(Model.)

W. H. BELL.

LATCH.

No. 452,657. Patented May 19, 1891.

Fig. 1.

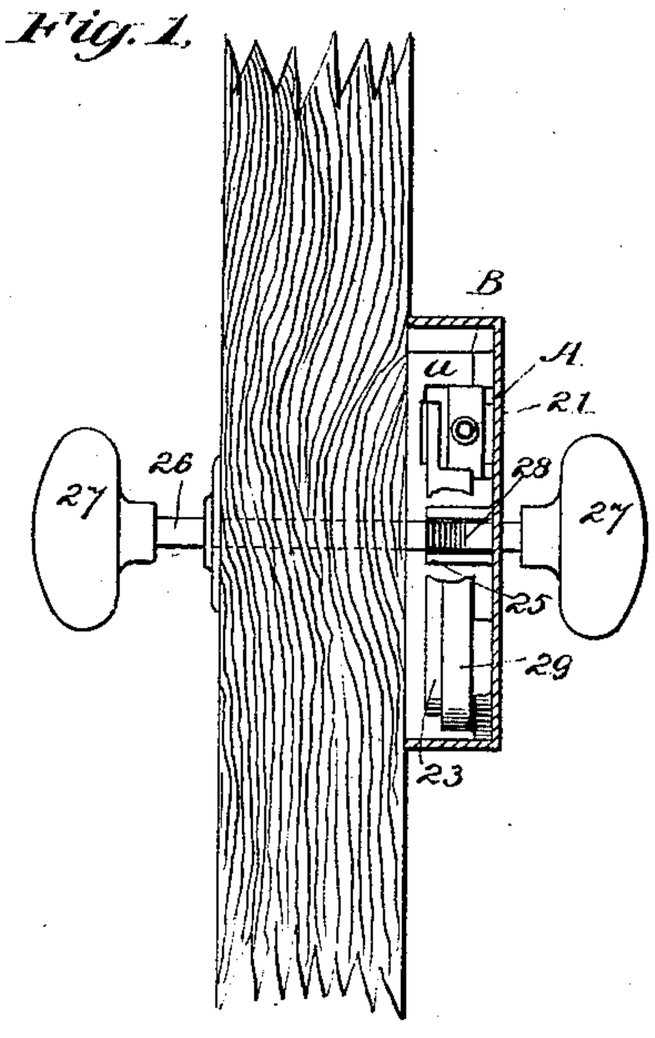


Fig. 2.

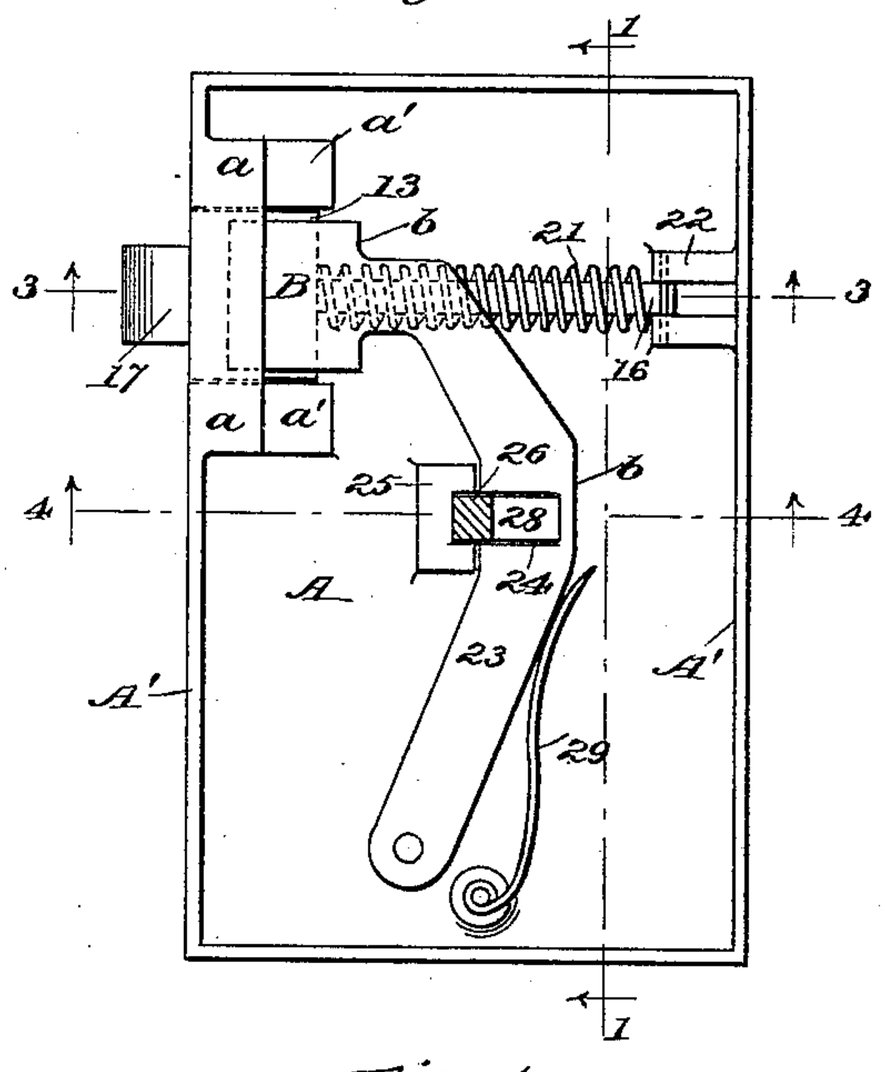


Fig. 3.

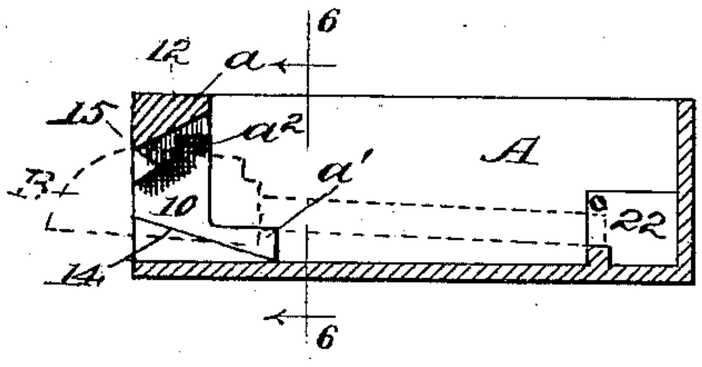


Fig. 4.

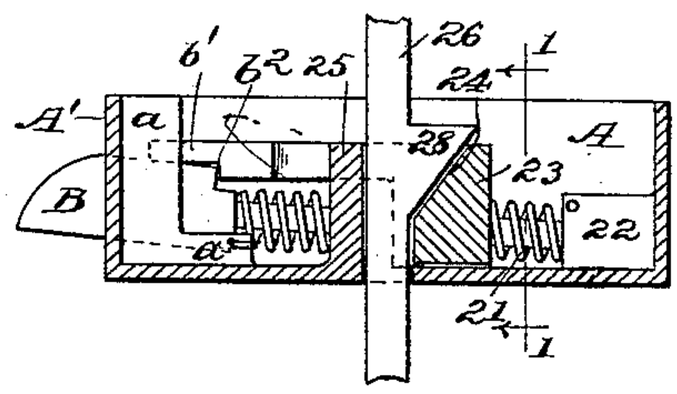


Fig. 5.

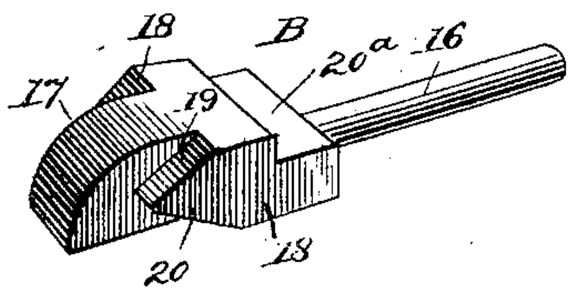


Fig. 7.

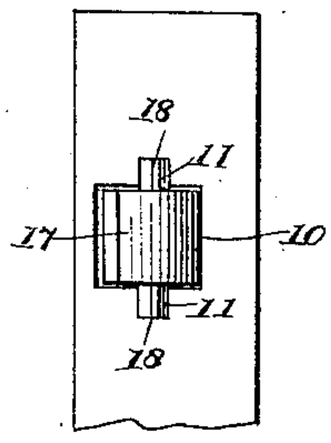
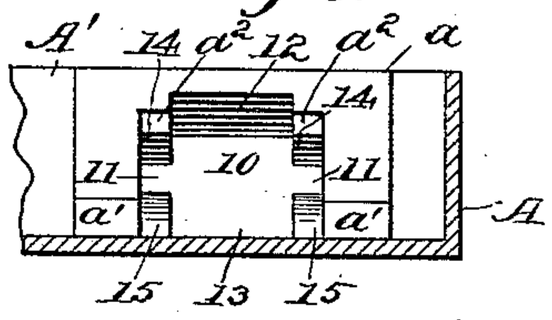


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM H. BELL, OF NEW YORK, N. Y.

LATCH.

SPECIFICATION forming part of Letters Patent No. 452,657, dated May 19, 1891.

Application filed June 13, 1890. Serial No. 355,358. (Model.)

To all whom it may concern:

Be it known that I, WILLIAM H. BELL, of New York city, in the county and State of New York, have invented a new and useful Improvement in Locks, of which the following is a full, clear, and exact description.

My invention relates to an improvement in locks, and has for its object to so construct the same that by pulling or by pushing the door in the direction in which it is hung to swing the said door may be opened without turning the knob, thus obviating the necessity of transferring parcels or other material or articles carried by a person about to enter or to leave a room or a dwelling from one hand to the other or depositing the said articles upon the ground or floor, which is now often found necessary in order to free one hand for the manipulation of the latch.

A further object of the invention is to provide a lock of the character described with a keeper or locking-bolt in addition to the ordinary latch, which bolt and latch may be simultaneously operated in the same manner.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a transverse section through the lock and a portion of the door to which it is to be applied, the section through the lock being taken on the lines 1 1 of Figs. 2 and 4, the locking-bolt being broken away. Fig. 2 is a plan view of the lock with one face-plate removed. Fig. 3 is a transverse section on line 3 3 of Fig. 2, the latch being removed from the casing. Fig. 4 is a section on line 4 4 of Fig. 2. Fig. 5 is a detail perspective view of the latch. Fig. 6 is a partial section on the line 6 6 of Fig. 3, and Fig. 7 is a front side view of the lock.

The lock-casing A, which is substantially of the ordinary construction, is provided in its outer or front side plate A′ with a latch-opening 10 of greater width in one direction than the thickness of the latch-head adapted to slide therein, and if the lock is placed in the horizontal position (shown in Figs. 3 and 6 of the drawings) in the side edges of the opening 10 aligning recesses 11 are produced.

That portion of the side plate A′ in which the opening is formed is considerably thicker than the remaining portion, the bulk of the metal being on the inner side, as illustrated at *a*, and the block thus formed is provided upon its inner face at its engagement with one face-plate of the casing with projections *a′*, located at a right angle to the body. The upper wall 12 of the opening is beveled from the front upward and inward; but the lower wall 13 is straight and extends in the same plane through to the rear of the projections *a′*. The upper and lower walls of the recesses 11 are beveled inward in opposite directions, forming upper and lower inclined slideways 14 and 15. The lower slideways extend uninterruptedly to the rear of the block, but the upper slideways are recessed at the back, as best shown at a^2 in Fig. 3, thus abruptly widening the space at the rear side of the main opening.

The latch B consists of a block-like body having a rod-like shank 16 attached to or formed integral with its inner end, preferably at the central portion, and the usual beveled head 17 is projected about centrally from its opposite or outer end. Each side of the head, some distance from its end, a wing 18 is formed, the outer end surfaces of both of which wings are beveled from about the center in opposite directions, forming upper and lower inclined surfaces 19 and 20, as best shown in Fig. 5. One face of the latch-body, which may be properly termed the "under" face, is flat and comparatively smooth; but in the upper face, at the inner end, a transverse channel or recess 20^a is usually formed.

When the latch B is placed in position within the casing, the latch-head normally extends outward through and beyond the opening 10, and the ends of the wings project slightly through the side recesses 11, the beveled surfaces of the said wings contacting with the upper and lower slideways 14 and 15 at or near their outer ends. Quite a space is made to intervene the under surface of the latch-head and the opposed base-wall of the opening 10, as is shown in Fig. 7 and in dotted lines, Fig. 3. The latch-head is held in

its normal position by a spring 21, which encircles its shank, being held to slide at its inner end in a suitably-formed socket 22, located within the casing.

In the operation of the lock, when it is attached to the door and the door is closed the latch-head will engage with the keeper in the usual manner, and to open the door from the inside, if the door swings outward, all that is necessary is to press against the door, whereupon the straight side of the latch-head will be pressed against the door-jamb or keeper, as the case may be, and the said latch-head will be forced thereby against the tension of the spring 21 inward, as the surfaces 19 of the wings of the latch-head will travel upward in contact with the upper slideways 14, and the beveled surface of the latch will engage with the inclined upper wall of the opening 10, and as continued pressure is exerted against the door the outer end of the latch-head will entirely disappear within the casing and permit the door to open. As soon as the door is opened the spring 21 acts and forces the latch-head outward again to its normal position. This action of the spring causes the latch-head to give forth a clicking sound by reason of the wedging of the wings between the opposed slideways, and thus an alarm is given whereby persons some little distance off may be made aware of the fact that the door has been unlatched. When the door is closed, the latch slides down and inward, moving upon the lower slideways 15. This movement is permitted by reason of the space intervening the flattened face of the latch-head and the contiguous wall of the opening 10. Thus the necessity of a knob and spindle to manipulate the latch, or even of a sliding knob, is obviated, and because of the peculiar construction of the latch-head no banging or thumping will occur when the door is closed, as it will latch on every occasion, and friction is reduced to a minimum. In order to lock the latch so that the door can not be opened by a heavy gust of wind or when accidentally pressed against, a keeper or locking-bolt 23 is employed. This keeper or locking-bolt consists of a shank *b*, which is preferably somewhat curved, and a head *b'* at one end of said shank extending outward at a right angle therefrom, which head is adapted to slide over the recessed upper face of the latch-head between the said face and the walls of the opening created by the recesses a^2, and in order that the latch and locking-plate may be moved in unison the head of the latter is provided in its under face with a recess, forming a shoulder b^2, which shoulder engages with the shoulder created upon the latch-head by its transverse recess 20^a. The end of the shank opposite that carrying the head is pivotally secured to the casing in any suitable or approved manner, and in the upper face of the shank *b* of the bolt, at the outer edge, an inclined recess 24 is formed, which recess is immediately opposite a groove formed in a stud 25, which stud is secured between the face-plates of the lock-casing. In the groove of the said stud a spindle 26 is held to slide, which is preferably rectangular, and the said spindle extends through the face-plates of the lock-casing and likewise through and beyond both sides of the door to which the lock is applied, as illustrated in Fig. 1. The spindle 26 is provided at each extremity with a knob 27, and at or near its central surface with a wedge-shaped cam-block 28, which cam-block is adapted to engage with the walls of the inclined recess 24 in the shank of the locking-bolt. The said locking-bolt is normally kept in contact with the cam 28 of the spindle by a spring 29, attached at one end within the lock-casing and having a bearing at its other end against the shank of the locking-bolt, as is best shown in Fig. 2; but an equivalent device may be substituted for the spring. When the locking-bolt is employed, to open the door from the inside the inner knob is pulled upon, whereupon the cam 28, acting upon the shank of the bolt, forces the head thereof a sufficient distance out from the opening 10 to permit of the action of the latch, and it is carried farther back by the latch by reason of the shoulder contacting between the head of the latter and the head of the bolt. The springs 29 and 21 quickly and effectually restore both the latch and the bolt to their normal positions. In opening the door from the outside the outer knob is pushed, whereupon the same action takes place, as has been heretofore described.

I desire it to be distinctly understood that while specific construction has been shown and described I do not confine myself thereto, as equivalent construction may be employed without departing from the spirit of the invention—as, for instance, the bevel of the latch-head may be varied and the shape of the wings also, and one wing may be employed, if desired, the casing-opening being made to correspond with the shape of the said latch-head.

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

1. The combination, with a latch-bolt having one face of the head inclined, of a casing provided with an opening to receive the head of the bolt, one wall of which is inclined, substantially as specified.

2. The combination, with a latch-bolt, the head whereof is inclined and provided with side guides, of a casing provided with an opening to receive the head of the bolt of a contour corresponding with the contour of the head, as and for the purpose specified.

3. The combination, with a casing provided with a bolt-opening and inclined slideways at opposite sides of said opening, of a latch-head provided with wings at its sides, the outer ends of which wings are beveled, substantially as shown and described.

4. The combination, with a casing provided

with a bolt-opening having one essentially straight wall and an opposed beveled wall, the said casing being also provided at each side of said opening with upper and lower oppositely-inclined slideways, of a spring-pressed bolt, a wing secured to each side of the bolt-head, having oppositely-inclined outer ends, the said bolt-heads being of less thickness than the width of the casing-opening in one direction, substantially as specified.

5. The combination, with a casing provided with a latch-bolt opening and inclined slideways at opposite sides of said opening, and a latch-head provided with wings at its sides, of a spring-pressed locking-bolt the head whereof is adapted for contact with the head of the latch-bolt, a sliding spindle, and a cam-block carried by the spindle and adapted for contact with the locking-bolt, substantially as and for the purpose specified.

6. The combination, with a casing provided with a latch-bolt opening and inclined slideways at opposite sides of said opening, and a latch-head provided with wings at its sides, of a spring-pressed pivoted locking-bolt adapted for engagement with the latch-bolt and provided with an inclined recess between its ends, a sliding spindle, and a cam-block attached to the spindle, having one inclined face conforming essentially with the taper of the bolt-recess, substantially as and for the purpose set forth.

WILLIAM H. BELL.

Witnesses:
Mrs. WM. H. BELL,
JOHN M. KARSCH.