(No Model.)

E. S. WINCHESTER.

DOOR LATCH.

No. 345,016. Patented July 6, 1886.

Fig. 1.

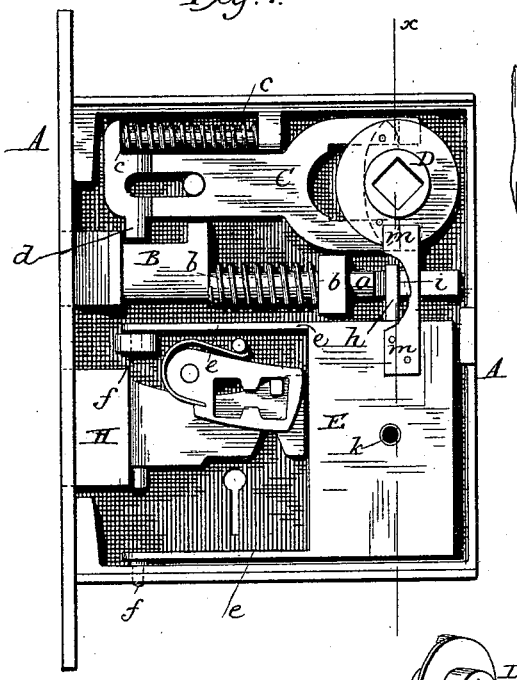


Fig. 2.

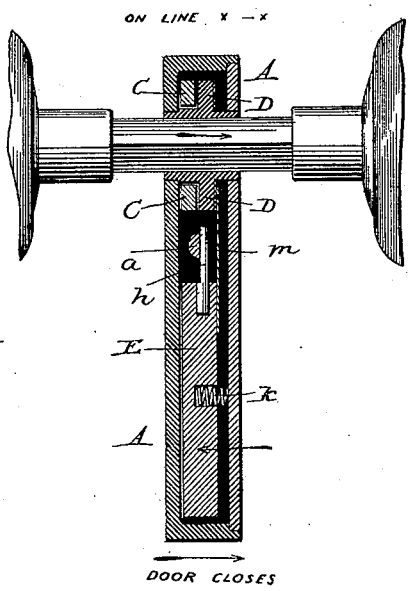


Fig. 3.

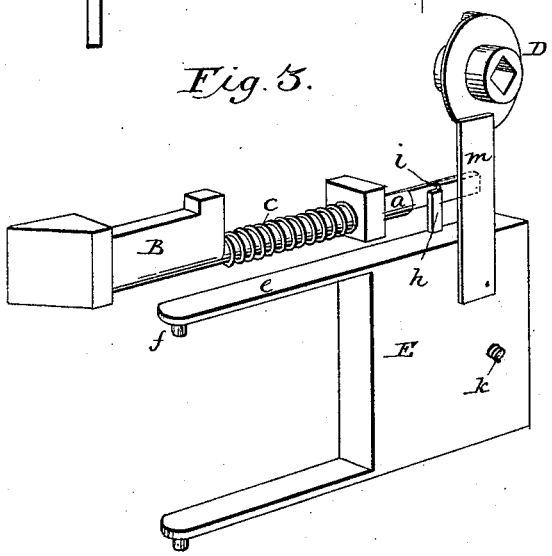
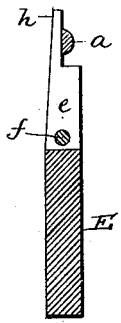


Fig. 4.



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UNITED STATES PATENT OFFICE.

EDWARD STEVENS WINCHESTER, OF DORCHESTER, MASSACHUSETTS.

DOOR-LATCH.

SPECIFICATION forming part of Letters Patent No. 345,016, dated July 6, 1886.

Application filed April 7, 1886. Serial No. 198,106. (No model.)

To all whom it may concern:

Be it known that I, EDWARD STEVENS WINCHESTER, of Dorchester, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Door-Latches, of which the following is a specification.

The aim of my invention is to provide an improved construction under which a spring-actuated latch-bolt will be automatically locked in its retracted position when operated by the knob, as usual, and automatically released when the door is closed, and this through the inertia of an internal weight and without the employment of projecting trip devices.

The invention further consists in combining with the latch-bolt a detent to hold the same automatically in a retracted position and connections between the detent and the knob or spindle, so that the latch may be unlocked through the medium of the spindle, at the will of the operator.

The invention further consists in various details of construction, which will be hereinafter more fully explained.

My improvements are susceptible of embodiment in various forms, the equivalents of each other, which will readily suggest themselves to the skilled mechanic after a reading of the specification.

I have represented in the drawings those forms of embodiment which are best adapted for general use.

In the drawings, Figure 1 is a side view of a latch containing my improvements, the side plate of the casing being removed to expose the internal parts to view. Fig. 2 is a vertical cross-section of the same on the line *x x*, Fig. 1. Fig. 3 is a perspective view in the nature of a diagram, showing my improved detent devices as represented in the previous figures. Fig. 4 is a diagram illustrating a modified form of the detent.

Referring to the accompanying drawings, A represents the casing of the latch; B, the horizontally-sliding latch-bolt, beveled at its forward end and provided with a rearwardly-extending spindle, *a*, encircled by a spiral spring, *b*, which serves to project the latch beyond the casing when it is released, in a manner familiar to the lock-smith.

C represents a horizontally-sliding yoke-bar urged constantly forward by a spring, *c*, its rear end being forked, and its arms adapted to engage in an ordinary manner the rocking stump or tumbler D, to which the external knobs will be connected by an ordinary spindle, or otherwise. The rotation of this stump in either direction serves to retract the yoke-bar C. At its lower end said yoke-bar C has a projecting lip, *d*, entering a notch in the upper edge of the latch-bolt. This notch is of such width that it will permit the latch-bolt to be retracted, as shown in Fig. 1, until its forward end is wholly within the casing without moving the upper yoke-bar, C. When, however, the latch-bolt is forward, the retraction of the yoke-bar C will cause its shoulder *d* to retract the latch-bolt. Thus it is that by turning the knob or spindle the latch-bolt is positively retracted.

In applying my improvement I mount within the latch-case in any appropriate manner a weight, E, movable transversely within the casing, and connect it with the latch-bolt in such manner that when the latch is retracted it will be automatically held in its retracted position until the door is closed, and then released through the inertia of the weight.

In Figs. 1, 2, and 3 the weight E is supported by two horizontal arms, *e*, its upper and lower edges mounted on vertical pivots *f* in the latch-casing. A spring, *k*, applied between the weight and the side of the casing, urges the weight in the direction indicated by the arrow in Fig. 2. At its upper edge the weight has an arm or detent, *h*, and on the stem of the latch-bolt there is formed a shoulder, *i*. When the latch-bolt is retracted, the detent *h* engages the shoulder *i* and holds the bolt in its retracted position, as shown in Figs. 1 and 3. When the door is closed against the jamb or other stop, the inertia of the weight causes it to continue its motion, overcoming the spring *k*, and to swing forward until its arm *h* disengages the shoulder *i*, the effect of which is to release the latch-bolt and permit it to slide forward, under the influence of spring *b*, into engagement with the keeper. In this form of the device it will be observed that the weight is forked or divided, thus affording a space between its supporting-arms for the admission of the lock-bolt H and its attendant

parts, which may be of any ordinary construction. This construction of the weight is advantageous in that its operative end is permitted to swing around a distant pivot, whereby its action is rendered smoother and less violent than would otherwise be the case.

In Fig. 4 I have represented one of the various modified forms of the weight. In this instance the weight is supported on a horizontal pivot and its upper end arranged to engage directly with the stem of the latch-bolt.

As it is sometimes desirable to release the latch-bolt by hand, either before or after closing the door, I construct the stump or tumbler D so that it may move transversely of the casing—that is to say, in the direction of its own axis—to a limited extent, and provide the weight E with an upwardly-extending arm or detent, *m*, which bears against the sides of an annular collar formed on the stump, as shown in Figs. 1, 2, and 3. By pushing the stump endwise, as indicated by the arrow in Fig. 2, it is caused to act upon the arm *m*, and move the weight so that the detent-arm will release the latch.

While I propose to combine under ordinary circumstances in each latch the automatic and the manual devices above described for releasing the latch-bolt, it is to be understood that either may be used independently of the other.

Having thus described my invention, what I claim is—

1. In a door-latch, the combination of a horizontally-movable latch-bolt, a spring to project the same, a weight movable transversely of the lock, and a detent acting in connection with said weight to hold the latch-bolt automatically in its retracted position.

2. In a latch, the combination of a horizontally-movable latch-bolt having its stem provided with a shoulder, the horizontally-swinging weight having a detent-arm to engage said shoulder, and a spring acting to urge the weight in the direction in which the door is opened.

3. In a latch, a movable latch-controlling weight forked or divided, substantially as described, to loosely embrace the lock-bolt, whereby the employment of a long weight is permitted without interference with the lock.

4. In a door-latch, the combination of a spring-projected latch-bolt, a rocking tumbler or barrel to effect its retraction, said tumbler adapted to move in an axial direction, and an automatic detent engaging the latch-bolt to hold the same in its retracted position, and adapted to be disengaged by the axial motion of the tumbler.

5. In a door-latch, the spring-projected latch B, the spring-projected yoke C, having a loose connection with the latch, the tumbler D, having both a rotary and an axial motion, and the movable detent to engage the latch-bolt, provided with an arm engaging the tumbler.

In testimony whereof I hereunto set my hand, this 22d day of March, 1886, in the presence of two attesting witnesses.

EDWARD STEVENS WINCHESTER.

Witnesses:
JAMES SMITH,
MARY S. WINCHESTER.