Feb. 4, 1936. J. V. EICHEL, JR 2,029,991

PANICPROOF LOCK

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Fig. 1.

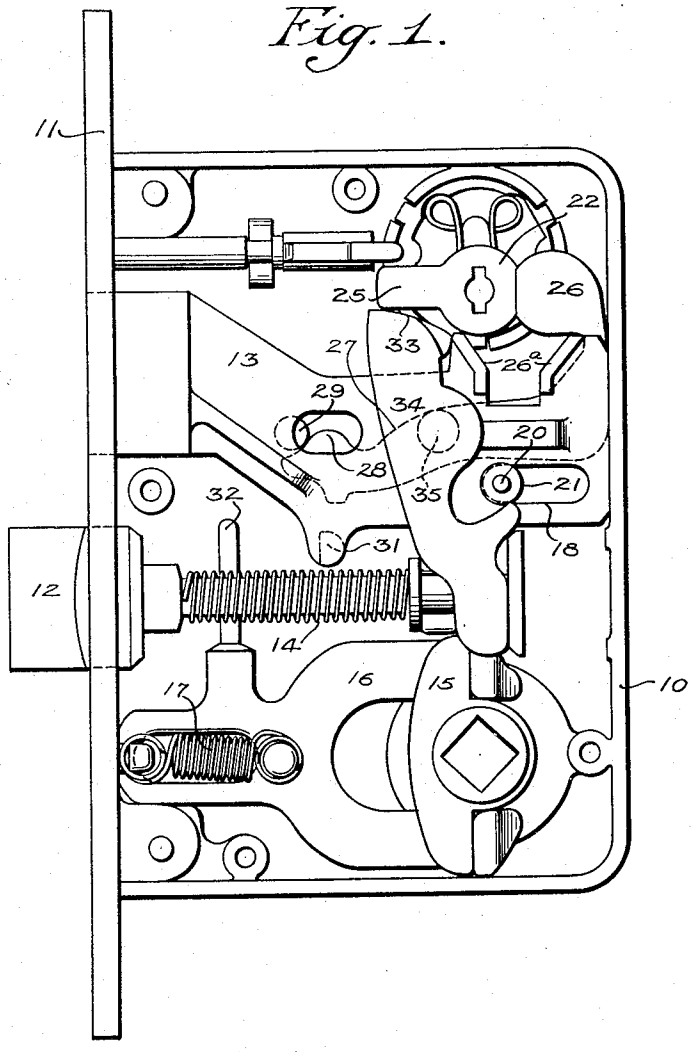
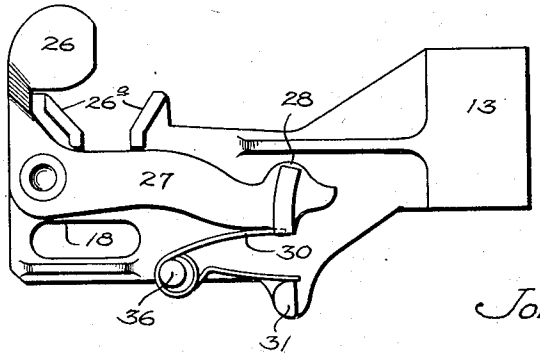


Fig. 4.



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Fig. 2.

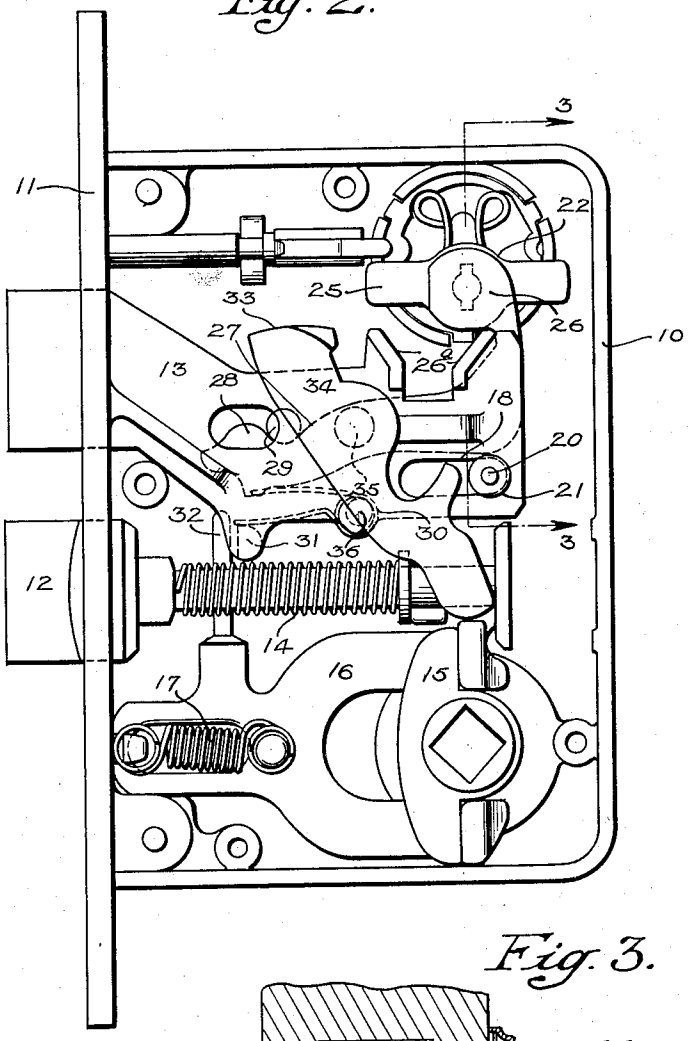
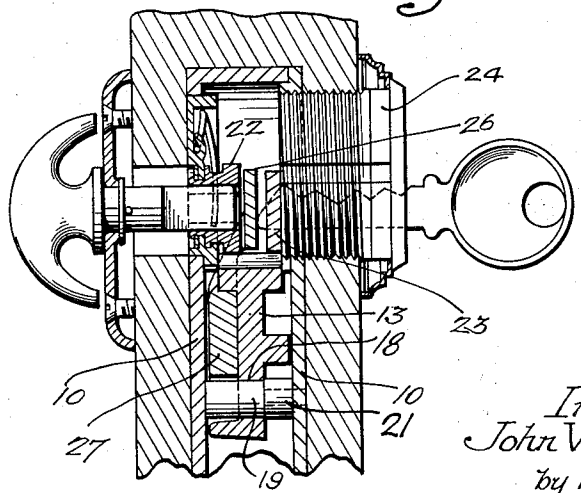


Fig. 3.



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UNITED STATES PATENT OFFICE

2,029,991

PANICPROOF LOCK

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Application March 23, 1935, Serial No. 12,696

6 Claims. (Cl. 70—29)

This invention relates to panic-proof locks, and more particularly to locks especially adapted to use in ships and the like.

An important object of the invention is the provision of a panic-proof lock in which the usual latch and dead bolts are provided and in which, without regard to the positions of these elements, the door may be always opened by a room occupant by merely turning the knob.

Another object of the invention is the provision of a lock of this character insuring privacy to the room occupant when the dead bolt has been shot, the construction being such that with the dead bolt in position it is impossible to enter the room with any other than the occupant's key or an emergency key.

I am aware that the objects above outlined have been heretofore given consideration in the construction of locks, but the devices of this character with which I am familiar have never had both of these features incorporated in a single lock, and have been of such complicated nature that the locks are difficult to maintain in operative condition. Accordingly, a more specific object of the invention is the provision of a lock containing these features which is extremely simple in its construction and in which the use of pivoted parts is reduced to a minimum and the only pivoted parts provided are of such character that they may be very ruggedly and durably constructed.

These and other objects I attain by the construction shown in the accompanying drawings wherein, for the purpose of illustration, I have shown a preferred embodiment of my invention and wherein:

Fig. 1 is a side elevation of the lock with the case face removed, the dead bolt being withdrawn;

Fig. 2 is a similar view showing the dead bolt projected;

Fig. 3 is a section on line 3—3 of Fig. 2; and

Fig. 4 is an elevation of the opposite side of the latch bolt from that shown in Figs. 1 and 2.

Referring now more particularly to the drawings, the numeral 10 designates a lock casing having a face plate 11 through which is slidably directed the usual latch bolt 12 and a dead bolt 13, the latch bolt being normally extended through a spring 14. This latch bolt may be retracted through a roll-back 15 operating through a yoke 16 upon the latch bolt shank, the yoke 16 being held in its normal position by the usual spring 17.

The dead bolt 13, in addition to the guide provided by the plate 11, is at its inner end provided with a slot 18 receiving a stud 19 formed on one wall of the case, this stud having a reduced extension 20 mounting a roller 21, the purpose of which will presently appear. The upper face of the inner end of the latch bolt is disposed adjacent opposed rotatable members 22 and 23 comprising respectively a dead latch operator actuated from the interior of the room and the cylinder of a lock 24, each of these rotatable elements having an operating lug 25 for co-action with suitable camming faces 26a formed on the dead bolt. The inner ends of the rotatable members 22 and 23 are spaced from one another sufficiently to admit the key shield 26 carried by the latch bolt and disposed, when the latch bolt is in "shot" position, in alignment with the key slot of cylinder lock 24. In the present instance, this key shield is illustrated as formed upon the tail of a detent lever 27 having at its forward end a cam lug 28 co-acting with a fixed lug 29 upon the lock case to complete the movement of latch bolt 13 when the dead bolt shall have been moved from either of its positions for a predetermined distance toward the other of its positions. A spring 30 insures the proper camming action. This dead bolt is provided with a lug 31 extending in the path of a tongue 32 rigidly fixed to the knob yoke 16 and so positioned that when the dead bolt is in "shot" position the lug 31 lies in close proximity to the tongue 32 and in the path of movement thereof when the latch bolt is being withdrawn through this yoke so that the dead bolt, if in "shot" position, is returned to its inoperative position simultaneously with actuation of the latch bolt.

It is contemplated that this lock shall be employed with a dummy knob at the exterior of the door and an actuating knob at the interior thereof, and it will be obvious that even though the room occupant dead-bolt his door, he may immediately open the same simply by rotating the knob, this action withdrawing both the latch and dead bolts. At the same time, due to the fact that actuation of the dead bolt is not through the latch bolt 12 but through the yoke of the roll-back, and the roll-back and latch bolt are not interlocked in any way which would permit actuation of the yoke from the latch bolt, it would be impossible to withdraw the dead bolt through any inserted element which would force the latch bolt back to inoperative position.

With the dead bolt in its operative position and shield 26 interposed in the path of the key slot of the cylinder lock, it is imposible for any one

to enter the room other than a person having either an occupant's or an emergency key, these keys being made shorter than the keys provided to chambermaids, stewards or the like. The longer key, striking against the shield cannot properly align with the tumblers of the lock so that the rotatable element **23** may not be operated. The shorter key properly aligning with the tumblers will, however, rotate the part **23** withdrawing the bolts **12** and **13** if both have been applied.

If the room occupant has left the door on the latch upon leaving the same, the key slot is unobstructed and the longer key may be utilized for entry, the lug of the cylinder lock engaging against the cam face **33** on the upper end of a lever **34** pivoted at **35** upon the dead bolt **13**. Roller **21** has as its primary purpose maintenance of the inner end of the dead bolt in its proper position. It will be noted that this roller has a diameter greater than the width of slot **18** so that it overlies the edges of the slot and, being disposed between the dead bolt and one wall of the casing, maintains the dead bolt in proper relation to the other wall thereof to prevent the formation of any space which would permit escape of a convolution of the spring **30** from its mounting lug **36**. This roller, however, also acts as a guide roller for lever **34**.

The disposition of the key shield upon the lever **27** serves another function than that of merely providing a mounting therefor. It will be noted that the lock illustrated is of the one and one-half key rotation type, that is to say, with the dead bolt shot it is first necessary to rotate the key to withdraw the dead bolt and then partially rotate the key to bring the lever **34** into position where it may be contacted by the key-operated lug. This is due to the fact that the lever **34** is carried by the dead bolt and is, accordingly, moved out of the path of the key lug when the dead bolt is shot. Obviously, if a room occupant leaves the door on the latch, the longer key of the chambermaid or steward may be inserted. Prompt interposition of the shield **26** is necessary to prevent this key being manipulated sufficiently to spring the lock, particularly in view of the fact that the bolt is of the cam type. With the arrangement shown, the minute any move is made to shoot bolt **13** the camming action between the lug **29** and cam surface **28** rocks lever **27** upon its pivot, throwing the key shield toward the key slot and into the path of rotation of the key, this motion being, of course, coupled by a slight movement on the part of the bolt itself; thus, the type of mounting provided serves to augment the movement of the shield to its shielding position during the primary dead bolt movement. If any attempt is made to operate the longer key to shoot the bolt from the outer side of the door, the shield will immediately contact with the key, necessitating its withdrawal without shooting the bolt and at a point where the bolt, if slightly extended, will be withdrawn by the camming action of cam **28** against the member **29**.

Since the construction illustrated is capable of considerable modification without in any manner departing from the spirit of my invention, I do not wish to be understood as limiting myself thereto except as hereinafter claimed.

I claim:

1. In a lock, a latch bolt, a dead bolt, a roll-back yoke having portions to contact and simultaneously withdraw both said bolts from operative to inoperative position, either of said bolts being movable from operative to inoperative position independently of any movement of the roll-back yoke or of the other of the bolts and key-operated means to move said bolts.

2. In a lock, independently movable latch and dead bolts, a roll-back yoke, said latch bolt and dead bolt each having a portion arranged in the path of movement of a portion of the roll-back yoke whereby both bolts may be simultaneously withdrawn, the portions of said bolts engaged by the portions of the yoke being each so disposed with relation to said portions of the roll back yoke that either of the bolts may be withdrawn from operative position without contact with the associated yoke portion and key-operated means to move said bolts.

3. In a lock, a latch bolt, a dead bolt, a roll-back yoke having portions to contact and withdraw both said bolts from operative to inoperative position, either of said bolts being movable from operative to inoperative position independently of any movement of the roll-back yoke or of the other of the bolts, key rotatable means operable from one face of the lock to withdraw either of the bolts, and means limiting the extent of key insertion when said dead bolt is in operative position.

4. In a lock, independently movable latch and dead bolts, a roll-back yoke, said latch bolt and dead bolt each having a portion arranged in the path of movement of a portion of the roll-back yoke whereby both bolts may be simultaneously withdrawn, the portions of said bolts engaged by the portions of the yoke being each so disposed with relation to said portions of the roll-back yoke that either of the bolts may be withdrawn from operative position without contact with the associated yoke portion, key rotatable means operable from one face of the lock to withdraw either of the bolts, and means limiting the extent of key insertion when said dead bolt is in operative position.

5. In a lock, a dead bolt, a key-rotatable member to withdraw or extend the dead bolt, a shield carried by the dead bolt and moving as the bolt is shot into the path of an inserted key and means to provide an initial movement of the shield to its shielding position which is augmented beyond the movement of the dead bolt.

6. In a lock, a dead bolt, a key-rotatable member to withdraw or extend the dead bolt, a lever pivoted to the dead bolt, a shield mounted on the lever and disposed, when the dead bolt is extended, in the path of an inserted key, and means engaging the lever during initial movement of the bolt from inoperative toward operative position and moving the shield-bearing portion of the lever in the direction of movement of the bolt.

JOHN V. EICHEL, JR.