L. C. CAMPBELL.

DOOR LATCH AND LOCK.

APPLICATION FILED MAY 4, 1909.

987,955. Patented Mar. 28, 1911.

Fig. 1.

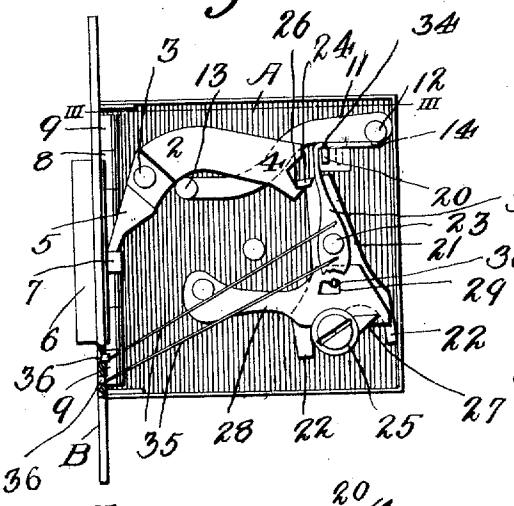


Fig. 2.

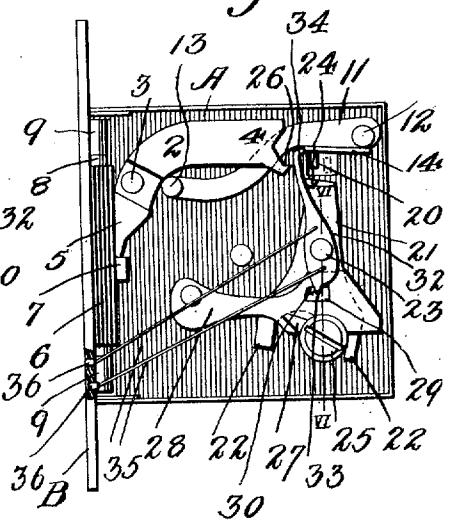


Fig. 3.

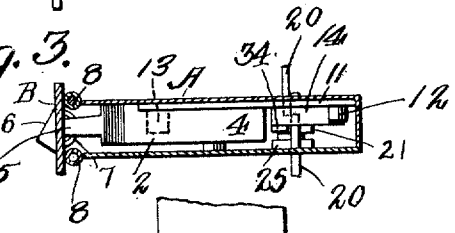


Fig. 5.

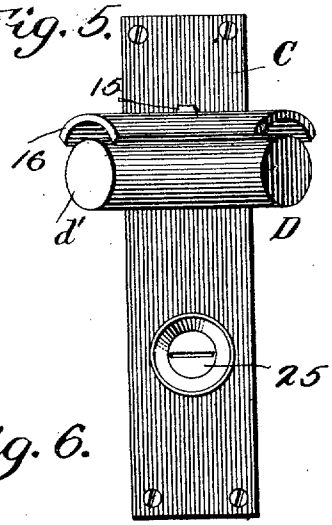


Fig. 4.

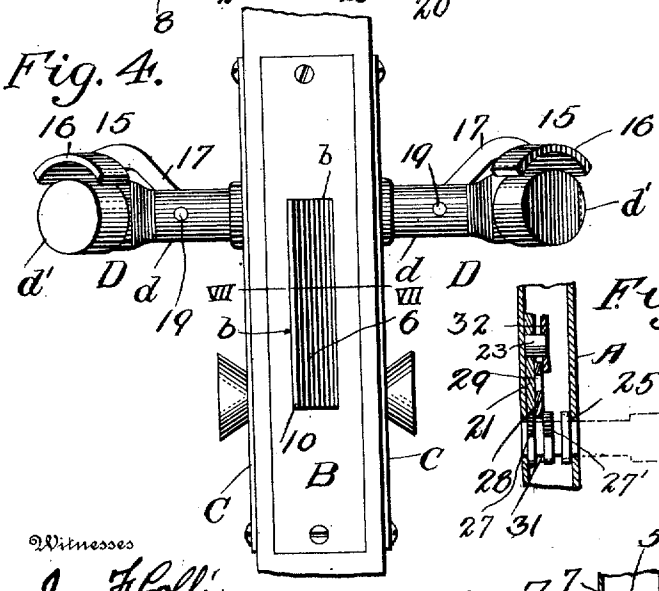
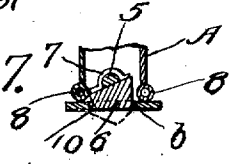


Fig. 6.

Fig. 7.



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DOOR LATCH AND LOCK.

987,955. Specification of Letters Patent. Patented Mar. 28, 1911.

Application filed May 4, 1909. Serial No. 493,840.

To all whom it may concern:

Be it known that I, LEWIS C. CAMPBELL, a citizen of the United States, residing at Carthage, in the county of Jasper and State of Missouri, have invented new and useful Improvements in Door Latches and Locks, of which the following is a specification.

My invention relates to door latches of the gravity type, that is, of the kind in which the latch proper is normally thrown out from the casing by the weight of some operative part of the latch mechanism, as distinguished from being operated by a spring; and it has for its object to improve a door latch of this type in the several particulars to be hereinafter pointed out and to provide means for locking the latch, or the means which operate it so that it is possible to dispense with a separate locking bolt.

In the accompanying drawings, Figure 1 is a side view of a door latch embodying my present improvements the face plate of the casing being removed so as to expose the interior working mechanism of the latch. Fig. 2 is a view similar to Fig. 1 except that the parts are in a different position. Fig. 3 is a horizontal sectional view taken on the line III—III of Fig. 1. Fig. 4 is an edge view of a mortise latch embodying my invention represented as applied to a door. Fig. 5 is an elevation showing the escutcheon and operating handle of the latch. Fig. 6 is a longitudinal sectional view taken on the line VI—VI of Fig. 2. Fig. 7 is a cross sectional view taken on the line VII—VII of Fig. 4.

I have illustrated my invention as applied to a mortise lock to which it is especially well adapted, owing to the few operative parts required, and the simplicity of their construction and arrangement enabling these to be assembled within a small space; but I do not limit my invention to its use in a lock of this kind, or indeed to one having the specific form of operating handles herein illustrated. The case in which the operating parts of the latch are mounted is represented as having side plates A and a face strip B in which is formed the opening *b* for the latch piece.

C, C are the escutcheons carrying respectively the handles D by which the door to which the lock is applied, is moved. Each handle is represented as having a rigid stem *d* extending out from the escutcheon plate and at the end of which is a cross piece *d'* constituting the part of the handle that is grasped when the door is to be moved. I have illustrated the handle as being shaped as described, instead of being of the usual knob formation, as the form shown is well adapted for use in a lock embodying my invention and possesses some advantages in practical use.

2 designates a lever mounted within the casing and supported upon a pin or stud 3 about which it is free to turn. The lever is preferably of angular form and its inner end 4, which occupies an approximately horizontal position, is sufficiently ponderous to constitute the means for projecting the latch from the casing and maintaining it in its normal position, that is, moved out beyond the face plate so as to engage with the usual keeper set in the door casing. The other or outer arm, 5, of this lever extends downward and engages with the latch 6. Its inner end is shaped to fit into a socket or seat 7 provided therefor and secured to the inner face of the swinging latch.

The latch is connected to the casing, preferably to the face plate B thereof, by a vertically disposed hinge 8. The face plate is provided near each edge with a set of perforated lugs 9 adapted to receive the hinge or pivot rod 8 of the latch so that the latter may be pivotally connected with either edge of the face plate accordingly as the door to which it is applied is to swing one way or another. The latch is preferably substantially triangular in cross section as represented in Fig. 7, its hinge 8 being located at the apex of the triangle. It is, however, truncated lengthwise to form a face 10 adapted to bear against the edge of the casing surrounding the opening *b* therein and adjacent to the hinge 8. This gives to the latch a strong support constituting an abutment therefor for its entire length, and relieves its hinge from strains which it would otherwise receive from the blows to which the latch of a door is commonly subjected.

11 is the operating lever pivoted upon the stud 12 and provided with a projection 13 that lies below the weighted arm 4 of the latch-operating lever 2. This lever is preferably provided with a flange, shelf, or plate, 14 arranged to be acted upon by the operating devices associated with the handles of the door.

Pivoted to each handle D is a lever 15, comprising a hand piece 16 that overlies and

more or less nearly conforms in shape to the part of the handle that is intended to be grasped, a stem 17 that is seated in a groove or recess in the stem d' of the handle to which it is united by the pivot 19, and a finger 20 extending into the casing and lying below the flange or shelf 14 of the operating lever. The handles on each side of the door may each be provided with a latch-operating piece 15 such as just described, and when this is so the two fingers 20 lie side by side so that each is in position to operate upon the lever 11, but without danger of interfering one with the other.

The weight of the arm 4, which bears downward upon the operating lever 11, is sufficient to hold the parts in their normal position as indicated in Figs. 1 and 4 in which the outer end of the latch-operating piece—the end to be grasped—is held slightly elevated above the part d' of the stationary handle. A person desiring to open or move the door on grasping the handle forces down the outer end of the lever 15 which he grasps at the same time, lifting the finger 20 and moving the parts of the latch into the position indicated in Fig. 2, with the result that the latch piece 6 is drawn into the casing freeing it from its keeper and releasing the door so that it may be opened.

It will be understood that a turning knob may be used in lieu of the pivoted latch-operating piece 15 and I have illustrated in my Patents Nos. 791,317 and 872,896 dated respectively May 30, 1905 and December 3, 1907, forms of turning spindles and cams for operating the mechanism of a gravity latch well adapted to be used in a latch such as herein shown and described in lieu of the operating levers 15 and stationary handles D.

For effecting a locking of the latch I employ the following mechanism: 21 is a locking lever pivoted upon the stud 23. Its lower end is bifurcated, the arms 22 thereof straddling the key cylinder 25. The other end of the locking lever is provided with a projection 24 that is adapted to be seated in a recess 26 formed therefor in the end of the lever 2 whenever the locking lever is turned into the proper position. The key cylinder or barrel 25 carries a cam 27 that is adapted to act upon the arms 22 of the bifurcated portion of the locking lever and thus shift it from one position to the other, as represented in Figs. 1 and 2. 28 designates the tumbler of the lock. In it is formed an aperture 29 into which projects a pin or projection 30 carried by the locking bolt 21. The aperture slot 29 is of such shape that it forms two seats for the projection or locking pin 30 arranged to hold the locking lever securely either in position for locking the latch or for freeing it, as is common in tumbler locks. The lower edge of the tumbler rests in a peripheral groove 31 formed in the barrel or cylinder 25 from which it is lifted by the key when inserted into the barrel and rotated so as to bring the bit of the key into engagement with the edge of the tumbler. The key may be of any usual or preferred construction, the lock illustrated being intended for the use of a flat key. I have represented the escutcheon as being provided with a flaring guide flange surrounding the key hole and arranged to assist a person in quickly and properly directing the key into the key hole. This feature may, however, be dispensed with if desired.

When the key is inserted into the barrel and turned in the proper direction the tumbler is first lifted freeing the locking lever, and then immediately the lever is rocked, by the engagement of the cam 27 with one of the arms 22 of the locking lever, moving the latter into the position indicated in Fig. 1 where it operates to lock the latch-operating bolt against any movement by the ordinary latch-moving elements of the device, that is, by the levers 15 when the parts are constructed and arranged as shown.

I have represented the lock as provided with a night latch attachment comprising a lever 32 pivotally supported upon the stud or projection 23 and having at one end a projection 33 that is adapted to be acted upon by a cam 27′ of the key cylinder or barrel 25, and at the other end provided with a hook 34 adapted, when the lever is moved into locking position, to overlie and hold down the finger 20 of the operating lever 15 that extends to the outside of the door. The lever has connected with it upon opposite sides of its fulcrum, a pair of operating rods or bars 35 that are at their outer ends connected with plungers 36 set into the face plate. The rods 35 are so proportioned that when the night latch lever occupies either one of its normal positions one of the plungers is set out or projected slightly and the other is moved into the casing so that its end is about even with the bottom of the shallow recess formed in the face plate and into which the plunger extends.

What I claim is:—

1. In a door latch having a casing with a face plate through which is adapted to project the latch, the combination of a latch piece pivoted to the said face plate, a weighted lever for projecting the latch mounted within the casing and connected with the latch piece, and means extending without the casing for moving the lever to retract the latch piece, substantially as set forth.

2. In a door latch mechanism, the combination of a latch piece, a weighted lever connected therewith for projecting it having a substantially horizontal weighted arm re-

cessed at its end, and a key-operated locking lever adapted to engage with the recessed end of the lever for locking it, substantially as set forth.

3. In a door latch mechanism, the combination of a pivoted latch piece, a weighted lever for projecting the latch, a locking lever for the weighted lever arranged to hold the latch in a projected position, and a tumbler for controlling the movements of the locking lever.

4. In a door latch mechanism, the combination of a pivoted latch, a lever engaging therewith having a substantially horizontal weighted arm, an operating lever arranged to lift the said weighted arm, a transversely arranged lever acting on the operating lever and provided with a hand piece on the outside of the latch casing, a locking lever arranged to engage with the weighted lever, and a tumbler controlling the movements of the locking lever, substantially as set forth.

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