

Jan. 6, 1931.

J. DESPLATS

1,788,016

LOCKING BOLT FOR SPRING LOCKS

Filed Sept. 13, 1928

2 Sheets-Sheet 2

FIG. 7

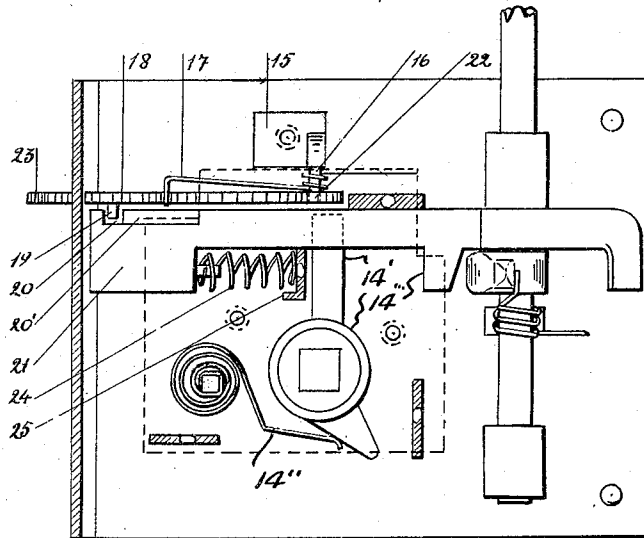


FIG. 8

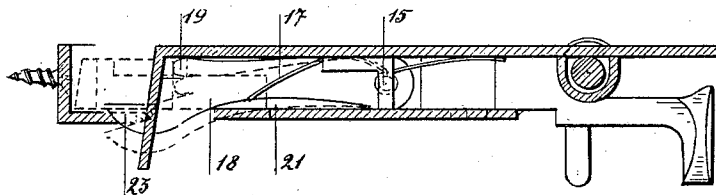


FIG. 9

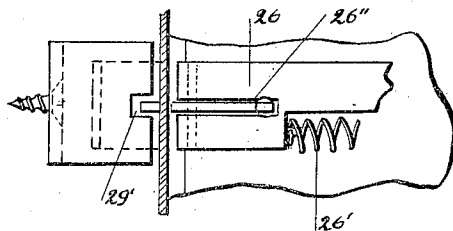
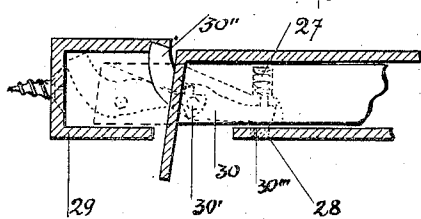


FIG. 10



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UNITED STATES PATENT OFFICE

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LOCKING BOLT FOR SPRING LOCKS

Application filed September 13, 1928, Serial No. 305,776, and in Argentina August 10, 1928.

This invention relates to improvements in locking bolts, which in their general application are designed to be used as spring locks for doors, windows, motor car doors, and the like.

The essential feature of this new locking bolt resides in providing a groove, in which the extension of a spring operated trigger works in form of a stop, so that the trigger, when striking against a door-frame, moves in the mentioned groove in such a way as to clear the locking bolt, causing it to move forward and automatically lock the door. In order to restore the locking device once more to its unlocked position, the door latch has to be pressed down, whereupon the spring actuated piece or trigger moves in such a way as to form a stop in the locking device, so that this latter remains in its unlocked position. The latch need therefore be operated only for the purpose of opening the door, by pressing it down in the ordinary way, while locking takes place automatically.

The principle, on which this invention is based, has been explained, but there exist numerous forms and applications of this locking device, which do not depart from the spirit and scope of the invention.

Any one of the constructional forms described and illustrated hereinafter, can be applied to any kind of doors or windows of living rooms, motor car doors, and the like, since the various modifications shown are all founded on the same principle, and their adjustment is easy.

The manufacture of locks provided with this class of locking bolts is comparatively no more expensive than that of the ordinary ones, on account of their simple and practical construction.

For a full understanding of the invention and its merits, and also to illustrate various constructional forms of the same, reference is to be had to the accompanying drawings.

Fig. 1 is a sectional view of the portion of a lock in which the locking bolt operates.

Fig. 2 is a front view of the locking device, seen from inside.

Fig. 3 is also a front view, from the inside, similar to the former one.

Fig. 4 shows the face or edge of a locking bolt adapted to a door.

Fig. 5 is a view of one of the pieces which form part of the mechanism of the locking device.

Fig. 6 is a view of the trigger, which is another one of the pieces forming part of the locking device.

Fig. 7 is a side view of a constructional modification of the locking device, applied to a lock.

Fig. 8 is a cross sectional view of the former one.

Fig. 9 shows a third constructional modification of the locking bolt and its operating device, which can be applied to any one of the classes of locks shown in Figures 1 to 4, 7 to 8, as well as to others.

Fig. 10 is a sectional view of the modification shown in Fig. 9.

Referring to Figs. 1 to 6, the construction is as follows:

On the inside 1 of the face of the lock there is provided a forked piece 2, fastened by a screw 3 and having beneath the latter a small bolt 4 on which is mounted a leaf spring 5 which projects upward beneath said piece 2 and resiliently actuates a trigger 6 which moves in a guide channel 7 provided in the upper portion of the piece 2. The trigger 6 is provided with two cross arms 6' and 9 to form a double cross which has a lateral movement in the guide channel 7, in which the trigger 6 moves. The lower portions of the cross arms 6' and 9 carry laterally the free end of the leaf spring 5, and the upper portion of said cross arm 9 is in abutting relation with the shaft of the locking bolt 10.

The locking bolt is provided in its lower portion with a transverse groove 11 and a longitudinal projection 12, in which portions the upper part of the cross arm 9 can move. The device is operated in this case as follows:

The locking bolt is supposed to be adjusted in unlocked position in a door.

In this position, the cross arm 9 of the trigger 6 is within the groove 11 of the shaft of the locking bolt 10. When shutting the door, the end 13 of the trigger 6 strikes against the door frame and, as a consequence,

the cross arm 9 moves out of the groove 11 remaining in rest on one side of the projection 12, which causes the locking bolt to move forward, under the action of the spring 14, so that the door is locked.

In order to restore the locking bolt to its unlocked position, the latch (not shown) of the door must be pressed down to turn a pivoted tumbler 14' against the action of a helical spring 14'', said tumbler 14' engaging a projection 14''' on said locking bolt to retract the same. Whereupon the piece 9, under the action of the spring 5, enters once more the groove 11 of the locking bolt 10, so that the door remains unlocked.

Referring now to Figures 7 and 8, the construction is as follows:

On the internal face of the lock there is provided a piece 15 with a projection 16, on which a spring 17 is fastened, said spring operating the pivoted trigger 18, which carries in its lower portion an extension 19 moving in a groove 20 provided in the shaft of the locking bolt 21. One end 22 of the trigger 18 pivots on the projection 16 in which also the spring 17 is secured.

Operation of the device in this case is as follows:

When the bolt is in unlocked position, the extension 19 of the trigger 18 is within the groove 20 of the locking bolt 21. When the end 23 of the trigger strikes against the frame work of the door, it moves and the extension 19 moves out of the groove 20, through the longitudinal channel bore 20' close to the mentioned groove 20 of the locking bolt 21, so that this latter is cleared, escapes and locks the door, in which action it is aided by the spring 24 fastened on one side in the shaft of the locking bolt 21 and on the other side, in a piece 25 fixed in the lock.

In order to restore the device to its unlocked position, the latch must be pressed down to turn a pivoted tumbler 14' against the action of a helical spring 14'', said tumbler 14' engaging a projection 14''' on said locking bolt to retract the same. Whereupon the extension 19 of the trigger 18 enters under the action of the spring 17 the groove 20 in the shaft of the locking bolt 21, so that this latter remains in unlocked position.

Referring now to Figures 9 and 10, the modification shows the following construction.

In the lock as illustrated, the locking bolt 26 is actuated by a spring 26', by which it is moved outward when carrying out the locking operation. The shaft of the bolt 26 has a notch 26'' in which a trigger 30 can make a pivotal movement by means of a shaft 30' the ends of which are in the body of the bolt 26. One of the ends 30'' of the trigger 30 which is curved, projects from the locking bolt and the other end 30''' formed by an extension is actuated by a spring 27

on the locking bolt 26. The end 30''' is moved by the spring 27 to abut the inside of the wall of the lock and enters the hole 28, situated in the mentioned wall. In connection with this, the keeper 29 can have a notch 29' or eventually, this notch may be arranged in the frame work of the door.

The operation of the locking device in this case is as follows:

When the locking bolt 26 is in its unlocked position and the door is shut, then the end 30'' of the trigger 30 passes through the notch 29' of the keeper 29 or its equivalent, striking against the door frame and consequently, the extension 30''' moves out of the hole 28 clearing the locking bolt 26, which is impelled by the spring 26' and locks the door.

In order to restore the device to its unlocked position, the latch is pressed down in the manner previously described, whereupon the locking bolt moves back, and the extension 30''' through the pivotal movement of the piece 30' enters the hole 28 under the action of the spring 27, so that the whole device remains in unlocked position.

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

A spring lock for doors comprising a solid quadrilateral locking bolt having a longitudinal projection and provided with a transverse groove, resilient means normally maintaining said locking bolt in locking position, a forked piece having two branches provided with aligned transverse guide channels, a small bolt mounted on the lower portion of said forked piece, a trigger slidably mounted in said guide channels, two cross arms on said trigger between the branches of said forked piece, one of said cross arms being adapted to enter said groove when said locking bolt is in completely retracted position and abut said projection in other positions of said locking bolt and a leaf spring mounted on said small bolt engaging said trigger between the lower ends of said cross arms normally actuating said trigger to abut said projection and enter said groove of said locking bolt.

In testimony whereof I have signed my name to this specification.

JOSÉ DESPLATS.