May 28, 1940. H. F. YOE 2,202,075

FIRE EXIT DEVICE WITH OUTSIDE CONTROL

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FIG. 2

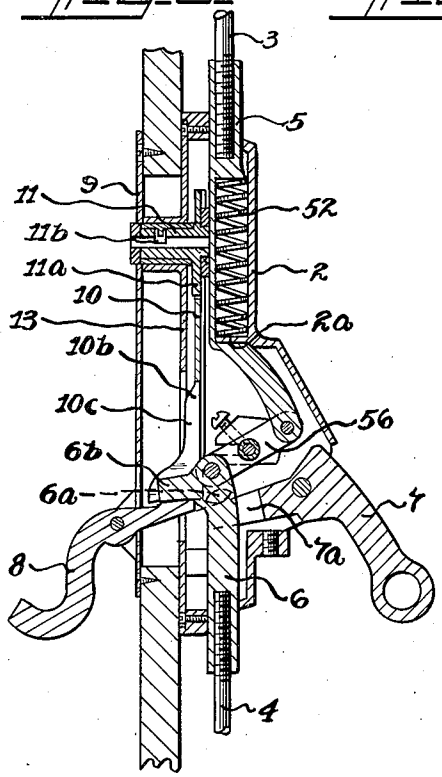


FIG. 1

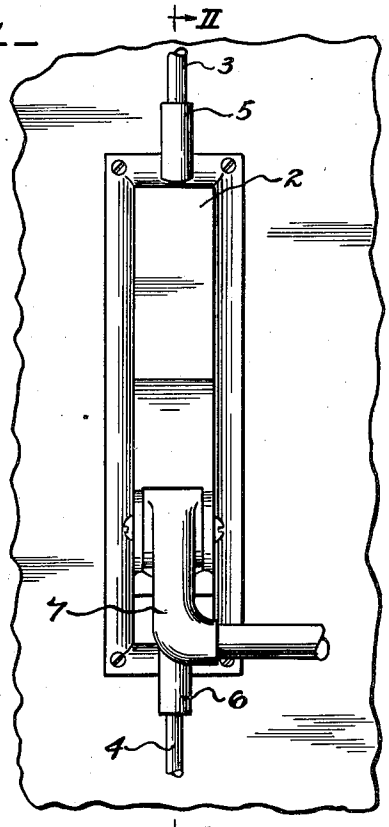


FIG. 4

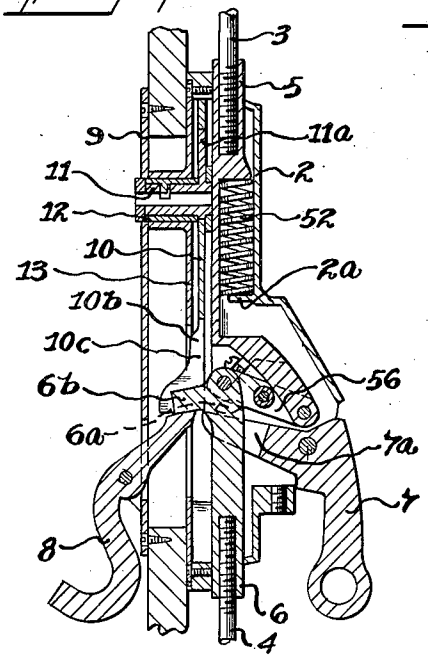
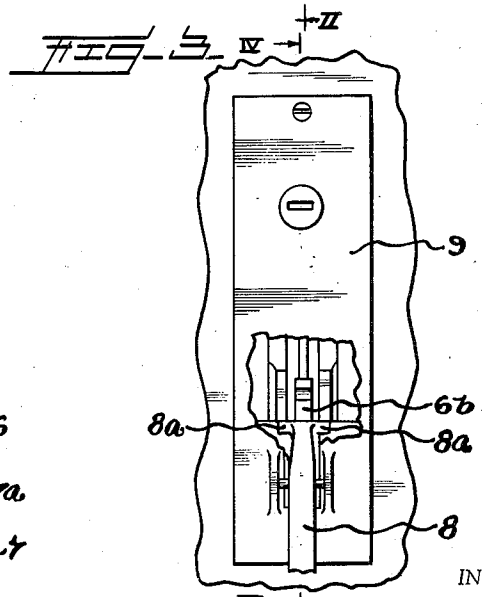


FIG. 3



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FIRE EXIT DEVICE WITH OUTSIDE CONTROL

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FIG. 5

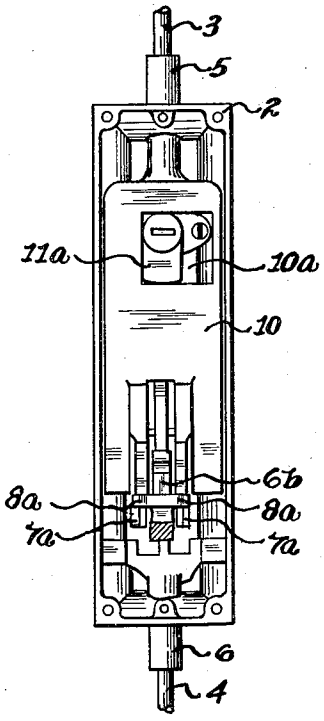


FIG. 6

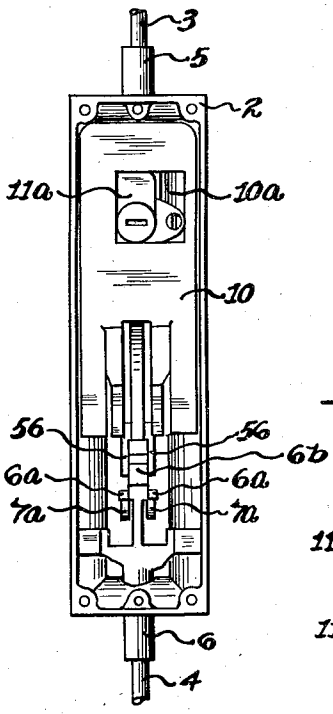


FIG. 7

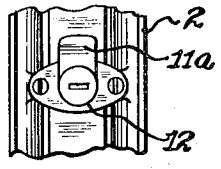


FIG. 8

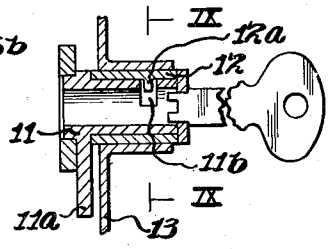


FIG. 9

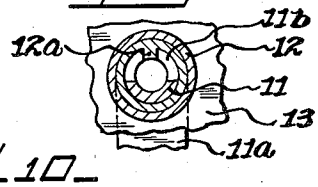


FIG. 11

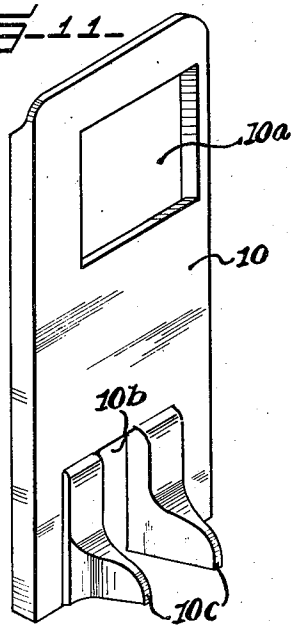
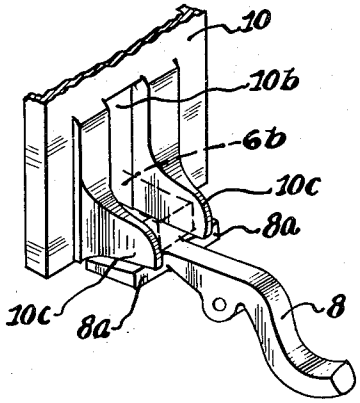


FIG. 10



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Patented May 28, 1940

2,202,075

UNITED STATES PATENT OFFICE

2,202,075

FIRE EXIT DEVICE WITH OUTSIDE CONTROL

Henry F. Yoe, Grosse Pointe Park, Mich.

Application April 27, 1938, Serial No. 204,591

2 Claims. (Cl. 70—92)

My invention relates to door locks and especially to that kind called panic locks and the object of my improvements is a rim type fire exit device for top and bottom locking and with outside operation by a thumb piece, and mechanism for locking the thumb piece.

I secure this object in the device shown in the accompanying drawings in which:

Fig. 1 is an elevation of a lock in which my invention is embodied looking from the inside of the door;

Fig. 2 is a section on the line II—II, Fig. 1, the parts being in the locked position;

Fig. 3 is an elevation looking from the outside of the door or as seen from the left of Fig. 4, a part being broken away to show the interior construction;

Fig. 4 is a section on the line IV—IV, Fig. 3, the parts being in the unlocked position;

Fig. 5 is an elevation, the outside cover plate being removed, the parts being in the locked position, and the thumb piece being locked. A portion of the thumb piece is broken away;

Fig. 6 is a view similar to Fig. 5 the locking plate being raised to free the thumb piece so that it may unlock the door;

Fig. 7 is a detail showing the lock actuating device attached to the casing looking from the outside, the locking plate being removed;

Fig. 8 is a section through the axis of the lock actuating mechanism;

Fig. 9 is a section on the line IX—IX, Fig. 8;

Fig. 10 is a detail perspective view illustrating the relation between the locking plate and thumb piece;

Fig. 11 is a perspective view of the locking plate.

2 is the lock casing. 5 is a carrier or slide adapted to reciprocate vertically in the upper end of the casing 2 and being urged toward the upper end of its stroke by a compression spring 52 interposed between a lug 2a extending inward from the casing 2 and a shoulder on the carrier or slide 5. 6 is a carrier or slide adapted to reciprocate vertically in the lower end of the casing 2. 56 is a double armed lever pivoted at its center upon the casing 2. The inner ends of the carriers 5 and 6 are pivoted to opposite ends of the lever 56.

7 is a lever, pivoted upon an extension from the casing 2 and having a forked arm 7a extending inward and engaging under laterally extending lugs 6a (Fig. 6) upon both sides of the carrier 6. 3 is a rod extending upward from the carrier 5 adapted to actuate bolts at the top of the door; and 4 is a similar rod extending downward from the carrier 6 and adapted to actuate the bolts at the bottom of the door.

By pressing inward on the outer arm of the lever 7, the inner end of said lever is caused to raise the carrier 6 and through the double armed lever 56, lower the carrier 5, thus withdrawing the locking bolts at the top and bottom of the door.

The above described apparatus is a known form of lock and it can only be operated from the inside of the door by the lever 7. It is sometimes desirable to have the lock temporarily operable from the ouside. To this end I have provided a lug 6b extending outward from the upper end of the carrier 6 and a thumb piece 8 pivoted at its center to the outer cover plate 9 extending inward and engaging under the lug 6b and extending outward into position to be conveniently manipulated. 8a—8a are laterally extending lugs at the inner end of the thumb piece. The thumb piece 8 and its lugs 8a may be referred to as an outside unlatching operator means. By pressing downward on the outer end of the thumb piece 8 the carrier 6 may be raised and the carrier 5 lowered withdrawing the locking bolts as above described and as illustrated in Fig. 4.

I provide for locking the thumb piece, when it is not desirable that it should be operated, in the following manner.

10 (Fig. 11) is a locking plate having the rectangular aperture 10a in its upper end and the aperture or slot 10b, bordered by parallel lugs 10c at its lower end that extend outward from the surface of the plate 10. Said plate is adapted to reciprocate vertically in ways in the casing 2 so that the lug 6b will be between the lugs 10c with their lower edges in substantially one plane, when the parts of the lock are in position to secure the door and the plate is at the lower end of its travel which may be considered their normal position.

11 is a rotatable cylindrical piece having the eccentric cam 11a fixed to its end. 12 is a second cylinder fitting over the cylinder 11 coaxial therewith. The cylinder 11 has a slot 11b through its wall for a part of its circumference and the cylinder 12 has a lug 12a extending from it into the slot 11a. The construction being such as to permit of a relative semicircular rotation of the cylinders 11 and 12. The outer end of the cylinder 12 is closed and has a key slot in its closed end. The cylinders 11 and 12 are placed in a cylindrical bearing in the cover plate 13 of the lock with the cam 11a engaging in the aperture

10*a* of the plate 10. A key is inserted in the slot through the outer end of the cylinder 12 and turned to bring the cam 11*a* to the lower end of its travel as shown in Fig. 5 or to the upper end of its travel as shown in Fig. 6. In either position the bolts may be operated by the lever 7 as above described, the slot 10*b* in the plate 10 permitting a free movement of the lug 6*b*.

Inasmuch as the cylinder 12 may rotate a semicircle without carrying with it the cylinder 11, the key is turned a complete revolution in changing the cam 11*a* from one position to the other as above described.

When the plate 10 is at its lowest position, the lugs 8*a* on the thumb piece 8 are engaged by the lugs 10*c* (Fig. 5 and 10) which prevents said thumb piece from acting upon the lug 6*b* to raise the carrier 6 and withdraw the bolts as above described.

I claim:

1. In a panic type door lock the combination of, a lock casing, a slide adapted to be connected to a door bolt to be operated, guide means reciprocatively mounting said slide to slide vertically in the lock casing, a locking plate, means for slidably mounting said locking plate to slide vertically in said lock casing to reciprocate parallel to and adjacent said slide between two extreme positions and means for locking said plate in either extreme position, a pair of spaced lugs projecting laterally from said locking plate on the side remote from said slide, an aperture extending through said locking plate between said lugs, a lug projecting from said slide and extending through the aperture in said locking plate between said pair of spaced lugs so as to move between the pair of lugs when the plate is in one extreme position, outside unlatching means engaging across the aligned extremities of the three lugs when the slide is locked in said one position and adapted to actuate said slide for unlatching a door from the outside when said plate is locked in its opposite extreme position, and inside latching means engaging said slide independently of said locking plate for unlatching from the inside irrespective of the position of said locking plate.

2. In a panic type door lock the combination of, a lock casing, a slide adapted to be connected to a door bolt to be operated, guide means reciprocatively mounting said slide in said lock casing for moving a connected door bolt to latched or unlatched positions selectively, inside actuator means for moving said slide to unlatching position, a lug projecting laterally and outwardly from said slide, a locking plate, means for slidably mounting said locking plate to slide between two extreme positions in adjacent parallel relation to said slide, an aperture in said locking plate for receiving and permitting movement of said outwardly projecting lug, a pair of lugs projecting outwardly from the outside of said locking plate on opposite sides of said aperture so that said first mentioned lug moves therebetween as said slide is moved between latching and unlatching position by the inside actuator means and so that all three lugs have one extremity in alignment when said plate is in said one extreme position, outside unlatching means engaging across the aligned extremities of all three lugs when said plate is in said one extreme position to prevent the unlatching of a door from the outside at that time and adapted to unlatch a door from the outside when said plate is locked in its opposite extreme position, key controlled lock means for locking said locking plate stationary in either of its extreme positions, and inside latching means engaging said slide independently of said locking plate so that the slide can be moved from the inside for unlatching a door irrespective of the position of said locking plate.

HENRY F. YOE.