S. SCHACHT.

DOOR LOCK.

APPLICATION FILED OCT. 22, 1909.

971,314. Patented Sept. 27, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

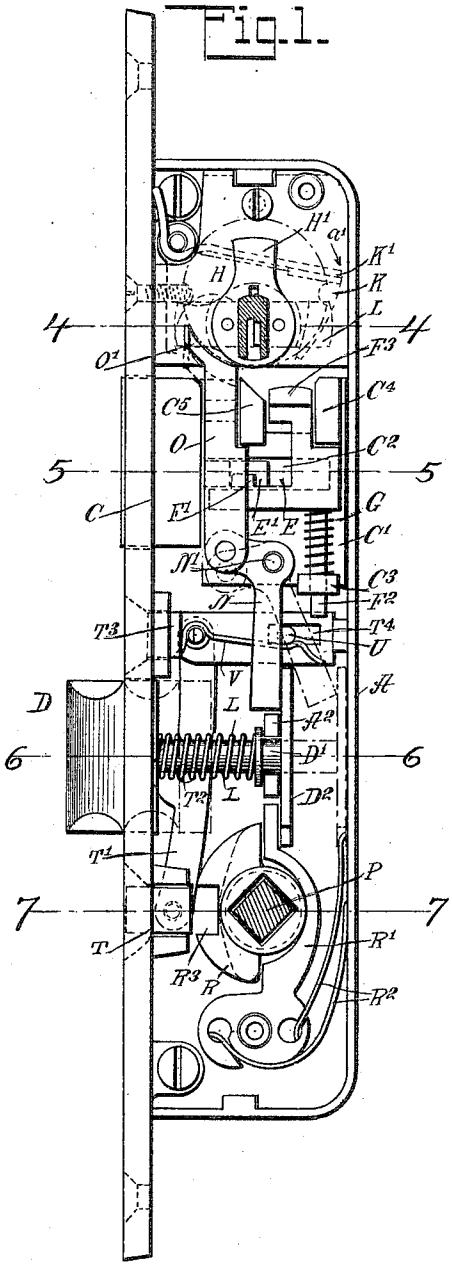
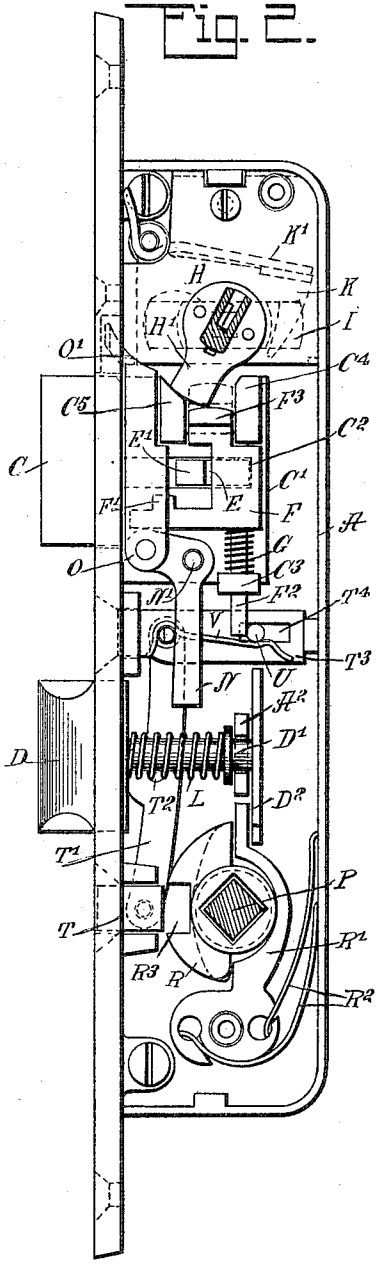


Fig. 2.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 3.

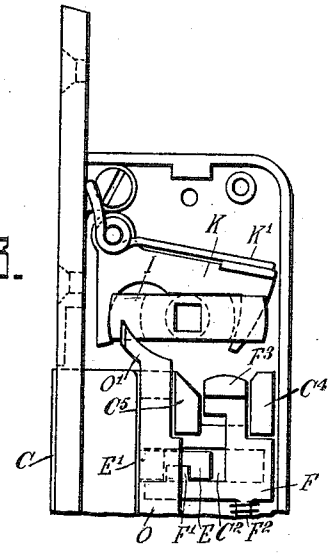


Fig. 4.

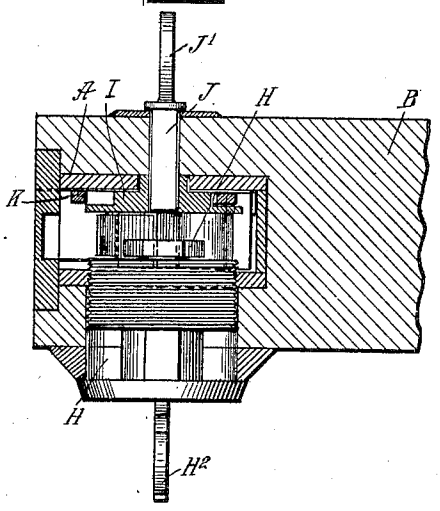


Fig. 5.

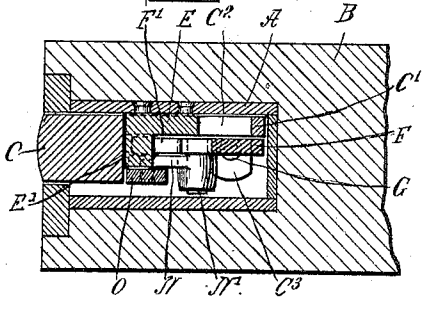


Fig. 6.

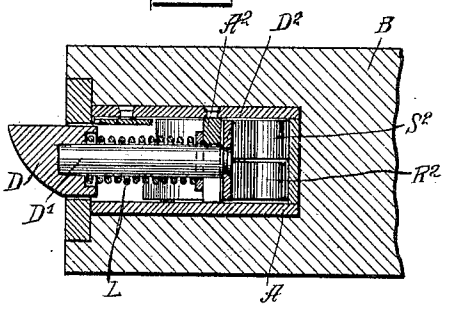
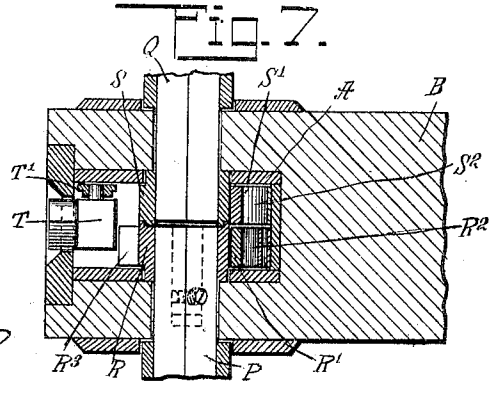


Fig. 7.



WITNESSES

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SAMUEL SCHACHT, OF NEW YORK, N. Y.

DOOR-LOCK.

971,314. Specification of Letters Patent. Patented Sept. 27, 1910.

Application filed October 22, 1909. Serial No. 523,972.

To all whom it may concern:

Be it known that I, SAMUEL SCHACHT, a subject of the Czar of Russia, and a resident of the city of New York, borough of the Bronx, in the county and State of New York, have invented a new and Improved Door-Lock, of which the following is a full, clear, and exact description.

The invention relates to door locks having a locking bolt and a latch, and its object is to provide a new and improved door lock, more especially designed for use on entry doors of apartments, dwellings and other buildings, and arranged to permit of successively retracting the bolt and the latch by the same key-controlled mechanism whenever it is desired to open the locked door from the outside and at the time the latch is locked against retraction by the door knob and its spindle.

For the purpose mentioned the bolt and the spring-pressed latch are mounted to slide independently in the door casing, and outside key-controlled mechanism is arranged for retracting the said bolt and the latch successively to unlock the door.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the door lock, part of the key-controlled mechanism being in section and the cover being removed, the bolt being in retracted position; Fig. 2 is a similar view of the same showing the bolt shot out; Fig. 3 is a side elevation of the mechanism for actuating the bolt from the inside of the door; Fig. 4 is a sectional plan view of the door lock in position in the door, the section being on the line 4—4 of Fig. 1; Fig. 5 is a similar view of the same on the line 5—5 of Fig. 1; Fig. 6 is a like view of the same on the line 6—6 of Fig. 1; and Fig. 7 is a similar view of the same on the line 7—7 of Fig. 1.

The casing A of the door lock is preferably mortised in the door B, as plainly indicated in Figs. 4, 5, 6 and 7, and in the said casing A are mounted to slide independently one of the other a bolt C and a spring-pressed latch D, adapted to engage the usual keepers in the door casing. The shank C′ of the bolt C is provided with an elongated slot C^2, into which extends a lug E attached to or forming part of the casing A, so as to guide the bolt C in its movement, the said guide lug E being provided with an offset E′ adapted to be engaged at either side by a lug F′ on a tumbler F, mounted to slide on the face of the shank C′ and in a direction at right angles to the movement of the bolt C. The tumbler F is provided with a depending pin F^2 slidingly engaging a bearing C^3 on the shank C′ of the bolt C, and a spring G is coiled on the said pin F^2 and rests with one end on the bearing C^3 and on the other end presses the tumbler F, so as to hold the latter normally in an uppermost position, as indicated in Fig. 1. The tumbler F is provided at its upper end with a head F^3 extending between lugs C^4, C^5, forming parts of the shank C′ of the bolt C, and the said head F^3 and the lugs C^4, C^5 are adapted to be engaged by the swing arm H′ of a key-controlled mechanism H, of any approved construction, preferably, however, in the form of a Yale lock, having a key H^2, and attached to the cover of the casing A and extending to the outside of the door B, as plainly shown in Fig. 4. Thus when the key H^2 is inserted in the Yale lock and turned in the direction of the arrow *a′* (see Fig. 1), then the arm H′ first engages the head F^3 of the tumbler F and pushes the same downward, to disengage the lug F′ from the lug E′, and then the arm H′ engages the lug C^5 and shoots the bolt C into an outermost or locking position, as shown in Fig. 2. When the arm H′ leaves the head F^3 of the tumbler F and the bolt C is shot out, then the tumbler F is returned to its normal uppermost position by the action of the spring G, the lug F′ of the tumbler F then engaging the left-hand side of the lug E, thus locking the bolt C against retraction. In a like manner, when the key H^2 is turned to swing the arm H′ in the inverse direction of the arrow *a′*, then the tumbler F is again moved downward, to unlock the bolt C, after which the bolt is retracted by the arm H′ acting on the lug C^4, to move the bolt C into retracted position, as shown in Fig. 1.

The bolt C can be actuated from the inside of the door by providing an arm I, mounted to turn in the casing A (see Fig. 4), and engaged by the square end of a spindle J extending through the door B to the inside thereof, the inner end of the

spindle terminating in a knob or handle J'. When the handle J' is turned, either end of the arm I engages the head F^3 of the tumbler F to move the same into unlocking position, and then the arm I acts on either of the lugs C^4, C^5 to retract the bolt C or to advance the same, as the case may be. The arm I is normally held in horizontal position by a detent K fulcrumed in the casing A and pressed on by a spring K' (see Figs. 3 and 4).

The latch D is provided with a shank D' mounted to slide in a bearing A^2 formed or secured in the casing A, and a spring L coiled on the shank D' presses the latch D to normally hold the same in an outermost position, the outward movement of the latch being limited by a plate D^2 secured on the inner end of the shank D' and adapted to rest on the bearing A^2. The upper end of the plate D^2 is adapted to be engaged by one arm of a bell crank lever N, fulcrumed at N' on the shank C' of the bolt C, the other arm of the said bell crank lever being connected with a bar O mounted to slide up and down on the shank C' of the bolt C between the head of the bolt and the lug C^5. The upper end of the bar O terminates in a head O' adapted to be engaged by the arm H' at the time the bolt C has first been moved into a retracted position on turning the arm H' in the inverse direction of the arrow *a'*. Now when the bolt C is retracted, the bar O and the bell crank lever N move bodily with the said bolt to the position shown in Fig. 1, that is, the bell crank lever N moves into engagement with the plate D^2 of the latch D. Now when a further turning is given to the arm H' in the inverse direction of the arrow *a'*, then this arm depresses the bar O, which latter now imparts a swinging motion to the bell crank lever N, so that the latter acts on the plate D^2 to retract the latch D, thus completely unlocking the door. When the key H^2 is withdrawn after the door has been opened and the arm H' has passed the head O', then the latch D immediately returns to its normal projected position by the action of its spring L. When the door is subsequently closed, the latch D snaps into its keeper, and the operator on the inside of the door can now shoot out the bolt C, by turning the knob or handle J' of the spindle J correspondingly, to turn the arm I for advancing the bolt C. The door is now locked against opening by both the bolt C and the latch D.

From the foregoing it will be seen that by the arrangement described, the operator on the outside of the locked door, by the use of the proper key H^2, first retracts the bolt C and then the latch D, to allow of swinging the door open, and when the key is withdrawn and the operator passes into the house and closes the door, then the latch D snaps into its keeper and the bolt C can be subsequently advanced or shot out by turning the handle J' correspondingly.

In order to actuate the latch D from outer and inner door knob spindles P and Q, respectively, the following arrangement is made: On the spindles P and Q are secured cams R and S, adapted to impart a swinging motion to the levers R', S' engaging with their free ends the plate D^2 of the latch D, the said levers R', S' being pressed on by springs R^2, S^2, to hold the same in engagement with the cams R and S. The cam R for the outside spindle P is provided in its peripheral face with a notch R^3, adapted to be engaged by a locking pin T, mounted to slide in the face plate of the casing A and under the control of the operator.

The locking pin T is pivotally connected with one end of a lever T', fulcrumed at T^2 and in the casing A, and connected at its other end with a reversing pin T^3, likewise sliding in the face plate of the casing A. The inner end of the pin T^3 is provided with an elongated slot T^4, into which projects a guide lug U, attached to the casing A, and on the said pin T^3 is secured one end of a spring V, riding with its free end on the guide lug U to hold the pins T, T^3 and the lever T' in the position they are moved in, by the operator pressing either pin T or T^3. When the pin T is pressed inward it engages the notch R^3, thus locking the cam R and spindle P against turning, to prevent the latch D from being withdrawn from the outside of the door by means of the spindle P and its knob. When the pin T is pressed inward the pin T^3 is moved outward, and when the pin T^3 is pressed by the operator the pin T is moved outward and out of engagement with the notch R^3, to allow of withdrawing the latch D on turning the spindle P and its outside knob.

It will be understood that the levers R', S' and N engage the plate D^2 at the forward face thereof, so that when the cam R is locked by the pin T engaging the notch R^3, the latch D can be retracted by the bell crank lever N, on the operator manipulating the key-controlled mechanism H, as previously explained.

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

1. A door lock, comprising a casing, a bolt mounted to slide therein, a spring pressed latch mounted to slide in the casing and normally in locking position, a bell crank lever pivoted to the bolt, and adapted to engage the latch to actuate the same, a bar movable vertically on the bolt and pivotally connected with said bell crank lever, and a key controlled mechanism for actuating the said bolt and for depressing the said bar to retract the latch.

2. A door lock comprising a casing, a bolt mounted to slide therein, a guide lug on the casing extending through a slot in the shank of the bolt, a tumbler mounted to slide up and down on the face of the shank of the bolt, the said tumbler having a head at its upper end, lugs on the shank of the bolt between which the head of the tumbler extends, the tumbler being offset at one side and extending beneath one of said lugs, a horizontal arm extending from the other side of said tumbler at the lower portion thereof, the said arm having a lug adapted to engage the said guide lug on the casing to lock the said bolt in retracted or in locking position, a spring normally holding the tumbler in uppermost position, and a key controlled mechanism for actuating the tumbler and bolt.

3. A door lock comprising a casing, a bolt mounted to slide therein, a guide lug on the casing extending through a slot in the shank of the bolt, a tumbler mounted to slide up and down on the face of the shank of the bolt and having a head at its upper end, lugs on the shank of the bolt between which the head of the tumbler extends, the tumbler having an offset portion at one side extending beneath one of said lugs, and a horizontal arm at the other side extending from the lower portion and provided with a lug adapted to engage the said guide lug of the casing, a depending pin on the offset portion of said tumbler and slidably engaging a bearing on the shank of the bolt, a spring coiled on said pin for normally holding the tumbler in uppermost position, and a key controlled mechanism for actuating the said tumbler and bolt.

4. A door lock comprising a casing, a bolt mounted to slide therein, a spring pressed latch normally in locking position, a bell crank lever mounted to swing on the said bolt, and adapted to engage the said latch to retract the latter, a lug on the shank of the bolt, a bar mounted to slide up and down on the shank of the bolt between the head of the bolt and said lug, the said bar being pivotally connected at its lower end with the said bell crank lever, the upper end of said bar terminating in a head, and key-actuated mechanism for actuating the said bolt and moving the said bar and the bell crank lever into position for the lever to engage the latch, the said mechanism being adapted to engage the head of the said bar to depress the latter, thereby swinging the bell crank lever to retract the latch.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL SCHACHT.

Witnesses:
SAMUEL GLASSMAN,
SAMUEL HOROWITZ.