April 26, 1932. A. G. LYONS ET AL 1,855,608

DOORLOCK

Filed Feb. 21, 1931

Fig. 2.

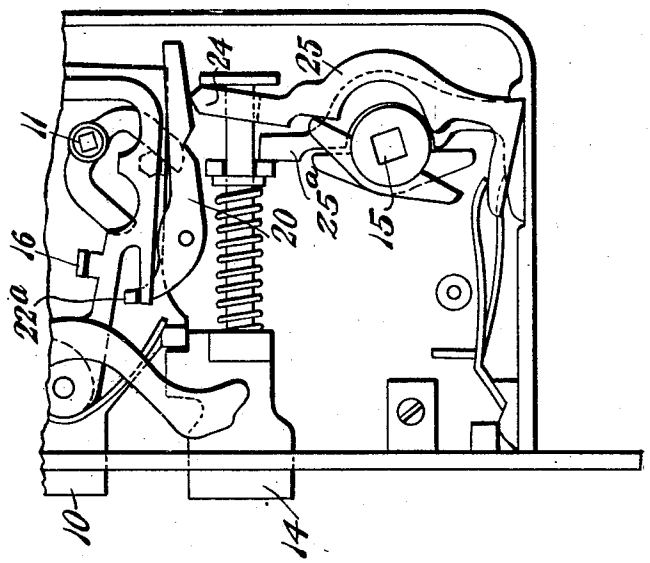
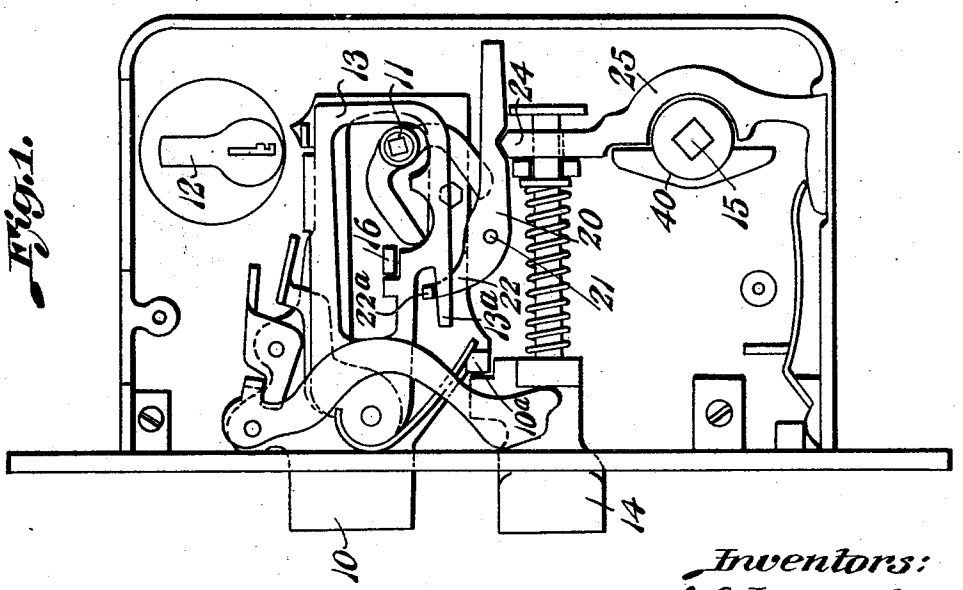


Fig. 1.



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UNITED STATES PATENT OFFICE

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DOORLOCK

Application filed February 21, 1931. Serial No. 517,613.

This invention relates to door locks in which a tumbler-controlled bolt is employed in connection with a separately operative latch; the essential purpose of the improved construction being to enable satisfactory joint use of both the bolt and latch by the occupant of a room, with avoidance of objectionable and possibly dangerous delay in opening of the door incident to requiring their separate withdrawal, as in case of ordinary hurry or emergency need. The invention is fully described in connection with the accompanying drawings illustrating a preferred embodiment in a known type of lock particularly adapted for use in hotels; and the novel features are clearly defined in the subjoined claims.

Fig. 1 is a rear view, with the back plates removed, showing our invention applied in preferred manner to a lock of known general construction, both the lock bolt and latch being illustrated in fully thrown position.

Fig. 2 is a partial similar view to Fig. 1 but showing the bolt and latch in a position of partial joint withdrawal.

As shown in the drawings the bolt 10 is operative from the interior side of the door by means of an interiorly-handled spindle for the armed hub 11. It is also operative from the outside by the key-operated cam 12; with the tumbler device 13 at all times controlling movement of said bolt. The latch 14 is separately operated by a knob spindle at 15, and is also shown as operative by the key-operated cam 12; the particular mechanism shown and thus briefly described corresponding with that fully set forth in Patent No. 1,678,994 issued July 31, 1928, to the present joint applicant Mason, and the present invention being now fully presented in connection therewith.

The projecting of the bolt 10 by the room occupant, to prevent opening of the door from the outside by operation of the usual outside knob, is commonly effected by turning of the armed hub 11; the tumbler 13 being first swung thereby out of its locking engagement with the case post 16 to permit movement of the bolt. Like direct withdrawal of the bolt by the occupant has heretofore been necessary, in connection with separate operation of the latch, in order to open the door.

In our improved construction, however, this withdrawing movement of thrown bolt 10, is automatically effected by the room occupant in the act of turning the inside door knob to operate the latch; so that this single usual action effects release of the door whether the bolt 10 had been thrown or not; the additional bolt-withdrawing operation being dispensed with by utilizing the latch movement to release the tumbler and move the bolt.

To accomplish this we employ, as shown, a special tumbler-releasing lever 20, which is fixedly pivoted intermediately to a case post 21, and has a tumbler-engaging arm 22; said lever 20 being arranged to be operatively engaged by an extended portion 24 of the latch-withdrawing lever 25 operated by usual knob hub 40. With the bolt 10 thrown as in Fig. 1, the offset 22^a of the tilted lever 20 is pressed downward upon a ledge 13^a provided on the tumbler 13, so that the tilting of said lever by a room occupant's operation of the door knob will immediately effect disengaging movement of the tumbler from the case post 16. Such tilting action upon the lever 20 is effected, as shown, by engagement of the special extension 24 of the otherwise common withdrawing lever 25 with the notched portion of lever 20.

This disengaging of the tumbler from the case post frees the bolt 10 for withdrawal movement; and provision is made for then moving it jointly with the latch 14, by merely providing a lug 10^a on the bolt 10 for engagement by the latch 14 as the latter is withdrawn by continued turning of the interior latch operating door knob. When the bolt 10 has been thus wholly withdrawn it is so held by reengagement of the tumbler with the case post, the same as though it had been separately withdrawn by usual reverse operation of the bolt-projecting hub 11.

To permit of the outside knob being operated as usual to withdraw the latch 14 when the bolt 10 has not been thrown, the usual swivel-spindle construction is employed, with separate latch operating levers 25 and 25^a as indicated in Fig. 2, the inner one only of

which (25) has the special extension 24 for operating the tumbler 13 as described.

In the complete hotel-type lock illustrated in the drawings, as embodying our invention, the key cam 12 can be operated as usual to withdraw both the bolt 10 and latch 14, the latter however being dead locked against operation by the outside knob; while the operation of the inside knob simultaneously withdraws both the bolt and latch after preliminarily operating the tumbler 13 so as to permit of such joint movement. The application of our invention as specifically set forth may obviously be modified without departing from the invention as defined in the claims.

What we claim is:

1. In a door lock having a lock bolt and key-operated and hand-operated actuating means therefor having in common a bolt releasing tumbler; a latch bolt having means to withdrawingly engage said lock bolt, and withdrawing means for said latch bolt comprising a hand-operated roll-back hub preliminarily operative upon said tumbler to permit joint withdrawal of both bolts.

2. A door lock having a lock bolt; tumbler controlled roll-back mechanism therefor; a latch bolt having means to withdrawingly engage said lock bolt; and separate withdrawing means for said latch bolt comprising preliminarily operative tumbler-releasing mechanism and adapted to effect withdrawal movement of the lock bolt with the latch bolt.

3. A door lock having a lock bolt; tumbler controlled roll-back mechanism therefor; a latch bolt having means to withdrawingly engage said lock bolt; and hand-operated actuated means for said latch bolt comprising a roll-back hub which is operative only when said lock bolt is withdrawn, and a second roll-back hub which is operative upon said latch bolt and lock bolt when the latter is thrown; said second roll back being preliminarily operative to release said tumbler controlled roll-back.

4. In a door lock comprising a lock bolt with tumbler-controlled roll-back mechaanism, and a latch bolt having separate withdrawing means and arranged to withdrawingly engage the projected lock bolt; a fixedly pivoted tumbler-releasing lever arranged to be operated by said separate latch bolt withdrawing means, preliminary to withdrawing the latch bolt and lock bolt jointly.

In testimony whereof we affix our signatures.

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