

(No Model.)

2 Sheets—Sheet 1.

W. I. ALVORD.

LOCK AND LATCH.

No. 347,414.

Patented Aug. 17, 1886.

Fig 1

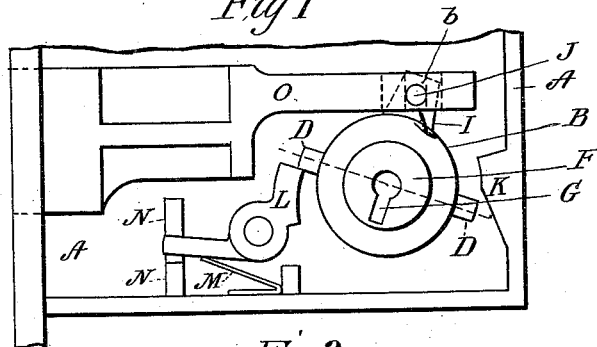


Fig 2

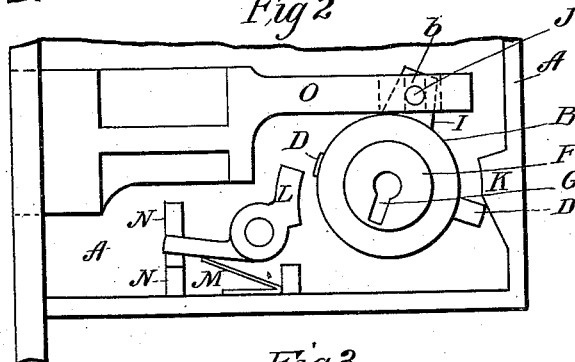


Fig 3

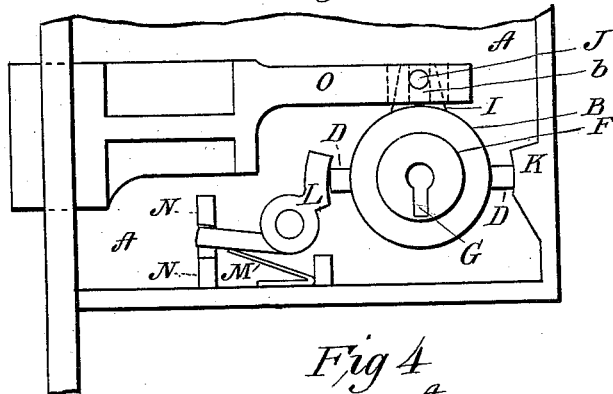
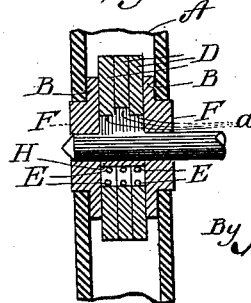


Fig 4



Witnesses
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(No Model.)

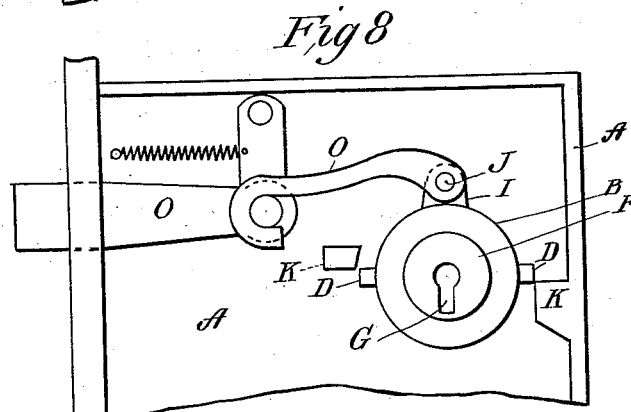
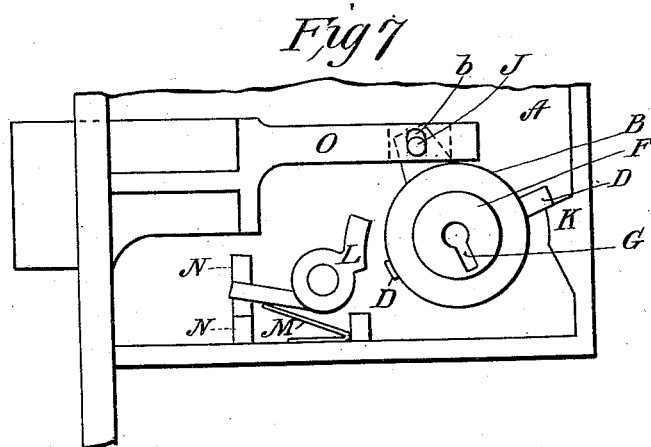
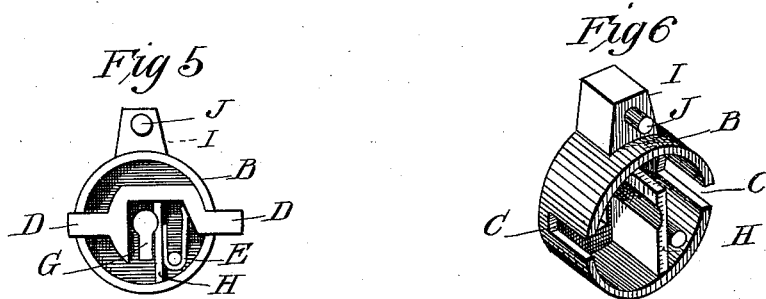
2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

WILLISTON I. ALVORD, OF BRIDGEPORT, CONNECTICUT.

LOCK AND LATCH.

SPECIFICATION forming part of Letters Patent No. 347,414, dated August 17, 1886.

Application filed May 24, 1886. Serial No. 203,090. (No model.)

To all whom it may concern:

Be it known that I, WILLISTON I. ALVORD, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Locks and Latches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain novel and useful improvements in devices for operating locks and latches, &c., and has for its object to provide means readily attached to or detached from the bolt or latch for operating the latter and securing the same in locked position, and furthermore to greatly simplify the construction of superior locks; and with these ends in view my invention consists in certain details of construction and combination of elements hereinafter fully and in detail explained, and then specially designated by the claim.

In order that those skilled in the art to which my invention appertains may more fully understand the same, I will proceed to describe its construction and operation in detail, referring by letter to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a plan view of my improvement embodied in the form of a dead-lock, the upper case being removed, the several parts being in proper relative position subsequent to the retraction of the bolt and before the removal of the key; Fig. 2, a similar view, but showing especially the relative position of the tumblers and forward stop after the removal of the key; Fig. 3, a view similar to Fig. 1, but showing the bolt only half-way projected; Fig. 4, a section at the line *x x* of Fig. 1; Fig. 5, a detail plan view of my improvement, the upper shell being removed; Fig. 6, a detail perspective of the tumbler-shell; Fig. 7, a view similar to Fig. 1, but showing especially the relative position of the parts after the bolt has been thrown forward; and Fig. 8 a view similar also to Fig. 1, but showing my improvement especially adapted to a spring-latch.

Similar letters denote like parts in the several figures of the drawings.

A is the lock-casing.

B is a shell having lateral gatings C opposite to each other.

D are tumblers arranged within said shell, one upon the other, and E are springs which bear against said tumblers, and thereby impart to them a spring action. The extremities of these tumblers extend through the gatings C beyond the shell, for the purpose presently explained. F are hubs on the shell, circular in shape and adapted in assembled position to project within corresponding openings in the lock-casing, as seen at Fig. 4.

G is the key-hole formed through the hubs, and H is a fin extending from the inner wall of the shell in alignment with one side of said key-hole, so as to afford a guide for the key.

I is a lug projecting from the shell and provided with a depending pin, J, adapted to be inserted within an opening, *b*, in the shank of the bolt or latch.

K is a stop formed integral with or secured to the lock-casing, and L is also a stop pivoted within said casing.

M is a spring, which bears against this stop L in such manner as to throw it in its normal position very near to the shell, the movement of the stop being limited by posts N in the casing.

The key may have any suitable wards, *a*, adapted to operate against the inner edges of the tumblers opposite the fin I.

The operation of my improvement is as follows: The shell, with the tumblers properly arranged therein, as described, is placed within the lock-casing A, and the pin J inserted within the opening *b* in the bolt O. The key is introduced, and by throwing the wards against the inner forward edges of the tumblers the shell is rotated thereby, withdrawing the bolt and forcing the forward extremities of the tumblers beyond the stop L, which latter, by its spring action, will then be projected toward the shell and immediately underneath said extremities, as shown in Fig. 1. The bolt is securely held in this retracted position during the returning of the key by the abutment of the aforesaid extremities against

the stop L. When the key has been turned back to its normal position preparatory to removal the tumblers will have been forced rearward by the springs E, so that the rear extremities of said tumblers will be thrown against the lower inclined portion of the stop K. The bolt will thus be held in this position by the abutment of the tumblers against this incline, as shown in Fig. 2. When the shell is turned by the key in the reverse direction to throw the bolt forward, the rear extremities of the tumblers will ride up the inclined surface of the stop K until they are brought beyond said stop, when they will by their spring action shoot rearward, and by their abutment against the upper side of this stop secure the bolt in this projected position, as shown at Fig. 7. When the several parts are in this latter designated position and it is desired to retract the bolt, the key is inserted and turned against the forward inner edges of the tumblers, as before set forth, thereby bringing the latter in such position that they will pass the stop K and the lower end of the stop L. As the shell revolves by the action of the key the forward extremities of the tumblers will strike against the upper portion of the stop L, and after passing beyond the same will shoot beyond it, as shown at Fig. 1. Since the stop L is pivoted and thrown toward the shell in normal position by the spring M, it is obvious that the upper extremity of the stop will be nearest the shell, since it is farthest from the pivotal point. Therefore, the location of this pivotal point with relation to the shell and tumblers and the construction of the stop are such that the tumblers when thrown forward by the key will pass the lower end of the stop and abut against the latter along its upper edge, and thereby force it back against its spring action until the upper end is passed,

when the stop will shoot underneath the tumblers, as hereinbefore explained.

In applying my improvement to a spring-latch, as shown at Fig. 8, both stops K are stationary, as it is not necessary to hold the tumblers during the re-turning of the key, owing to the fact that the projection of the latch does not of course effect any disadvantage when the door containing the latch is opened. In the case of a bolt or dead-lock, however, if the bolt were shot forward when the key was turned back to normal position, the door would have to be opened before the key was so turned, and when opened it would be impossible to close the same after the withdrawal of the key, since the bolt would project.

I do not wish to be confined to any particular shape or location of stops, as it is only necessary that they shall afford locking-points to arrest the movements of the shell at certain times.

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

In combination with a latch or bolt, a shell capable of motion around a center, and detachably connected to the shank of the latch or bolt, spring-actuated tumblers arranged within said shell and extending laterally beyond the sides thereof, and means, as a stop, against which the extremities of the tumblers may engage, whereby the movement of the shell may be arrested at certain times, substantially as set forth.

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

WILLISTON I. ALVORD.

Witnesses:

T. W. SMITH, Jr.,
S. H. HUBBARD.