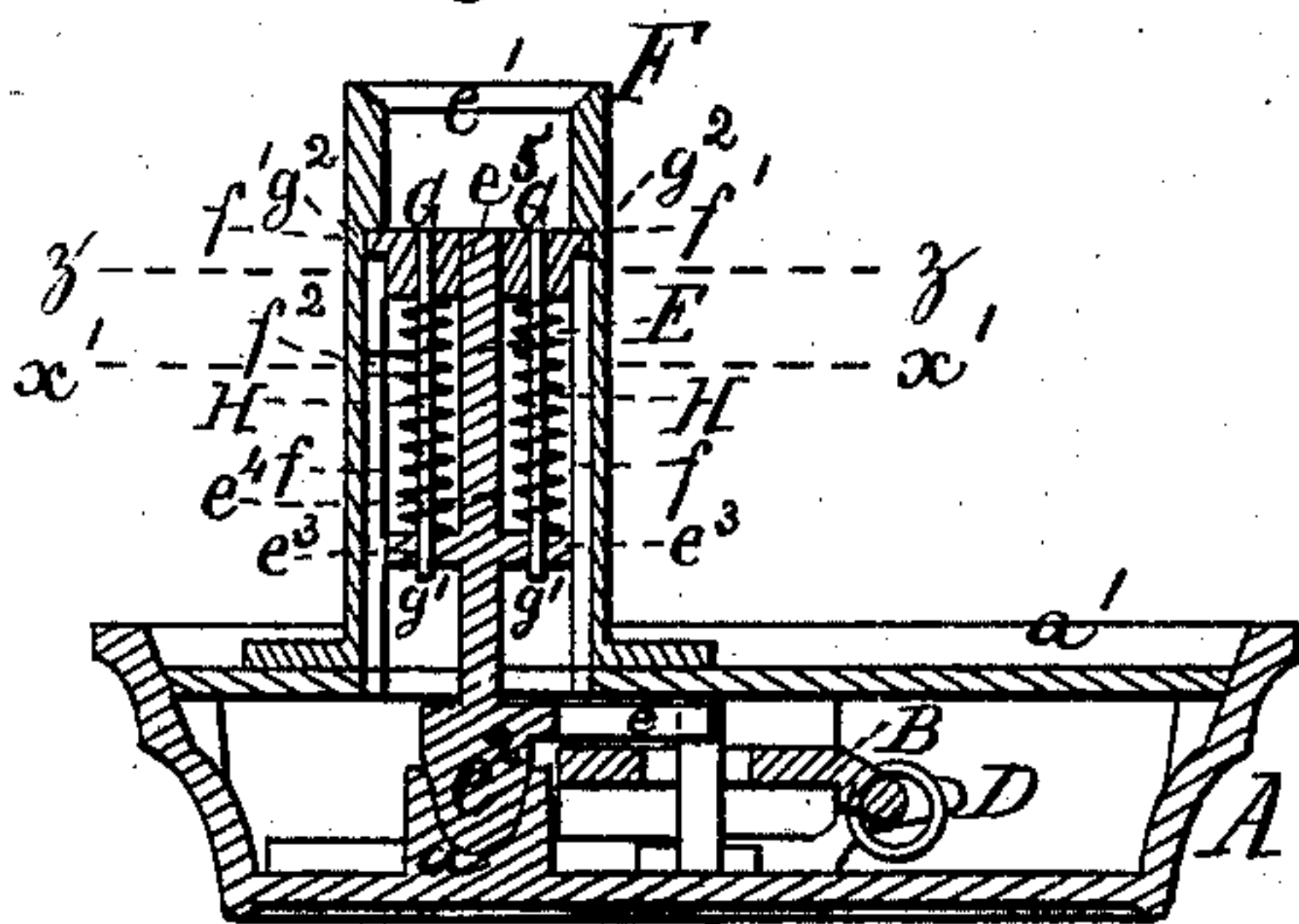


Fig4.

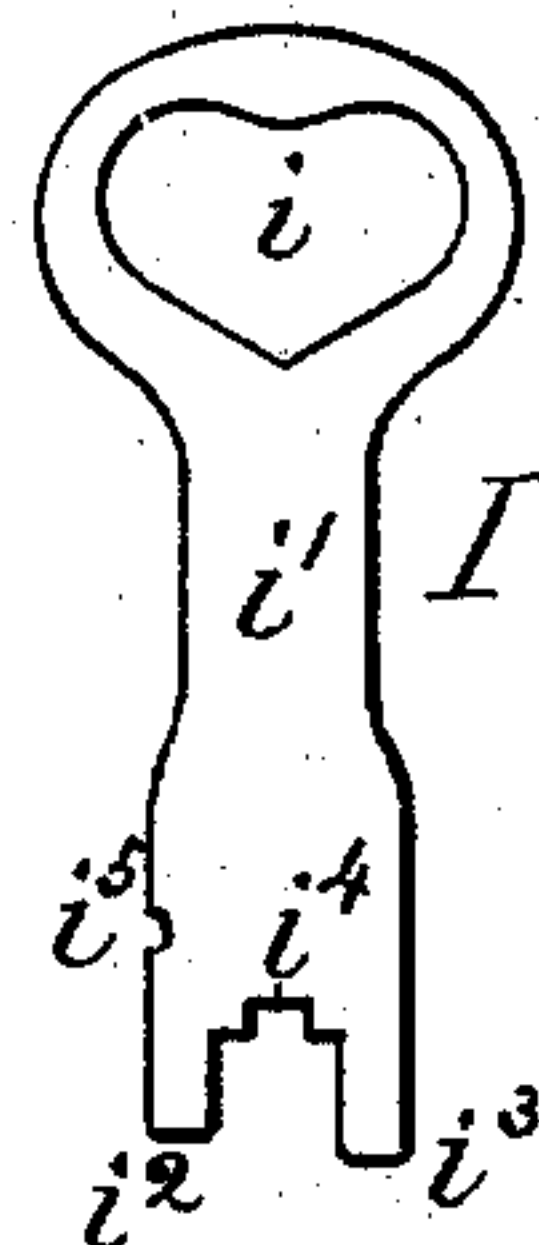


Fig5.



Fig6.



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IMPROVEMENT IN LATCHES.

Specification forming part of Letters Patent No. **216,316**, dated June 10, 1879; application filed November 21, 1878.

To all whom it may concern:

Be it known that I, JOHN W. DAY, of the city, county, and State of New York, have invented a new and useful Improvement in Night Latches and Locks; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a rear elevation of a night-latch constructed in accordance with my invention. Fig. 2 is a horizontal transverse section of the same in the line xx of Fig. 1. Fig. 3 is a horizontal section of the tube which contains the detents of the latch-bolt in the line yy of Fig. 6. Fig. 4 is an elevation of the key used with the night-latch. Fig. 5 is a vertical transverse section of the detents and key-spindle and tube containing the same in the line zz of Fig. 2. Fig. 6 is a vertical transverse section in the line $x'x'$ of Fig. 2.

The nature of my invention consists in certain constructions, combinations, and arrangements of parts, hereinafter described and specifically claimed.

The improvement renders the night-latch very simple in construction, capable of being readily taken apart for repairs or readjustment of parts, and more difficult to be operated by any means other than the appropriate key.

In the accompanying drawings, A represents the case of a night-latch; B, the latch-bolt; C, the check-piece for holding the latch-bolt in a position not to be moved by the key, and D the spring which operates the latch-bolt and retains the check-piece in a position for holding the latch-bolt out of and back in the case A after the latch-bolt and check-piece have been operated by hand. All of the parts just named are of ordinary construction.

The latch-bolt B is provided with a lug, b , which is acted upon by an arm, e , of an oscillating central key-spindle, E, as presently described.

The spindle E is formed with a flat-sided body portion, e^4 , a cylindrical centrally-slotted head, e^1 , a conical end bearing, e^2 , and two perforated guide stops or lugs, e^3 , as shown; and it is fitted loosely, but snugly, in a cylindrical

key-spindle tube, F, which forms a lateral extension of the case A. The head and lugs of the spindle being circular, they conform to the shape of the interior of the tube, except at those points where the tube is grooved to form wards for the detents of the night-latch, and its lower end being conical, it fits and turns in a conical socket, a , of the case A.

The slot X in the head of the spindle is cut entirely through, and stands at a right angle to the broad sides of the body portion e^4 , so that the forked night-key I may straddle the body portion e^4 , and its prongs enter the tube beyond the inner terminus of the head.

The respective detents of the night-latch, which are to serve the same office as tumblers of a lock, consist of a head, G, a tongue, g^2 , and a shank or stem, g^1 , with a spring, H, coiled loosely around it. The heads G G of the detents are, in general shape, nearly semi-cylindrical, being flat on their inner sides and segmental on their outer sides, with the tongues g^2 at the center of their segmental sides.

The key-spindle tube F is constructed with longitudinal grooves f , which form shoulders f^1 , and extend the whole length of the tube therefrom. About midway of the length of these grooves other grooves, $f^2 f^3$, are formed, and they run partly around the inside of the tube F and connect with the grooves f . The grooves $f^2 f^3$ are arranged in different vertical planes, so that the operation of moving the detents of the night-latch by an instrument other than the key shall be more difficult, thus making the latch or lock burglar-proof.

The spindle E has the detents applied against its flat-sided portion e^4 and against the inner shoulder formed by its head, the shanks g^1 of the detents passing loosely through the lugs e^3 , and the springs H bearing against the inner ends of the heads G and outer surface of the lugs e^3 , as shown. The spindle and detents thus united are inserted into the tube F at its inner end, the tongues g^2 of the detents passing along the grooves f until they are arrested by the shoulders f^1 . The tube F, with all the parts in it, is screwed or riveted to the back plate, a^1 , of the case A, and this plate, as

usual, screwed to the case A. When the night-latch is thus put together, the inner end, e^2 , of the spindle E seats itself in the bearing a of the case A, and the spindle is steadied by its head, and kept firmly in place by the action of the springs H, they pressing inward against the lugs e^3 , and outward against the detents, which, in turn, bear against the shoulders f^1 of the tube F.

The key used with this night-latch is made of sheet metal, and it consists of a handle, i , shank i^1 , and two end prongs, i^2 i^3 , with a flat seat, i^4 , between them, which rests against the outer surface, e^5 , of the thin body portion e^4 of the spindle E when the key is fully inserted into the tube F.

The projections i^2 i^3 are sufficiently apart from each other to be passed in along the broad sides of the spindle E, and they are of such different lengths that they will properly force the detents inward, and bring the tongues g^2 opposite the grooves f^2 f^3 when the key I is inserted into the tube F, and thus allow the key to turn the spindle far enough to effect the movement of the latch-bolt back into the case A.

In order to facilitate the use of the key an index-notch, i^5 , is formed on it, and by this the user is guided as to the proper manner of inserting the key either by sight or feeling.

Operation: The night-latch being unchecked, the key is inserted into the notch X, so that its longer prong i^3 moves in the line of the groove f , which is in connection with the groove f^3 . As the key enters the tube F it straddles the body portion of the spindle, and its prongs force the detents G inward until the tongues g^2 thereof come in line with the grooves f^2 f^3 , and the seat i^4 of the key rests against the surface e^5 of the spindle E. The detents G being thus brought opposite the grooves f^2 f^3 , the key I is turned and the spindle with it; and while the key and spindle are being turned the tongues g^2 travel laterally in the

grooves f^2 f^3 , and the lever-arm e of the spindle draws the latch-bolt into the case A. When the user of the key ceases to press upon it the spring D moves the latch-bolt B out of the case A to its normal position and readjusts the lever e , and moves the tongues of the detents out of the grooves f^2 f^3 into the grooves f^1 , whereupon the springs H push the detents G out against the shoulders f^1 and slotted head e' of the spindle.

I contemplate combining a night latch and lock mechanism in such manner that but a single case will answer for both, and this can be done without departing from the principle of my invention.

My invention is equally applicable to mortise or rim locks or latches.

Having described my invention, I claim—

1. The combination of the spindle E, made with a thin body portion, e^4 , a slotted head, e^1 , lugs e^3 , a pivotal bearing end, e^2 , and a lever-arm, e , the detents G, having shanks g^1 , with springs coiled around them, and the spindle-tube, having longitudinal and transverse grooves on its interior, substantially as and for the purpose described.

2. The combination of the seat a , spindle E, having an arm, e , a pivotal end, e^2 , lugs e^3 , and slotted head e^1 , the detents G, having shanks g^1 , with springs H coiled around them, the spindle-tube F, grooved longitudinally and transversely, and the latch-bolt B, substantially as and for the purpose described.

3. The spindle made with a thin body portion, e^4 , a cylindrical slotted head, e^1 , lugs e^3 , and a pivotal end, e^2 , whereby the detents G may be arranged alongside it, and the key I may straddle it and operate the detents, substantially as described.

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