Aug. 31, 1948. O. J. BUNTEN 2,448,415

DOOR LOCK BOLT

Filed Jan. 9, 1947

Fig. 1.

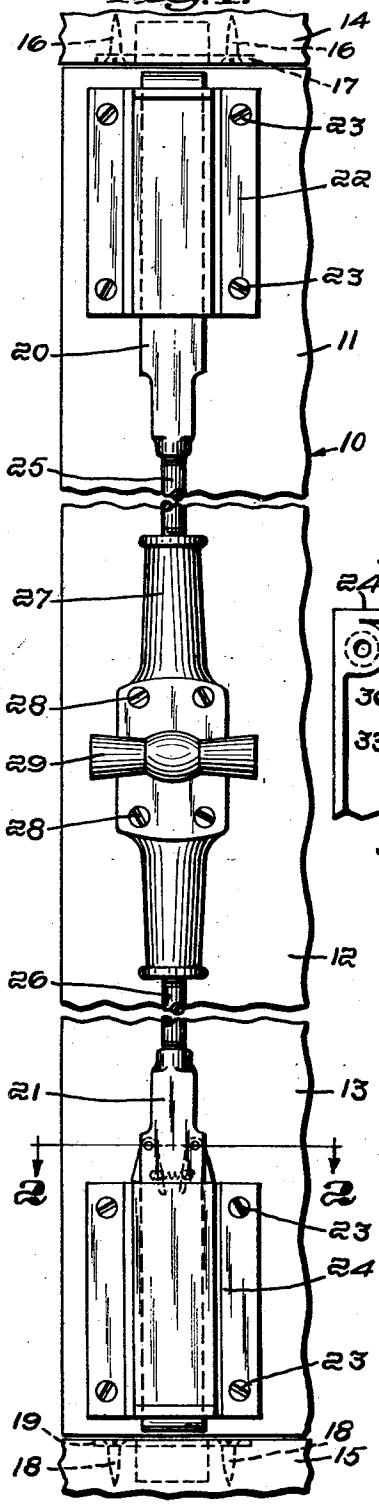


Fig. 2.

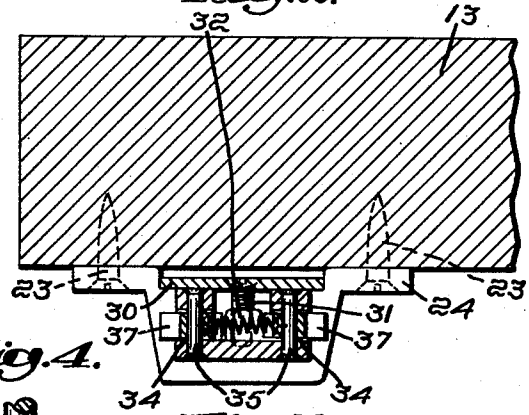


Fig. 4.

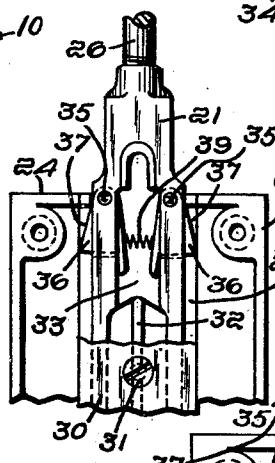
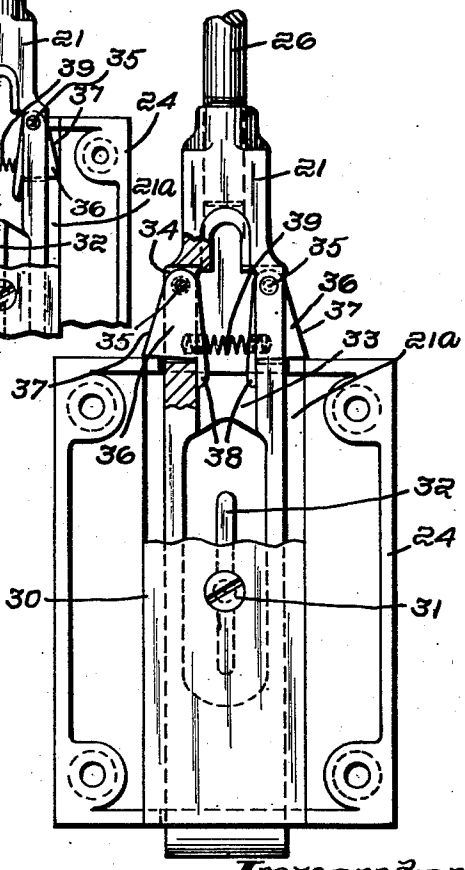


Fig. 3.



Inventor:
Oliver J. Bunten,
by Geo. B. Rawlings.
Attorney

Patented Aug. 31, 1948

2,448,415

UNITED STATES PATENT OFFICE

2,448,415

DOOR LOCK BOLT

Oliver J. Bunten, Cambridge, Mass.

Application January 9, 1947, Serial No. 721,059

2 Claims. (Cl. 292—138)

1

My present invention relates to vertical type locking bolts for doors, and particularly to a door bolt having means for preventing unauthorized operation thereof.

In certain situations, as for example, in stores, public halls, and the like, the doorway contains either a single or a double door equipped with locking means operable from the inside.

Such locking means is conventional and usually comprises a locking bolt at both top and bottom of the door, and an operating handle halfway between the top and bottom, together with connecting means extending between the locking bolts and operating handle whereby both locking bolts may be moved simultaneously to either locked or unlocked position when the handle is rotated.

In connection with such locks, as applied to store doors and the like, considerable annoyance and inconvenience has been occasioned by small boys tampering with them. Inasmuch as the doors are usually locked from the inside and when the door is opened, the bolt mechanism is in plain view, any person so inclined, may swing the door or doors shut and operate the handle so as to lock the door. This makes passage through such door impossible until someone from the inside unlocks and opens the door.

The mischievous individual is generally a small boy or girl and accordingly in designing a means to overcome this inconvenience while utilizing the conventional locking structure, I have associated with such locking structure as an integral part thereof a tamper-preventing mechanism which is separated from the operating handle for the door locking bolts a distance greater than the normal reach or span of the small individual when grasping said handle and simultaneously attempting to reach and operate the tamper-preventing mechanism. Preferably, my tamper-preventing mechanism is associated with the lower locking bolt of the conventional door-locking structure.

The object of my present invention therefore, is an improved means for preventing unauthorized tampering with a door locking means.

Another object is an improved means for positively holding a locking bolt in unlocked position.

Still another object is an improved locking means having locking bolts located at the top and bottom of a door and with handle means connected thereto for moving said bolts into and out of locking position, and with means associated with one of said bolts for holding said bolt

2

in unlocked position and for preventing the movement of said bolt into locking position except upon operation of the said means simultaneously with the operation of the handle.

Other objects and novel features of the construction and operation of the device will appear as the description of the invention progresses.

In the accompanying drawing illustrating a preferred embodiment of my invention:

Figure 1 is a fragmentary front elevation of a door and a conventional vertical type locking bolt equipped with my tamper-preventing mechanism.

Figure 2 is a sectional plan view, taken on the line 2—2 of Fig. 1, and looking in the direction of the arrows.

Figure 3 is a rear elevation of the bottom member of the locking device with parts broken away, and partly in section, and showing the tamper-preventing mechanism in position to hold the locking bolt in open, inoperative position, and

Figure 4 is a fragmentary view of a portion of Fig. 3, and showing the tamper-preventing mechanism in locking position.

Referring to the drawing, 10 designates a door, of which 11 designates the upper portion, 12 the middle portion, and 13 the lower portion. The door 10 may be a single door, or, more usually, one of a pair of doors fitted, for example, in a relatively wide doorway designated by the top casing member 14 and the lower casing member 15.

Fitted into the lower face of the top member 14, and secured thereto by screws 16, is the locking bolt socket 17. Fitted into the upper face of the lower member 15, and secured thereto by screws 18 is the locking bolt socket 19. Bolt sockets 17 and 19 are in alignment with upper and lower locking bolts 20 and 21 respectively.

Upper locking bolt 20 is slidably mounted in a casing 22 secured to the upper part 11 of the door 10 by screws 23, and lower locking bolt 21 is slidably mounted in a casing 24 secured by screws 23 to the lower part 13 of the door 10. Both locking bolts are connected by rods 25 and 26 respectively, to operating mechanism (not shown) contained in casing 27 secured to the middle portion 12 of the door by screws 28.

The operating mechanism (referred to but not shown) is conventional and is operated by the operating handle 29. As viewed in Fig. 1, operating handle 29 is shown in the door unlocking position, and locking bolts 20 and 21 are in their retracted position and therefore out of engagement with the locking bolt sockets 17 and 19.

When handle 29 is rotated clockwise, as shown in Fig. 1, both locking bolts 20 and 21 will be simultaneously moved into their respective locking sockets 17 and 19 to lock the door closed.

Associated with one of the locking bolts 20 or 21, preferably with the lower locking bolt 21, and slidably mounted in a channel or groove 21a in the lower casing 24 is my improved tamper-preventing device. Referring to Figs. 2, 3 and 4, locking bolt 21 is shown as held in sliding relation with casing 24 by a plate 30 secured in position by a screw 31 on a vertical web 32 projecting from casing 24. There is a channel 33 formed in the body of the locking bolt 21 and in the sides of the material forming the channel 33 are milled oppositely disposed grooves 34. A portion of the material of the locking bolt 21 is sectioned, see Fig. 3, to show one of such milled grooves 34.

Pivotally mounted at the top of and within the grooves 34, on pins 35 are locking members 36. As shown in Figs. 3 and 4, such locking members 36 each comprises a body having a cam surface 37 at its outer face inclining outwardly and downwardly, and with a depending projection or stop 38 on the inner lower edge of the body. Also, the medial inner edge of the body is recessed to receive the ends of an extension spring 39, which recesses hold such spring in operative position.

When the device is in the position shown in Figs. 2 and 3, the spring 39 will expand or open, swinging the locking members 36 outwardly on their pivots 35 until their outer lower ends extend beyond the limits defining the width of the groove 21a, this outward swinging movement terminating when the projections or stops 38 engage with the sides of the channel 33.

The locking bolts 20 and 21 are now out of engagement with the locking sockets 17 and 19 respectively, the handle 29 is in the position shown, and the tamper-preventing device illustrated in Figs. 2 and 3 will prevent operation of the device to again bring the bolts 20 and 21 into engagement with the locking sockets 17 and 19.

The distance between the operating handle 29 and the locking members 36 of the lower locking bolt 21 is too great to be spanned by a small boy or girl attempting to grasp both in the effort to lock the door 10. An adult however will have no particular difficulty in this regard. Such latter person will grasp the locking members 36 and swing the same inwardly in the grooves 34 until the lower outer ends thereof clear the same. Still holding the locking members 36 in compressed condition, the handle 29 will now be rotated counter-clockwise, as viewed in Fig. 1 and into vertical position. Such movement will force the bolt 21, and the locking members 36 downwardly in the channel or groove 21a, bringing the locking bolt 21 into engagement with the locking socket 19. As the bolt 21 moves downwardly as viewed in Fig. 3, the locking members 36 are gradually moved outwardly by the expansion of the spring 39 until they assume the position shown in Fig. 4.

The tamper-preventing device is positive in action, and mere inspection of the lower casing and parts carried thereby will not disclose to an immature person the presence or function of the locking members.

Furthermore, my device is of such design as to comply with existing fire laws.

While I have shown and described a preferred embodiment of my invention, it will be understood that various modifications in its construction and design may be resorted to within the spirit and scope of the invention as defined by the appended claims.

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

1. Means for preventing unauthorized tampering with a door locking bolt of the vertical type, comprising in combination with such locking bolt, operating means carried by the door at a point remote from the locking bolt and connected to the bolt, and means carried by the bolt for preventing movement of the bolt to locking position except upon simultaneous operation of the means carried by the bolt and the operating means.

2. In combination with a door casing secured to a door adjacent to the lower end thereof and having a vertically arranged groove, a locking bolt slidably mounted in said groove, said bolt having a vertical passage and having aligned grooves formed in the side walls of the locking bolt adjacent to the top end of said vertical passage, locking means pivotally mounted on said locking bolt and housed for swinging movement in said aligned grooves, a cam surface formed on the outer edge of the pivotally mounted locking means engageable during the movement of the locking bolt from locking to unlocking position, a stop formed on the inner lower end of each of the locking means and engageable with the locking bolt to prevent undue outward swinging movement of the pivoted locking means, and a spring positioned to move the locking means outwardly to bring the lower end thereof into engagement with the casing and with the stop engaging the locking bolt.

OLIVER J. BUNTEN.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
1,164,743	Musselman et al.	Dec. 21, 1915
2,171,663	Marchand	Sept. 5, 1939
2,233,699	Gorrell	Mar. 4, 1941