Sept. 9, 1947. G. J. HOLANBEK ET AL 2,427,281

EMERGENCY LOCK RELEASE

Filed Dec. 26, 1944

FIG. 1.

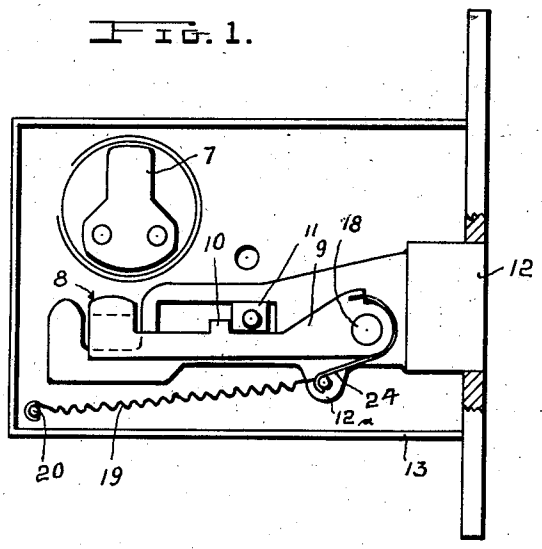


FIG. 3.

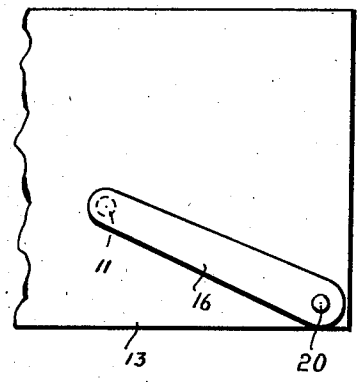


FIG. 4.

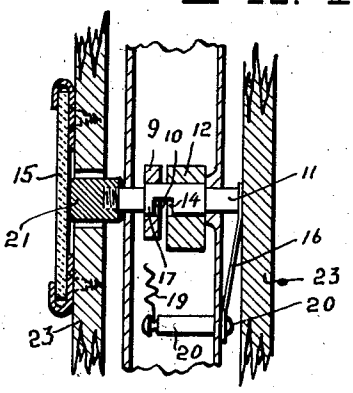


FIG. 2.

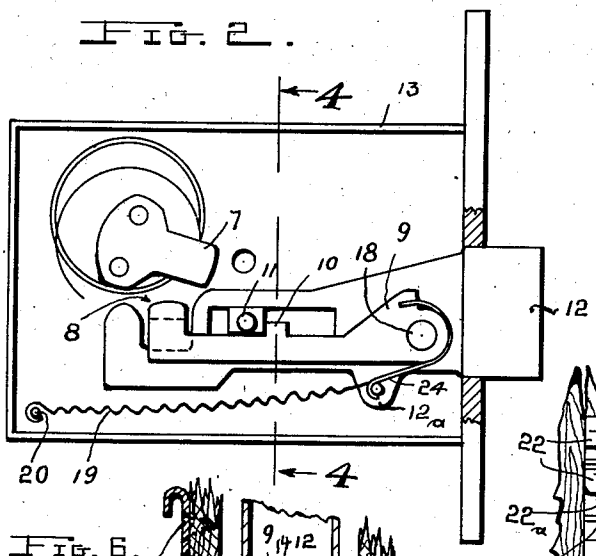


FIG. 5.

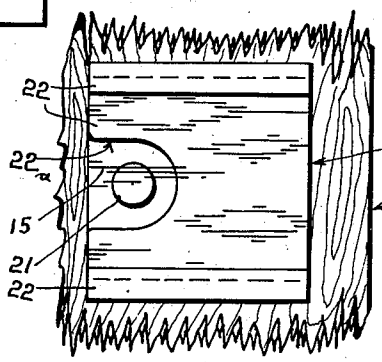
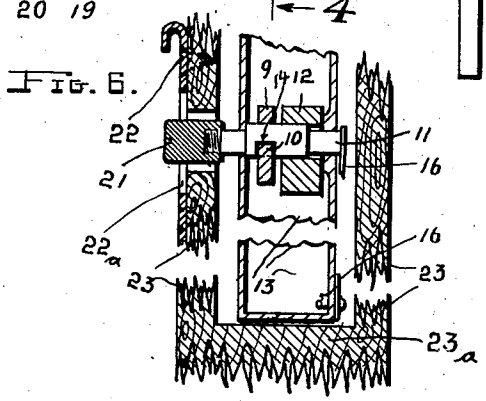


FIG. 6.



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EMERGENCY LOCK RELEASE

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3 Claims. (Cl. 70—465)

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This invention relates to locks generally put on doors that may normally be kept locked but that may require opening under emergency, such as fire, to then allow a free escape through such doors by simple means.

One of the objects of this invention is to provide an automatically operating release of the bolt-catch that may be set free by a breaking of a fragile sheet, such as glass.

Another object is to provide means whereby the proper operation of such a device may easily be ascertained by an inspector, or official, without breaking such a fragile member.

Another object is to provide means by which the lock will operate in the normal manner by means of a key as long as the fragile member is in proper position.

Another object is to provide such automatically operating means of such a construction that may easily be applied to any normally existing lock.

Other objects will appear from the following description and appended claims as well as from accompanying drawing, in which—

Fig. 1 is a common door lock, from which the cover has been removed and parts broken away for clearer illustration and to facilitate a proper explanation of inside parts.

Fig. 2 is a similar illustration, in which the bolt has been advanced to locked position and the operating member turned to the position just leaving the bolt.

Fig. 3 is a rear-side view of the same lock, of which the front end has been broken away, merely to indicate the position of an added spring on the outside of the lock.

Fig. 4 is a fragmentary section through the lock on line 4—4 of Fig. 2, having a small portion of door material added, with a cross section of a fragile member inserted in a holder on the outside of the door.

Fig. 5 is a fragmentary side elevation of the fragile member and holder as seen from the outside.

Fig. 6 is a fragmentary section similar to Fig. 4, having the fragile member removed, and, thereby, the bolt-catch-stop released so that the bolt with catch may move freely without key.

A lock of the type illustrated is commonly operated by means of a key that may properly coact with a tumbler so that the operating member 7 may be turned to press upon the end 8 of the catch 9 until the lug 10 frees the stop 11 for moving the bolt 12 to, either, locking, or unlocking

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position; the bolt being in unlocked position in Fig. 1.

Since the stop-post 11 is commonly securely mounted in the housing 13 of the lock, the bolt 12 can then normally not be operated any other way but by means of the key.

In this case, the stop-post is mounted movably; and is provided with a slot 14 of a width at least equal to the thickness of the catch-lug 10, to operate in the manner illustrated in Figs. 4 and 6.

For the normal operation of the lock, the stop-post 11 is held in its proper position by the fragile sheet 15 against the action of the added spring 16. In this position, as illustrated in Fig. 4, the portion 17 of the stop-post is in the path of the lug 10 on the bolt-catch 9. Inasmuch as the bolt-catch 9 is positively connected to the lock-bolt 12, by means of the pivot-pin 18, the bolt as well as the catch are held against movement unless actuated by key-operation.

However, when the fragile sheet 15 is removed from its illustrated position in Fig. 4; the stop-post 11 moves automatically to the position illustrated in Fig. 6 under the tension of the spring 16. In this moved, or outwardly shifted position, the slot or cut-out 14 takes the position to be in the path of the lug 10 of the bolt-catch 17, whereby the latch becomes freed to move. An extra spring 19 serves to automatically withdraw the bolt from the locking position into the unlocked position illustrated in Fig. 1. One end of each of the springs 16 and 19 is held by the common pin 20.

The tension of the spring 19 always acts on the bolt 12 in such a way as to draw the bolt inwardly into the lock from the position illustrated in Fig. 2. On the other hand, the bolt is held against such a movement by the catch 9 as long as the lug 10 is engaged by the stop-post 11. The portion 17 of the stop-post 11 is in the path of such a movement as long as the post is held in the position by the fragile member 15.

In case of emergency, the fragile member may be broken, at which moment the post 11 is forced outwardly, whereby the post takes the position in which it is illustrated in Fig. 6, bringing the slot, or cut-out, 14 into the path of the catch so that this is free to move, together with the bolt under the tension of the spring 19.

The fragile member 15 is securely held to the door by the holder 22, which has a cut-out 22_a by way of which the post can abut against the fragile member without interference by the holder. A separate head-portion 21 is provided in the post 11 to facilitate the insertion and removal

of the lock with respect to the cavity provided in the door for the lock in such a case, there being only the thinner portions of the door at both sides of the inserted lock at 23 in the full thickness of the door 23_a as illustrated in Fig. 6.

The bolt-catch 9 is under the tension of the spring 24, which holds the catch in its normal locking position. This spring, together with one end of the spring 19, are supported by the lug 12_a on the bolt 12.

The front edge of the holder, with inserted fragile member, indicated at 22_b, is suitably set back from the front edge 23_b of the door, being approximately the distance necessitated by the abutment of the door against the door-jamb.

In this position, illustrated in Fig. 5, any unauthorized removal of the fragile member would normally be difficult, since such a holder would normally be in a position to bring the opposite edge near the key-plate and other lock parts, so that a removal of the fragile member from the holder would be restricted in either direction.

However, the official inspector could easily unlock the door, since usually in possession of a pass-key, to then be enabled to shift the fragile member sufficiently in order to assure himself of the proper functioning of the automatic operation of the stop-post whereby the bolt will snap back into the lock, without that the inspector would have to break the fragile member for such inspection, or test.

Having thus described our invention, we claim:

1. In a lock, in combination with a normally functioning key-operated lock-bolt having a guiding-slot, and with a normally functioning key-operated catch operatively mounted on the lock-bolt and having a catch-lug projecting crosswise over said guiding-slot for positively holding the lock-bolt in locked as well as in unlocked positions; a stop-post slidingly mounted with respect to said guiding-slot for guiding the lock-bolt and being shiftably disposed transversely to the sliding movements of the lock-bolt and interferingly in the path of said catch-lug and embodying a releasing-slot in the stop-post forming releasing means for the catch-lug when the stop-post is shifted to releasing position for automatically releasing the lock-bolt from locking position while the catch with its lug is in locking position on the lock-bolt and across the guiding-slot.

2. In a lock, in combination with a normally functioning key-operated lock-bolt having a guiding-slot, and with a normally functioning key-operated catch operatively mounted on the lock-bolt and having a catch-lug projecting crosswise over said guiding-slot for positively holding the lock bolt in locked as well as in unlocked positions; a stop-post slidingly mounted with respect to said guiding-slot for guiding the lock-bolt and being shiftably disposed transversely to the sliding movements of the lock-bolt and interferingly in the path of said catch-lug and embodying a releasing-slot in the stop-post forming releasing means for the catch-lug when the stop-post is shifted to releasing position for automatically releasing the lock-bolt from locking position while the catch with its lug is in locking position on the lock-bolt and across the guiding-slot, and actuating means for the automatic moving of the lock-bolt and catch from locking to unlocking position upon a suitable shifting of the stop-post.

3. In a lock, in combination with a normally functioning key-operated lock-bolt having a guiding-slot, and with a normally functioning key-operated catch operatively mounted on the lock-bolt and having a catch-lug projecting crosswise over said guiding-slot for positively holding the lock-bolt in locked as well as in unlocked positions; a stop-post slidingly mounted with respect to said guiding-slot for guiding the lock-bolt and being under the tension of a spring shiftably disposed transversely to the sliding movements of the lock-bolt and interferingly in the path of said catch-lug and embodying a releasing-slot in the stop-post forming releasing means for the catch-lug when the stop-post is shifted to releasing position for automatically releasing the lock-bolt from locking position while the catch with its lug is in locking position on the lock-bolt and across the guiding-slot, a fragile member mounted to hold the stop-post in normal catch-stopping position against the spring, the fragile member being mounted so that it may be broken to release the stop-post to act under the spring tension to thereby move the stop-post away from stopping and interfering position with respect to the catch-lug and lock-bolt to permit automatic withdrawing of the lock-bolt from locking to unlocked position, and there being means for so automatically withdrawing the lock-bolt.

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