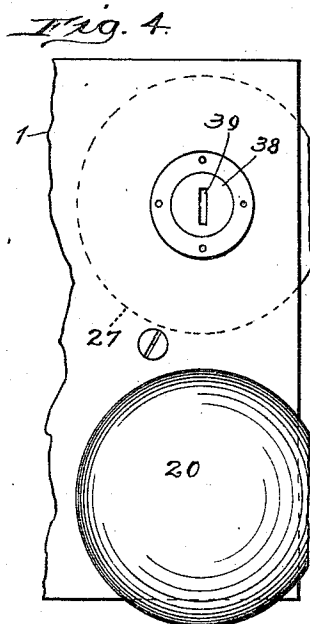
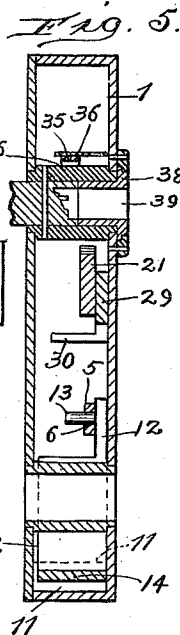
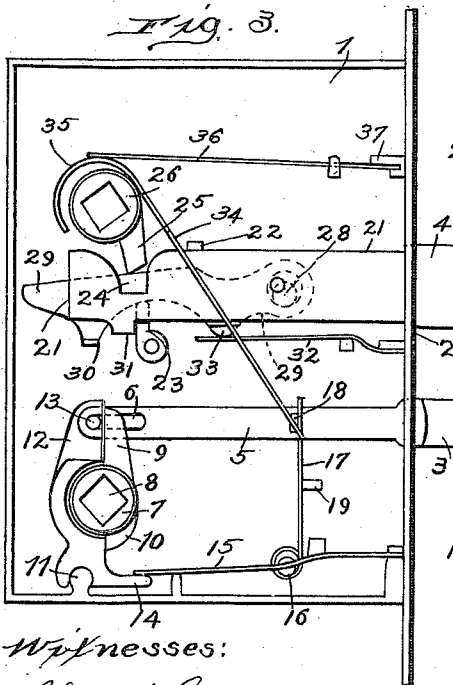
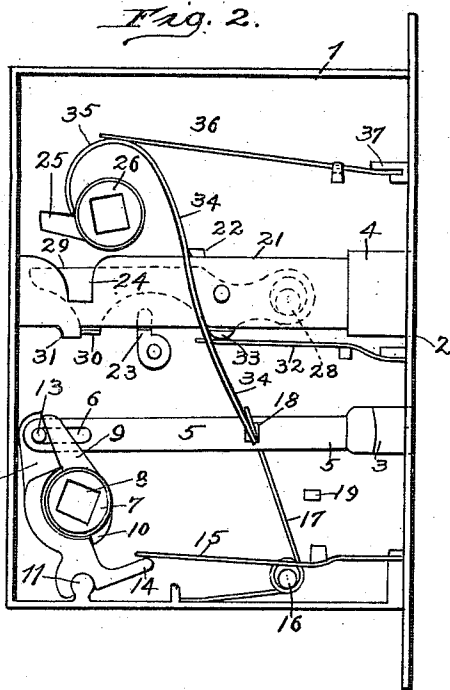
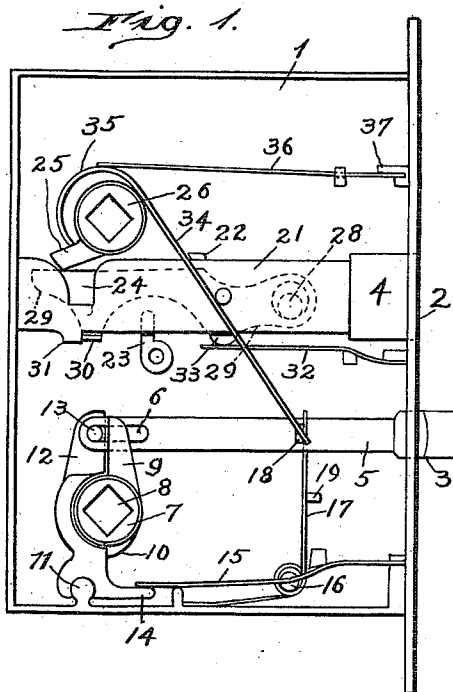


F. J. SMITH.
DOOR LOCK.

APPLICATION FILED DEC. 6, 1906.

973,225.

Patented Oct. 18, 1910.



Witnesses:

Chas. E. Gorton.
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UNITED STATES PATENT OFFICE.

FRANK J. SMITH, OF HIGHLAND, INDIANA.

DOOR-LOCK.

973,225.

Specification of Letters Patent.

Patented Oct. 18, 1910.

Application filed December 6, 1906. Serial No. 346,662.

To all whom it may concern:

Be it known that I, FRANK J. SMITH, citizen of the United States, residing at Highland, in the county of Lake and State of Indiana, have invented certain new and useful Improvements in Door-Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a novel construction in a door lock, the object being to provide a device of this character which is adapted generally for all doors and more particularly for the doors of passenger coaches on railroads, and consists in the features of construction and combinations of parts hereinafter fully described and claimed.

In the accompanying drawings illustrating my invention Figures 1, 2 and 3 are views in elevation of a lock constructed in accordance with my invention having one of its cover plates removed to show the mechanism and the latter being shown in its various positions. Fig. 4 is a side elevation of the opposite side of the lock. Fig. 5 is a vertical cross sectional view of the locks in a plane through the knob spindles.

My invention has for its particular object to provide a door lock in which the bolt may be shot by turning one of the knobs in one direction, such knob when turned in the opposite direction serving also to unlock the door and release the spring catch, while the other knob serves in the ordinary manner to actuate the spring catch only.

The end sought to be accomplished is to provide a lock in which the bolt may be shot from inside the compartment without the use of a key and which, furthermore, cannot accidentally become locked by the closing of the door after a person has left the compartment and which may be locked from the exterior by means of a key. To these ends I provide a lock comprising a rectangular casing 1, the front plate 2 of which is provided with slots in which the spring latch 3 and bolt 4 are guided. The said latch 3 is provided with a shank 5 in the rear end of which I provide a longitudinal slot 6. The hub 7 having a rectangular opening to receive the shank of a door knob is pivotally mounted in openings in the side plates of said casing 1 and carries arms

9 and 10. Fulcrumed upon a projection 11 on the bottom wall of said casing 1 is a bell-crank lever 12 carrying a pin 13 in the free end of one of its arms which passes through said slot 6 in said latch 3, the other arm 14 of said lever being engaged by a flat spring 15 to maintain the same normally in engagement with the arms 9 and 10 of said hub 7, the latter constituting a stop to limit the movement of said bell-crank lever 12 in one direction. The said flat spring 15 is suitably secured at one end in said casing 1 and at its other end bears upon said arm 14 of said lever 12. Secured to a lug within said casing 1 is a flat spring 17 which at its free end carries a projection entering the slot 18 in the shank 5 of said latch 3 between the ends thereof and which serves to hold said latch normally at the forward limit of its movement. The said spring 17 bears upon a projection in said casing between its ends and its movement is limited by the latter in one direction. The knob 20 of which is adapted to enter said hub 7 may be turned in either direction to actuate said spring latch 3 to draw the same inwardly against the action of said spring 17. The shank 21 of said bolt 4 is movable between guide lugs 22 and 23 in said casing 1 and is provided adjacent its rear end and in its upper edge with a recess 24 which is adapted to receive the arm 25 of a hub 26 pivotally mounted in openings in the side plates of said casing in the same manner as said hub 7 and which is adapted to receive the shank of the inner knob 27 of the door.

Pivotally mounted upon a lug 28 on one of the side plates of said casing 1 is a dog 29, the free end portion of which is disposed in the path of said arm 25 and which adjacent said free end carries a lug 30 which is normally disposed in the path of a projection 31 on said shank 21 of said latch 4, said dog being normally maintained in position to accomplish this by means of a flat spring 32 bearing upon a projection 33 on said dog. In the position shown in Fig. 1 said dog 29 serves to hold said bolt 4 at the inner limit of its movement, but by turning said knob 27 to throw said arm 25 of said hub 26 downwardly said dog will be depressed at its rear end to throw said projection 30 out of the path of said projection 31 and said arm will thereafter engage the forward wall of said recess 24 to move said

bolt outwardly. The said projection 22 also serves as the fulcrum of a lever 34 the upper end of which is bent to form a hook 35 which embraces said hub 26 and which at its free end is disposed in the path of said arm 25 of said hub. At its other end said lever is provided with a projection which enters said slot 18 in the shank 5 of said latch 3 so that by turning said knob 27 in the opposite direction said lever 34 will be turned on its fulcrum and serves to draw said latch 3 inwardly. A flat spring 36 secured at one end in a projection 37 in said casing bears at its free end upon the hook portion 35 of said lever 34 to maintain the latter normally in engagement with said arm 25. It will be noted that the knobs 20 and 27 are respectively offset so that neither shank of the same passes entirely through both side plates of said casing 1. The shank of said knob 27 is preferably shorter so as to permit the shank of a slotted rotating member 38 to enter said hub 26, said member 38 being rotatable with relation to said hub and provided with a slot 39 for the reception of a key the end of which is adapted to engage said hub or to enter and engage openings in the end of the shank of said knob 27 to enable the same to be turned by said key to unlock the door.

My said device is exceedingly simple and is particularly advantageous by reason of the fact that it may be very easily locked from the inside without the use of a key or without the necessity of turning any special knob usually provided for this purpose. It also

prevents a person from being accidentally locked out as frequently happens with the use of spring locks now generally employed.

My said device may be said to constitute a good panic door lock in as much as the natural tendency of any person trying to escape from any compartment during the panic would be to turn said knob in every conceivable way in the endeavor to release the door and in so turning the same he would unquestionably succeed in unlocking said door thus opening an exit. This renders it particularly valuable for use on railway passenger coaches and for the doors of public buildings, factories, etc.

I claim as my invention:

In door locks, a slidable lock bolt formed with a recess, a slidable latch bolt, a rotatable hub having a projection engaging in the recess to move the lock bolt in either direction corresponding to the direction of rotation of the hub, a fulcrumed lever 34 having an end engaged with the latch bolt to effect movement thereof and an end formed to lie in the path of said projection and to be engaged thereby, said projection in such engagement moving said lever on its fulcrum.

In testimony whereof I have signed my name in presence of two subscribing witnesses.

FRANK J. SMITH.

Witnesses:

RUDOLPH W.M. LOTZ,
ARTHUR C. LOTZ.