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2,473,205

FIRE ESCAPE CONTROL MECHANISM

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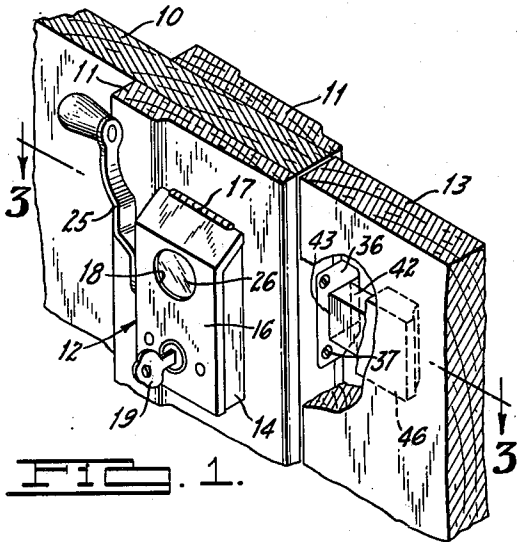


FIG. 1.

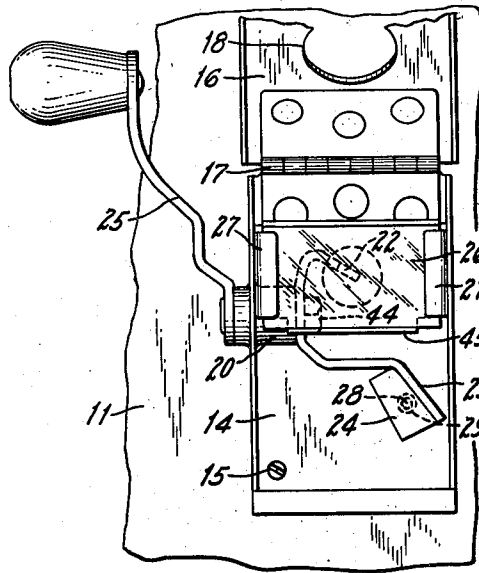


FIG. 2.

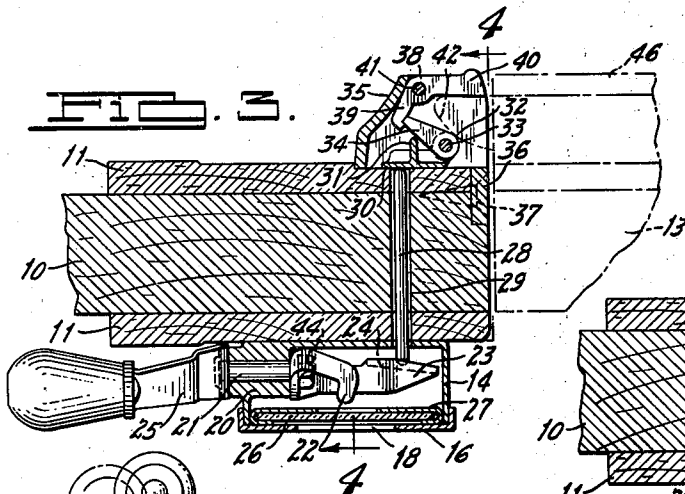


FIG. 3.

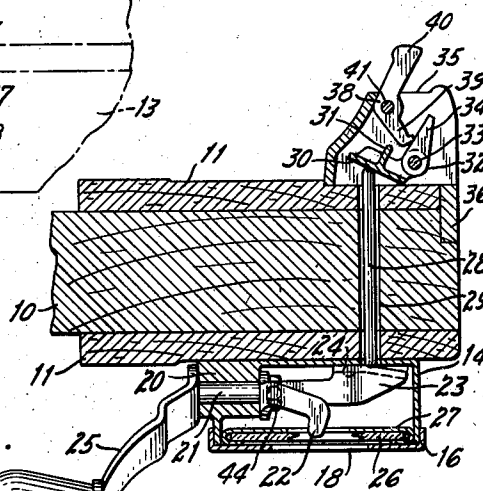


FIG. 4.

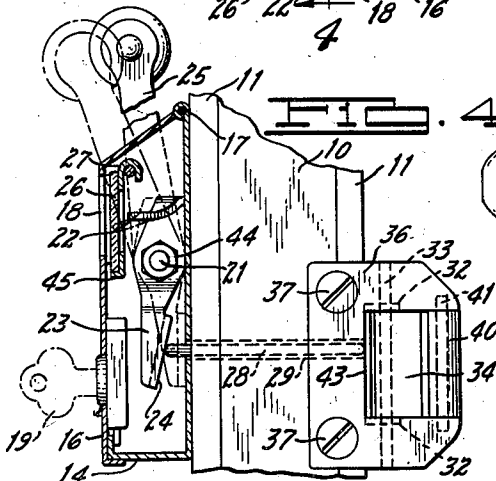


FIG. 5.

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FIRE ESCAPE CONTROL MECHANISM

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3 Claims. (Cl. 292—341.17)

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My invention pertains to a device which is especially designed for use in hotels, apartment houses, and the like, its purpose being to provide a fire-escape door which is, normally, closed against entry from outside with means whereby the door, in an emergency, may be opened quickly without any keys.

My device is contemplated to take the place of ordinary locks and to eliminate the need of keys which may not be in place in case of need, whether the absence of keys occurs by accident or by a deliberate act of a would-be wrong doer.

Another purpose of my device is to provide means which are normally enclosed in a case, and which may be operated only by breaking a glass window pane. This, in order to discourage tampering with the mechanism of my device and to indicate that the mechanism has been tampered with.

My further object is to provide a device of simple construction and very economical in cost, but one that may be installed quickly for use, and one which is reliable in action.

I shall now describe my invention with reference to the accompanying drawings in which:

Figure 1 is a perspective view of my device mounted on the frame of a door, of which frame a fragment is shown in conjunction with a fragment of the door;

Figure 2 is the enlarged front elevation of my device with its hinged cover swung upwardly to disclose operative members within;

Figure 3 is an enlarged sectional view taken on line 3—3 of Figure 1;

Figure 4 is a sectional view on line 4—4 of Figure 3;

Figure 5 is a sectional view of my device on line 3—3 of Figure 1 but disclosing operative parts therein in a different position.

Similar numerals refer to similar parts throughout the several views.

It will be understood that the door is formed within a wall structure 10, the frame of the door being marked 11. My device, generally indicated by numeral 12, is mounted on said frame 11 adjoining the free end of door 13 which is hinged at its opposite end in the customary manner in which doors are being hinged for operation. My device is enclosed in a case 14, substantially rectangular in shape, by means of screws 15, and includes a cover 16 hinged at 17 at the top of the case, and provided with a circular opening 18. A key 19 serves to operate a lock which may be built into the case of the door for the purpose of keeping the case normally locked.

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Disposed within the case in a bearing 20 which forms an integral part of a sidewall of the case, as best shown in Figure 3, is a short, horizontally extending shaft 21. The shaft, secured to the inner side of the case by means of a nut 44, is a lever having two arms extending substantially in opposite directions. One of said arms 22 extends upwardly, while the opposite arm 23 extends downwardly and is provided with a flat, integrally formed plate 24 disposed normally in a vertical plane parallel to the back wall of the case. Keyed to the shaft externally of the case is a crank handle 25 by means of which said two-armed lever may be operated.

Placed in a position to adjoin the upper arm 22 of the lever and back of the opening 18 in cover 16, is a thin pane of glass 26 held between two vertical tabs 27 and supported at the bottom by a horizontal ledge 45 as shown in Figure 4. The glass is loosely mounted in such a manner that it may be lifted out of place and another pane of glass may be substituted therefor. Extending transversely from a point behind the plate 24 on the lower arm of the lever rearwardly towards the outer wall of the frame 11, is a sliding pin 28. The bore in which the pin is disposed is marked 29. At what is the rear wall of the frame 11, said pin 28 abuts against the head 30 of a T-shaped member 31 including two eyes 32—one at top, the other at the bottom—for a pivoted support of the T-shaped member on a vertical pin 33. Mounted on the pin between said eyes 32 is a tongue-shaped member 34, henceforth referred to as a tongue.

The vertical pin 33 is journaled at its outer ends in the top and the bottom walls respectively of an enclosure 35 which is mounted on the outer side of door frame 11. The enclosure includes a transversely disposed mounting plate 36 secured to the frame, as best shown in Figure 3, by screws 37. Cooperating with the tongue 34, is a two-armed locking member 38 fulcrumed upon a vertical rod 41 disposed parallel to said vertical pin 33. One of said arms of the locking element, namely that marked 39, is normally disposed at right angle to the tip of tongue 34 in an abutting relation to said tip. The other arm 40 of said locking element 38 forms a locking bar for retention of a bolt 42 which extends from its mounting 46 on door 13.

It will be noted that the mounting plate 36 is provided with a rectangular opening 43 of a size permitting entry of said bolt 42. The disposition of the bolt 42 within said enclosure 35, specifically between the tongue 34 and the locking bar 40 of

lever 38, is shown in Figure 3. It is a position in which the door is locked against being opened from inside. In order to open the door 13 from inside, it will be necessary either to withdraw bolt 42 from its position between the tongue 34 and the locking bar 40, or to permit the locking bar 40 to be swung outwardly as shown in Figure 5. Specifically, how this can be accomplished will be described forthwith.

The locking engagement between the bolt and the locking bar 40 of my device has been described above. Assuming now that the door is to be opened, it will be necessary to have that locking bar 40 swung outwardly as above stated. To accomplish this, all that is necessary is to manually swing the crank handle 25 from its position as shown in Figures 1 and 3 downwardly. As the crank handle is attached to a two-armed lever within the case and as one of said arms 22 bears against glass pane 26, the downward swing of the crank handle may be accomplished only upon breaking of said glass. Simultaneously, plate 24 on the lower arm 23 of said lever will push pin 28 in the direction of the outer side of the frame 11 against the head 30 of the T-shaped member 31. The stem of that T-shaped member normally abutting a side of tongue 34 will push the tongue outwardly out of the abutting engagement with arm 39 of lever 38. This will result in a swing of locking bar 40 outwardly and out of the way of bolt 42, whereupon the door may be opened by being pushed from inside.

There is no automatic adjustment of the locking parts in my device whereby they would re-set themselves back to the normal position shown in Figure 3. As a result of that, the door once opened will remain in its unlocked position so that other persons may be free to leave the building through said door without the necessity of operating the crank handle. In order to re-set the operative parts of the device, specifically the tongue and the locking bar 40, the adjustment has to be made manually. This can be effected simply by manually pushing in the tongue 34 inwardly from the position shown in Figure 5 to the position shown in Figure 3.

It will be obvious that some changes may be made in the structure of my device without departing from the inventive principle disclosed herein. What I, therefore, wish to claim is as follows:

1. In combination with a door vertically hinged in a wall and including a bolt at the free end thereof, a device of the kind described including an enclosure on the outer side of the wall adjoining the free end of the door, a vertically pivoted two-armed locking member in said enclosure, a vertically pivoted tongue in said enclosure disposed normally at right angle to one arm of the member and being in abutment therewith, the other arm of the member forming a locking bar, the space between the tongue and the locking bar being adapted for reception of the bolt on the door, a case on the inner side of the wall, a hinged cover for said case, the cover framing a removable pane of glass therein, a two-armed lever fulcrumed within the case on a shaft disposed parallel to the rear wall thereof, one of said arms being in abutment with the pane of glass, the other arm bearing against a sliding pin disposed horizontally and extending outwardly of the case through the body of the wall

into said enclosure against the tongue therein, a crank handle to operate the two-armed lever in the case, a swing of the lever serving to break the glass and to push the pin against the tongue to swing the same out of engagement with the two-armed locking member.

2. In combination with a hinged door for an enclosed space and having a bolt on the end thereof remote from the hinge, a device of the kind described including an enclosure on the outer wall adjoining the free end of the door, an aperture in the enclosure for entry of the bolt, a two-armed locking member within the enclosure, one arm forming a locking bar and being disposed in the path of the bolt outwardly of the enclosure in its arcuate swing with relation to the hinge of the door, a pivoted tongue normally abutting at right angle the other arm of the lever to keep the locking bar in its bolt-blocking position, a case on the inner side of the wall in register with the enclosure on the outer wall, a hinged cover for the case framing a pane of glass therein, a sliding pin extending from within the case into said enclosure, a two-armed lever within the case, a handle to operate the same, one arm being adapted on operation of the lever to break the glass pane, the other to push the pin against the tongue to disengage it from its abutment with the two-armed locking member in the enclosure to swing the locking bar out of the way of the bolt.

3. In combination with a hinged door in a wall and provided with a bolt on the free side thereof remote from the hinge, a device of the kind described comprising an enclosure on the outer side of the wall and including a plate in a tangential relation to the free end of the door, the plate having an aperture for entry of the bolt into the enclosure, a pivoted two-armed locking member within the enclosure, one arm forming a locking bar for the bolt in the path of the bolt moving outwardly of the enclosure in an arc with respect to the hinge of the door, a pivoted tongue normally wedged at right angle to the opposite arm of said member, the space between the tongue and the locking bar being large enough to accommodate the bolt, a case on the inner side of the wall in register with the enclosure, a cover for the case framing a pane of glass parallel to the surface of the wall, a sliding pin extending from within the case against the side of the door in the enclosure, a two-armed lever fulcrumed within the case midway the length of the lever, one arm bearing against the pane of glass, the other arm bearing against the pin, a crank handle to swing the lever to force one arm against the glass to break it, the other against the pin to swing the tongue out of engagement with the two-armed locking member in the enclosure.

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The following references are of record in the file of this patent:

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