A. ARENS.

LOCK BOLT.

APPLICATION FILED FEB. 3, 1914.

1,140,343. Patented May 18, 1915.

Fig. 1.

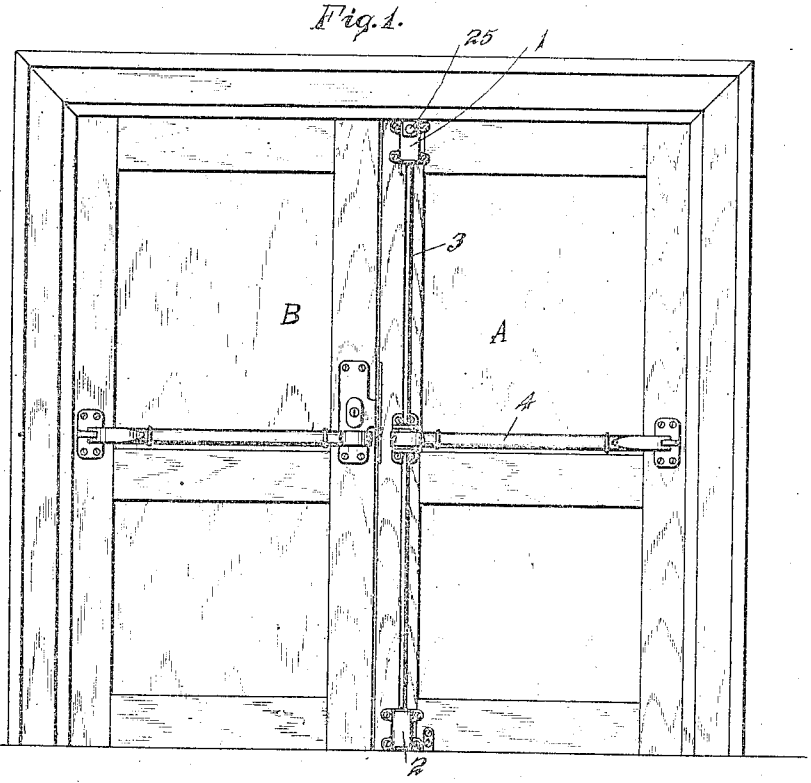


Fig. 2.

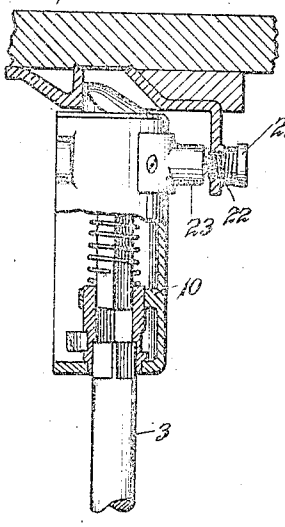


Fig. 3.

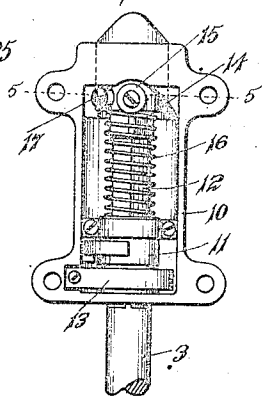


Fig. 4.

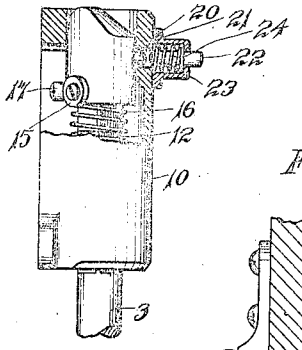


Fig. 5.

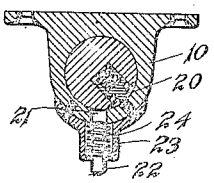
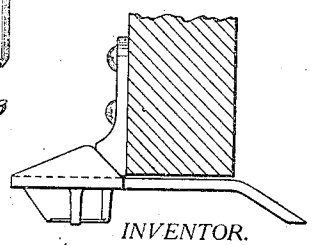


Fig. 6.



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LOCK-BOLT.

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To all whom it may concern:

Be it known that I, AUGUST ARENS, a citizen of the United States, and a resident of New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Lock-Bolts, of which the following is a specification.

This invention relates generally to a device for securing a lock bolt in its retracted position while a door is open, and for releasing that lock bolt when the door is closed.

It is particularly adapted for use in connection with what are known as anti-panic door fixtures such as are used in schools, theaters and other public buildings. These structures comprise a bolt at the top and bottom of a door, the bolts being connected by a rod, and an operating mechanism being connected with the rod and arranged transversely of the door at a point where it will receive the pressure of a body forced against the door, pressure on this operating mechanism rotating the rod and retracting the bolts. There are various methods of operating the bolts in fixtures of this sort, and my invention is not concerned with the details of such mechanism.

Heretofore the constructions have been such that as soon as a door is opened and pressure on the operating mechanism is released, the bolts immediately resume their normal projected position, with the result that the bolt at the bottom of the door often drags along the floor, wearing either the bolt or the floor.

It is the particular purpose of this invention, as above stated, to hold the bolts retracted even after pressure on the operating mechanism is released, thus preventing the wear of the floor or the bolt, or both, the bolts being released when the door closes, to lock the door in position.

In the drawings—Figure 1 is a general view showing the application of an anti-panic fixture to a pair of doors. Fig. 2 is a detail view of the upper bolt showing the releasing mechanism. Fig. 3 is a rear view of the upper bolt. Fig. 4 is a side view of the same, but with the casing broken away to show the manner of holding the bolt in retracted position. Fig. 5 is a sectional view on the line 5—5 of Fig. 3. Fig. 6 is a detail view of an adjustable door stop to correctly position the bolts with respect to their keepers.

Referring to the drawings, A, B, denote a pair of doors equipped with the anti-panic fixtures, the door A being equipped with the locking bolts, and the door B being locked to the door A.

1, 2, denote respectively the upper and lower bolt mechanisms. 3 denotes the connecting rod squared at its end where it fits into the bolts, and at its center where the operating member 4 is connected with it. This operating member 4 is so supported that pressure against it will cause it to swing to one side, rotating the rod 3 and with it the bolts.

By reference to Figs. 2, 3, 4 and 5, the construction and arrangement of the bolts and their operating mechanism will be clearly seen. The upper and lower bolts are the same except that the device for holding the bolts in retracted position is associated only with the upper bolt, and of course the releasing mechanism is arranged in operative relation thereto.

10 denotes the bolt casing, which as shown is adapted to be secured to the face of the door.

11 is the bolt actuator having a squared socket at its outer end to take the squared end of the rod 3, and a similar squared socket at its inner end to take the squared shank of the bolt 12.

13 is a spring connected at one end to the casing, and at its other end to the actuator, and tends to rotate the actuator to return it to its normal position after it has been moved by the operating member 4 through the rod 3. The inside of the casing has an inclined track 14 which is engaged by a roller 15 on the bolt, and as the bolt is turned by the actuator 11 this roller 15, riding down the inclined track 14, retracts the bolt to the position shown in Fig. 4, the bolt moving longitudinally with respect to the actuator 11, the socket in its inner end being deep enough to permit of this. A spring 16 coiled about the shank of the bolt and bearing at one end against the actuator and at the other end against the head of the bolt, tends to push the bolt out to its projected position, indicated in Figs. 2 and 3. 17 is a stop on the

bolt to limit its rotary motion with the actuator 11 under the influence of the spring 13, bringing it always to correct locking position.

The bolt carries a spring pressed detent 20 which is projected into a socket 21 in the casing when the bolt is in its retracted position as shown in Fig. 4, and through the rod 3 the lower bolt is also held in its retracted position. A plunger 22 is supported in a boss 23 on the casing directly opposite the socket 21, and is normally pressed downward by the spring 24. Secured to the door casing in an operative position with relation to this plunger 22, is an adjustable stop 25, and as the door closes this plunger, coming in contact with this stop, is forced inwardly, pressing in the spring detent 20, releasing the bolts, and the spring 13 rotates the bolt actuator and the rod 3, and restores the operating member 4 to normal position, the spring 16 projecting the bolts into their keepers, the parts then assuming the position shown in Figs. 2, 3 and 5.

It is thought that from the foregoing description the operation of the device will be clearly understood. It is apparent that the invention is not concerned with the specific type or form of bolt actuator which is used, but is concerned primarily with means for holding the bolts in retracted position, and of automatically releasing the bolts when the door is closed. It is customary to provide the doors with self-closing attachments, for instance devices such as are known as door checks.

It is to be understood that I have selected merely one embodiment of the invention for the purpose of illustration and description, and I am aware that this embodiment is susceptible of various changes and modifications without departing from the spirit of the invention as defined in the appended claims.

I claim as my invention:—

1. A bolt casing, a bolt therein, means for moving said bolt rotarily, means for moving said bolt longitudinally, interengaging means on said bolt and casing to retain said bolt when it has reached the limit of its combined rotary and longitudinal motion in one direction, and releasing means for said retainer.

2. In a device of the character described, a bolt casing, a bolt mounted therein and adapted for a combined rotary and longitudinal motion within said casing, interengaging means on said bolt and casing for holding said bolt in its retracted position, and automatic means for releasing said bolt.

3. In a device of the character described, a bolt casing, a retractable bolt mounted therein, automatically operating means carried by said bolt to hold it in retracted position, and releasing means for said bolt.

4. In a device of the character described, a bolt casing, a bolt mounted therein and adapted for a combined rotary and longitudinal movement, to move it into and out of locking position, a spring detent carried by said bolt and adapted to interlock with said casing when the bolt is in retracted position, and means for actuating said detent to release said bolt.

5. The combination with a door of locking devices therefor at its upper and lower edges, comprising casings, lock bolts therein, a rod operatively connecting said bolts, and means for turning said rod, means for causing the longitudinal movement of said bolts to retracted position upon the rotation of said rod in one direction, means for holding said bolts in retracted position, means operable upon the closing of the door to release said bolts, and means for moving said bolts into locking position when released.

6. The combination with a door, of locking devices therefor at its upper and lower edges, comprising casings, lock bolts therein, a rod operatively connecting said bolts, and means for turning said rod, means for causing the longitudinal movement of said bolts to retracted position upon the rotation of said rod in one direction, means for holding said bolts in retracted position, an adjustable stop mounted in the door frame and operable upon the closing of the door to release said bolts, and means for moving said bolts to locking position when relased.

7. The combination with a door, of locking devices therefor at its upper and lower edges, comprising casings, lock bolts therein, a rod operatively connecting said bolts, and means for turning said rod, means for causing the longitudinal movement of said bolts to retracted position upon the rotation of said rod in one direction, a spring pressed detent carried by one of said bolts and adapted to interlock with said casing when the bolts are in retracted position, a plunger operatively arranged with relation to said detent, and an adjustable stop mounted in the door frame and adapted to actuate said plunger to release said detent when the door is closed.

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