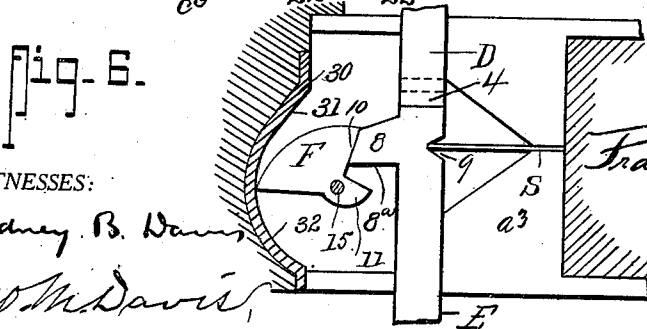
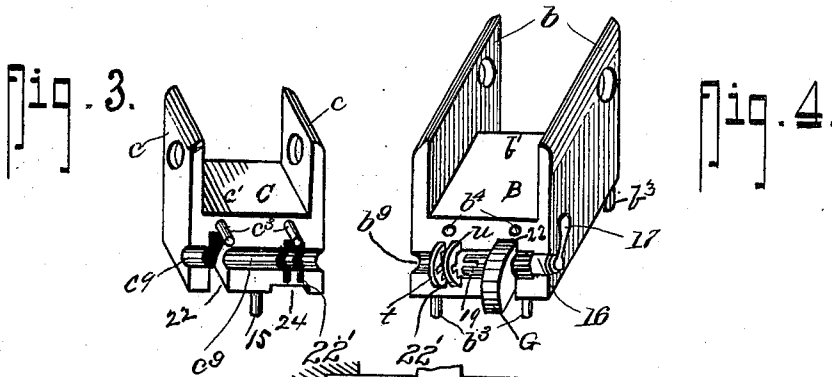
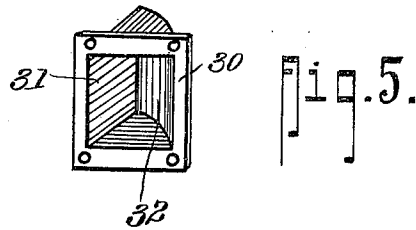
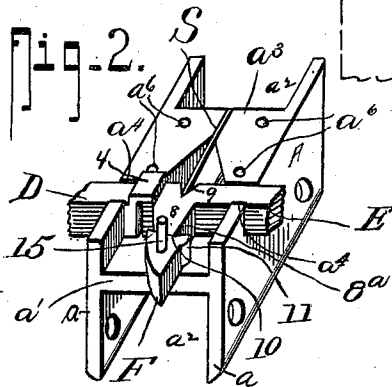


DOOR LOCK.

996,292.



WITNESSES:

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DOOR-LOCK.

996,292.

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To all whom it may concern:

Be it known that I, FRANK B. STEPHENSON, a citizen of the United States, residing at Marble, in the county of Gunnison and State of Colorado, have invented a new and useful Door-Lock, of which the following is a specification.

My invention relates to that class of locks in which the locking latch is actuated from sliding knob-spindles.

One object of the invention is to provide a simple and efficient lock of the class described in which a push on the outer knob will retract the locking latch, while a pull on the inside knob will retract the latch; a single spring serving to return the parts to their normal position.

A further object is to provide a locking detent to engage the knob spindle and prevent its operation and thereby lock the latch from movement.

A further object is to provide means for operating the locking detent by a key from the outside and by a finger-piece from the inside of the door; and a still further object is to construct the casing in sections in such a manner as to hold the various parts of the lock in operative position and to permit of their being lifted out by merely separating the parts of the casing which will thereby open or uncover all of the ways or bearings in which the movable elements are mounted.

These objects I accomplish by the mechanism illustrated in the accompanying drawing, in which—

Figure 1 is a perspective of a lock embodying my improvements. Fig. 2 is a perspective of the lower portion of the casing and the parts contained therein. Fig. 3 is a perspective of the upper outer section of the lock casing. Fig. 4 is a similar view of the upper rear section of the casing. Fig. 5 is a perspective of the lock striker or keeper; and Fig. 6 is a sectional plan showing the knob-spindles, latch and keeper or strike.

The lock casing comprises a lower section A, having side plates a , a , a horizontal partition a' , which extends from the front vertical edges of the plates a , a , rearwardly, but not the full length of the said side plates, so that a channel a^2 is formed in the lower side and rear end of the section A. The partition a' is thickened at its rear to form a block a^3 which extends up flush with the upper edges of the side plates a , a . This

block a^3 is slotted longitudinally of the casing and in the slot is held the rear end of a stiff plate spring S, to be hereinafter described. The front side of the block is recessed to allow lateral flexure of the spring S. The side plates a , a , are provided in their upper edges flush with the front wall of the block a^3 with rectangular recesses a^4 , which are closed by the upper casing sections B, C, which rest on top of the lower section A, as shown in Fig. 1. The sections B, C, also comprise side plates b , b , and c , c , respectively, and bottom plates b' , c' , respectively. The bottom plate c' of the upper forward section C extends the full length of the side plates c , c , but the bottom plate b' , of the rear upper section B, terminates flush with the rear end of the block a^3 and partition a' , of the lower section A, so that the lock casing as a whole is channeled on its upper, lower and rear sides in order that it may be slipped into a recess formed in the edge of a door, as shown in dotted lines. The side plates of the several sections are provided with screw-holes whereby the lock is secured to the door.

The lower section A is provided in its upper side with four holes a^5 , into which fit four dowel pins b^3 depending from the lower side of section B, and the front end of section B is provided with two apertures or sockets b^4 receiving two lower pins, c^3 , projecting from the inner end of section C. This affords a simple and effective connection for the casing sections and renders assemblage of parts easy and rapid.

The knob-spindle comprises two members, an outer knob-spindle D, and inner knob-spindle E, which extend through the recesses a^4 , and the inner end of the spindle D is provided at its upper side with an offset extension 4, which works in a recess 24 formed in the under side of the section C, and this extension limits the longitudinal play of the spindle and prevents its withdrawal from the lock casing. The inner spindle E extends at its inner end under the extension 4, and the rear side of the spindle E is provided with a recess 9, engaged by the free end of the plate spring S. The spindle E is provided at the forward side of its inner end with a projection or cam 8, having a shoulder 8^a .

F designates the horizontal latch provided with a pivot 15 mounted in the forward portions of the casing sections A, C, to

swing into and out of the opening therebetween. The striking face of the latch F is curved or inclined to engage a box-like striker having a rectangular attaching plate 5 30, a straight side 31 and a curved side 32 to properly receive the latch and allow of its retraction. The latch F, in rear of its pivot 15, is inclined at 10 for engagement by the inclined end of cam or projection 8 of the 10 spindle E, and is further provided with a toe 11 engaged by the end of the projection 8, so that an outward movement of the spindle E from the casing will cause the shoulder 8^a of the cam 8 to pull on the toe 15 11 and swing the nose or outer end of the latch F, inwardly. This may be effected by pulling on the inner knob or pushing on the outer knob. When either knob spindle is released the spring S will retract the 20 spindle E, and its cam 8 acting on surface 10 of the latch F, will restore same to its normal position.

In order that the latch F may be locked I provide a vertically rocking detent G, 25 adapted to be swung down behind the straight side or shoulder 8^a of the projection 8 and prevent the spindle E from being pulled or pushed outwardly. This detent G is mounted on a rock-shaft 16, provided 30 at its inner end with an actuating handle 17 and at its outer end with a key engaging portion 19. The meeting ends of the sections B, C, of the casing are provided with half round transverse grooves b^o, c^o, forming 35 registering recesses for the shaft 16, and with registering recesses 22, forming a clearance space for the detent G. The outer ends of the grooves b^o, c^o, form a key-hole through which a key may be inserted to engage the 40 part 19 of the detent shaft.

Suitable guards t, u, are provided in the key-hole and, as shown, they may be formed of irregularly apertured disks in semi-circular recesses 22' in the sections B, C.

45 It will be seen that the lock may be placed in position by merely sawing or cutting a recess in the edge of the door. The lock mechanism may be viewed at any time by simply removing the lock and lifting off the 50 upper case members B, C. These members may be pulled apart to give access to the detent devices.

In my improved lock the pull or push on the knob spindle to release the latch will 55 also open the door and this single movement may be accomplished when the hands are occupied by packages, &c. A push on the outside of the door cannot open it as the point of the latch will then bear against the 60 keeper, as in Fig. 6, and the latch will be held from turning by reason of its rear end engaging the cam or projection 8 on the inner spindle member. In closing the door the latch will yield and its toe 11 will push 65 against the end of cam or projection 8 and

move the spindle E inwardly until the latch registers with the keeper when the spring S will serve to return the spindle to its normal position, and so swing the latch into 70 the keeper. It is obvious that where a latch only is desired the detent may be omitted and a single sliding spindle may be employed to release the latch when pulled by the operator.

What I claim is—

75 1. The combination with a casing, of a pivoted latch therein; a knob-spindle sliding in the casing and having a projection on one side operatively engaging the inner end of the latch to retract same, and a spring 80 acting to return the parts to their normal positions.

2. The combination with a casing, of two separate, alined sliding spindles extending 85 therein, a latch pivoted in the casing, a projection on the inner knob-spindle to retract the latch, and a spring acting to return the parts to normal position.

3. The combination with a casing, of a 90 horizontal latch pivoted therein and having its inner end formed with actuating surfaces, an inner sliding knob-spindle having a cam-like projection on its inner end engaging 95 said latch-actuating surfaces to swing the latch out of and into the casing, a spring acting on the spindle to restore it and the parts operated thereby to normal position, and an outer sliding spindle having its 100 inner end adjacent to the inner end of the outer spindle.

4. The combination with a casing, of a 105 horizontal pivoted latch, an inner sliding knob spindle operatively connected at its inner end to the inner end of the latch, an outer sliding knob-spindle adapted to abut at its inner end said inner knob-spindle to retract the latch from the outside, a spring to return the parts to normal positions, and a detent provided with a finger-piece to operate it from the inner side of the lock casing 110 and constructed to prevent actuation of the latch by the knob spindles.

5. The combination with a casing, of a 115 horizontal pivoted latch, two alined sliding knob-spindles, the inner spindle having a projection or cam operatively engaging the inner end of the latch to actuate it, a spring to return the parts to normal positions, and a detent pivoted above the inner spindle and adapted to be swung down behind its cam 120 or projection and lock the spindle; said detent having a finger-piece at the inner side of the lock case for actuating it from within the room.

6. The combination with a casing having 125 a key passage; of a horizontal pivoted latch, two alined sliding knob-spindles, the inner one of which is provided with a cam or projection operatively engaging the inner 130 end of the latch to actuate it, a spring to

return the parts to normal positions, and a rock shaft mounted in alinement with the key passage and provided with a detent to swing down into locking engagement with the inner knob-spindle; the outer end of the rock shaft being formed for engagement by a key and the inner end of the shaft having a finger-piece or handle.

7. A lock comprising a casing, a horizontal latch pivoted therein, two alined sliding knob spindles; the inner one of which is operatively engaged with the inner end of the latch, a plate spring secured in the case and engaging the inner knob-spindle with its free end, and means for locking the inner spindle against movement.

8. A lock comprising a casing formed of a lower and two upper sections flanged to form a channel at the top, bottom and rear of the casing; the lower section having recesses in the upper edges of its sides and a slotted block in rear thereof, a spring secured at its inner end in said block, sliding knob-spindles extending at their inner ends through said recesses, held therein by the upper casing members, and the spindle engaged by said spring and a horizontal pivoted latch in the space between the lower and upper outer casing-members, and operative connections between the inner end of the inner knob-spindle and the inner end of the latch.

9. A lock comprising a casing formed of a lower and two upper sections flanged to form a channel at the top, bottom and rear of the casing; the lower section having re-

cesses in the upper edges of its sides and a slotted block in rear thereof, a plate spring secured at its inner end in said block and extending outwardly, sliding knob-spindles extending at their inner ends through said recesses and held in place by the upper casing members; the inner knob-spindle having a recess receiving the free end of said spring, a horizontal pivoted latch in the space between the lower and upper outer casing sections, operative connections between the inner end of the inner knob-spindle and the rear end of the latch; the abutting ends of the two upper casing sections having semi-circular registering recesses extending from side to side thereof, and a rock shaft mounted in the bearing formed by the inner half of said recesses, and provided with a detent to engage the inner knob-spindle and an operating finger-piece or handle at its inner end and a key engaging means at its outer end.

10. The combination with a pivoted latch provided at its rear end with an inclined edge terminating in an actuating toe, of a sliding knob spindle having a projection or cam inclined to correspond to the rear edge of the latch and prevent its turning and the end of the cam adapted to engage the toe of the latch to retract it to be engaged by said toe and be retracted thereby as the latch enters its keeper.

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Witnesses:

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