

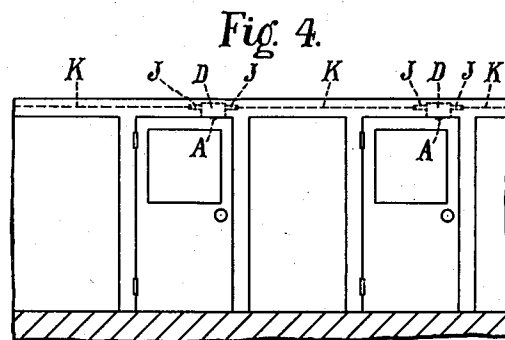
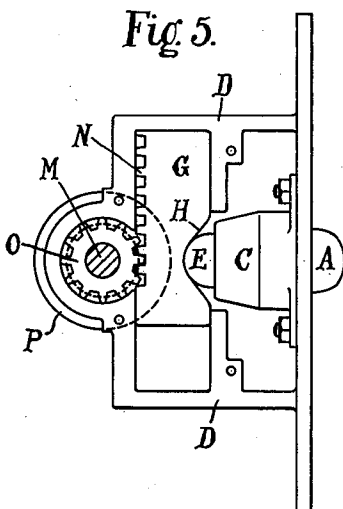
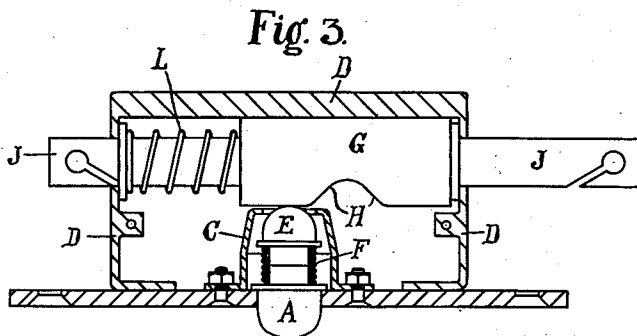
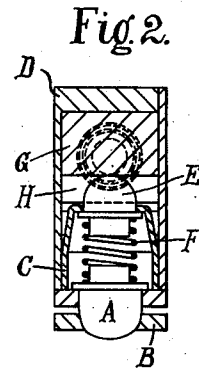
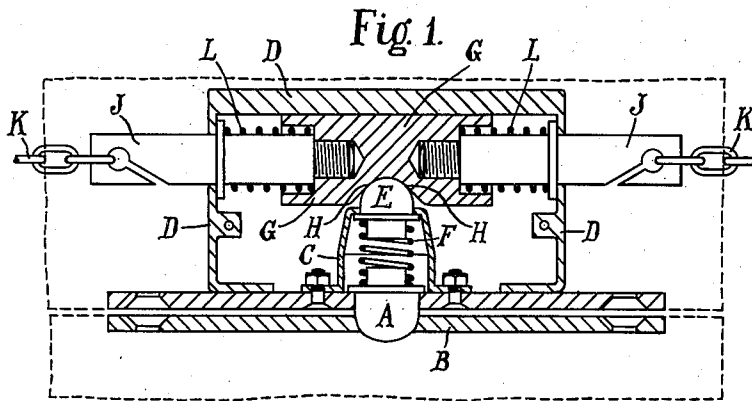
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SPRING DOOR LOCK

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SPRING DOOR LOCK

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4 Claims. (Cl. 292-74)

This invention relates to improvements in spring door locks of the kind in which a spring actuated plunger formed with a hemispherical end which is projected through an opening in the lock case, is adapted to engage in a hole in a catch plate, and its object is to provide improved means for locking this plunger in engagement with the catch plate, so that a positive lock is provided which can be controlled from a distant point.

The advantage of a lock of this description is that it can be conveniently applied in either of two positions that is, either on a door or on the frame in which a door is disposed.

According to this invention, the main plunger is disposed in a casing secured in the lock case together with an auxiliary plunger which is on the inner side of and in the reverse position to the main plunger, and a spring is disposed between the inner ends of these two plungers which tends to project both, that is, the main plunger in an outer direction so that it will engage in the opening in the catch plate, and the auxiliary plunger in the reverse direction. Provision is made for controlling the auxiliary plunger, and this consists of a slide which is disposed in the lock case and is provided with a cam surface on which the inner end of the auxiliary plunger bears. This cam surface acts upon the inner end of the auxiliary plunger, and is of such a shape that it moves the latter close up to and locks the main plunger in engagement with the catch plate when the slide is moved longitudinally. The slide may be fitted with springs which are adapted to return it to its normal position when released.

The invention will now be more particularly described with reference to the accompanying drawing, in which

Fig. 1 is a longitudinal section, and

Fig. 2 a cross section of a lock constructed according to my invention.

Fig. 3 is a front view partly in section showing the main plunger locked in its projected position.

Fig. 4 shows diagrammatically how the slides of several locks may be connected together and operated simultaneously.

Fig. 5 is a front view with the cover removed showing a modification.

Like letters indicate like parts throughout the drawing.

In carrying out this invention, the main plunger A which engages in the hole in the catch plate B, is disposed in a casing C secured in the

lock case D, and an auxiliary coaxial plunger E is disposed in the same casing C on the inner side of and in the reverse position to the main plunger A. A spring F is disposed in the casing C between the plungers A and E and this spring tends to project both plungers, that is, the main one A in an outer direction so that it will engage in the opening of the catch plate B, and the auxiliary plunger E in an inner or reverse direction.

Disposed in the lock case D is a longitudinal slide G which is at right angles to the plungers described, and the inner end of the auxiliary plunger E bears on a cam surface H on this slide, which is so shaped that when the slide G is in its normal position as shown in Fig. 1, the auxiliary plunger E can assume a position which leaves a space between its inner end, and that of the main plunger A, and the latter A is then only held in engagement with the catch plate B by the action of the spring F.

When the slide G is moved longitudinally in either directions, the auxiliary plunger E is moved up to and holds the main plunger A in its outer position as shown in Fig. 3, any inward movement of A is thus effectually prevented, so that the outer end of the plunger A is positively locked in the catch plate B, and the door to which the lock is applied is securely locked.

Both ends of the slide G described are fitted with longitudinal extensions or pins J which are carried through holes in the ends of the lock case D, and the ends of these extensions or pins J are formed so that flexible but inextensible connections K can be conveniently attached to either one or the other, so that the slide G can be adjusted from a distant point in order to lock the main plunger A. If connections are made to both pins J, the slide can be adjusted from two points, or one of the connections can be taken to the slide G of another lock as hereafter described.

The cam face H on the slide G, may be shaped so that it is returned to its normal or non-locking position by the pressure put upon it by the inner end of the auxiliary plunger E, or if preferred, springs L may be interposed as shown between its ends and the ends of the lock case D for this purpose. These springs L may be disposed on the end extensions or pins J previously described, to which the external connections K can be made.

Where a number of doors are required to be locked simultaneously, the extensions or pins J of the various slides G may be interconnected as shown in Fig. 4, and the doors can then be

all locked simultaneously from a convenient control point.

The locking arrangement described is specially adapted for locking railway carriage doors until such times as a train comes to a stop, as the slides G in the locks employed in connection with each door and which locks would be fixed in the door frames, can all be conveniently connected to a lever in the guards van by a line carried along the train. The locks can also be used for locking several doors in a motor vehicle by a single operation.

In a modification for use when the lock is required for use on ordinary doors, (see Fig. 5) the slide G may be connected to an exterior knob P, so that it can be conveniently adjusted by hand, and as the slide G must remain in the position in which it is set, springs are not required to return it to its normal position. The exterior knob P may be mounted on an axle M which extends to the exterior of the lock case D and secured on the axle M is a toothed pinion O which engages with teeth on the slide G, so that adjustment of the slide can be effected by turning the knob P. Alternatively a knob can be attached direct to the slide G and in this case the lock case D is formed with a slot, and the knob is secured on the outer end of a stud on the slide which works in the slot.

The lock can be attached either to a door or to the frame in which it is disposed and it constitutes both a spring catch and a lock for securely fastening a door.

What I claim as my invention is:

1. In a spring door lock, the combination of a main casing, an auxiliary casing disposed within said main casing, a pair of catch members co-axially mounted in said auxiliary casing in reversed positions for movement relative to one another, the outer end of one of said catch members adapted to extend outside of the main casing for engaging a catch plate and the outer end of the other of said catch members adapted to extend through the auxiliary casing, a spring disposed in said auxiliary casing between the inner ends of said catch members for normally maintaining the outer ends thereof projecting outwardly, and a slide mounted in said main casing and having a cam surface engageable with the outer end of the catch member which extends through the auxiliary casing for moving the said catch member inwardly of the auxiliary casing to a position against the inner end of the other of said catch members for locking the same in engagement with the catch plate.

2. In a spring door lock, the combination of a main casing, main and auxiliary catch members

having rounded outer ends, a subsidiary casing in which said catch members are located in reversed positions co-axial with each other, a spring disposed between the inner ends of said catch members for projecting the rounded ends thereof out of the opposite ends of said subsidiary casing, the outer end of the main catch member being adapted to extend outside of the main casing for engaging a catch plate and a slide in said main casing having a cam surface adapted to act on the outer rounded end of said auxiliary catch member for moving the same up to said main catch member whereby to lock the main catch member in engagement with the catch plate.

3. In a spring door lock, the combination of a main casing, main and auxiliary catch members having rounded outer ends, a subsidiary casing in which said catch members are located in reversed positions co-axial with each other, a spring disposed between the inner ends of said catch members for projecting the rounded ends thereof out of the opposite ends of said subsidiary casing, the outer end of the main catch member being adapted to extend outside of the main casing for engaging a catch plate, a slide in said main casing having a cam surface adapted to act on the outer rounded end of said auxiliary catch member for moving the same up to said main catch member whereby to lock the main catch member in engagement with the catch plate, extensions on said slide extending outwardly beyond the ends of said main casing whereby to permit connections to be conveniently made thereto, and spring means for returning the slide to its normal position when released.

4. In a spring door lock, the combination of a main casing, main and auxiliary catch members having rounded outer ends, a subsidiary casing in which said catch members are located in reversed positions co-axial with each other, a spring disposed between the inner ends of said catch members for projecting the rounded ends thereof out of the opposite ends of said subsidiary casing, the outer end of the main catch member being adapted to extend outside of the main casing for engaging a catch plate, a slide in said main casing having a cam surface adapted to act on the outer rounded end of said auxiliary catch member for moving the same up to said main catch member whereby to lock the main catch member in engagement with the catch plate, a toothed rack on said slide, and a pinion engaging said rack and disposed on an axle mounted in said main casing and having an exterior knob for permitting manipulation thereof.

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