D. S. WELCH.

SAFETY SPRING BOLT.

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927,824. Patented July 13, 1909.

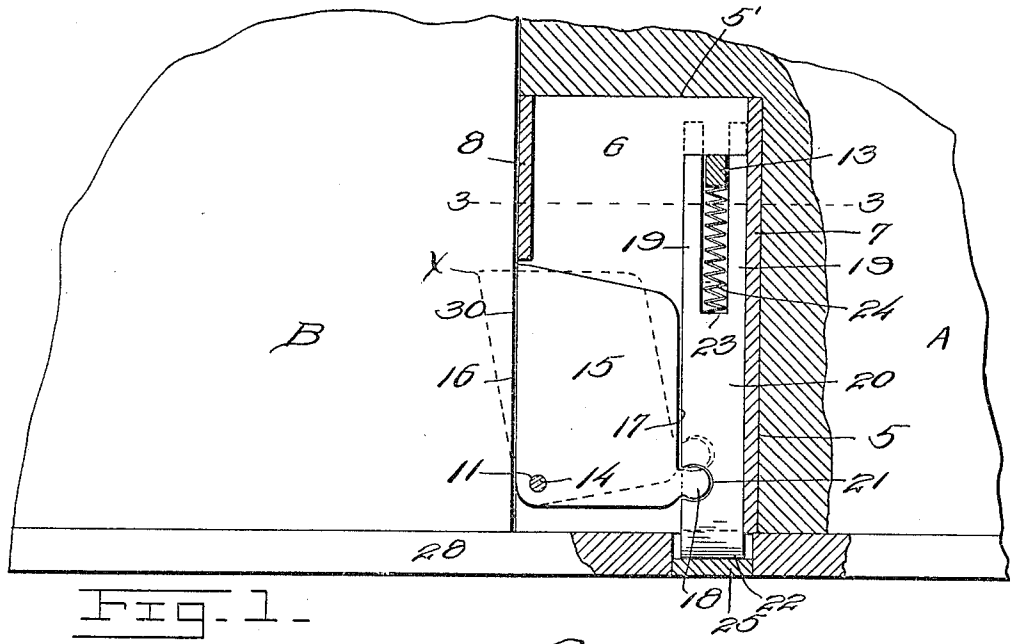


Fig. 1.

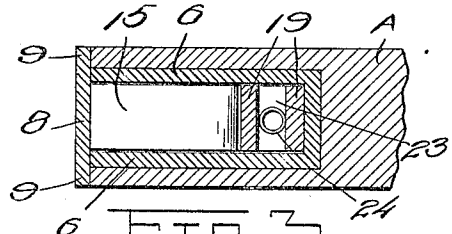


Fig. 3.

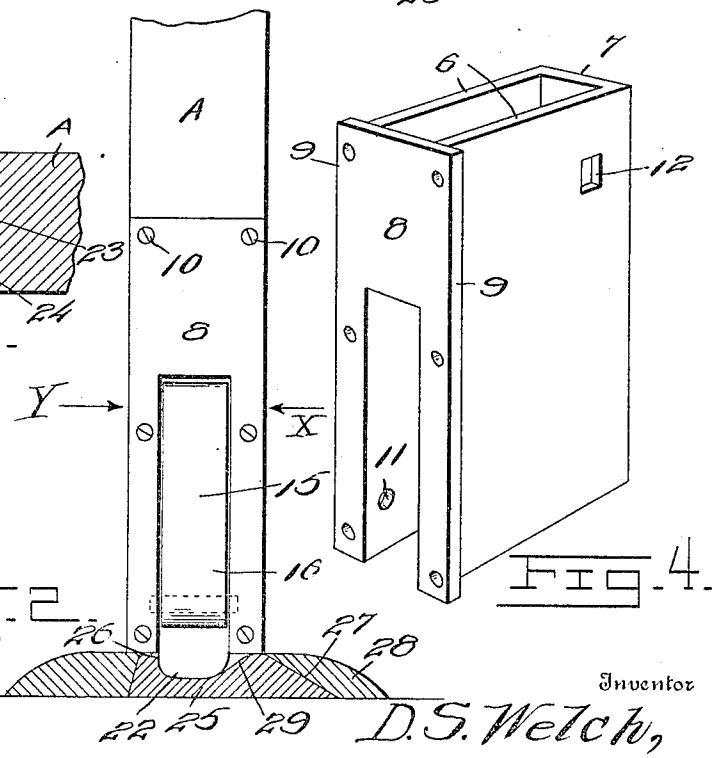


Fig. 2.

Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

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SAFETY SPRING-BOLT.

No. 927,824. Specification of Letters Patent. Patented July 13, 1909.

Application filed March 23, 1909. Serial No. 485,259.

To all whom it may concern:

Be it known that I, DAVID S. WELCH, a citizen of the United States, residing at Iowa City, in the county of Johnson and State of Iowa, have invented certain new and useful Improvements in Safety Spring-Bolts, of which the following is a specification.

This invention relates to certain new and useful improvements in safety spring pressed latching bolts, used in connection with emergency doors.

The object of my invention is to provide a locking means for that class of swinging doors which are used in pairs, and comprises a freely moving spring pressed latching bolt which is carried by one door and is held in a latched position through contact with the other door.

With these and other objects in view the present invention consists in the combination and arrangement of parts as will be hereinafter more fully described and particularly pointed out in the appended claims, it being understood that changes in the specific structure shown and described may be made within the scope of the claims without departing from the spirit of the invention.

In the drawings forming a part of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 shows a sectional view of a fragmentary portion of two swinging doors provided with my spring pressed latching bolt, the working elements being partly shown in section, Fig. 2 is a front view of my device, Fig. 3 is a horizontal sectional view on the line 3—3 of Fig. 1, Fig. 4 shows a perspective view of the housing.

Spring doors as used in connection with public halls, schools, churches and other public buildings, usually comprise two swinging members. The practice is usually to secure one of the doors to the floor or door frame by means of a bolt, and then lock the second door to the first by means of a lock or bolt. In case of an emergency it is then necessary to first unlock the secondary door, and then unlock the primary or holding door. In case of a rush and panic, however, when an immediate exit is required such a construction is objectionable owing to the time required to unlock the primary door. On several occasions, owing to the primary bolt secured doors having withstood the impact of the rushing escaping humanity, many lives have been lost.

My present invention contemplates a door holding mechanism, in which as soon as the secondary door is opened, the primary door can instantly be swung outward. While the primary door is preferably to be secured above and below by means of my bolts, the secondary door is locked midway by means of an ordinary lock or bolt, which can be easily sprung or broken in case of necessity, whereupon the primary door can be instantly opened.

In the drawings A represents the primary and B the secondary door. The primary door at its lower swinging corner is recessed as shown at 5 to provide a seat for the housing for the locking means. This housing is preferably made of sheet metal and is without a top or bottom and comprises the two similar sides 6, the back 7, and the overlapping front plate 8. This front plate has its overlapping edges 9, provided with screw openings to receive the screws 10. As shown in Fig. 3, this housing in a sense forms a narrow channel within which is held the locking bolt, and detent, as used in my present invention. The lower portion of the front plate 8 is slotted the full width between the sides 6, and at the lower forward portion is pierced, to provide the pin openings 11, while near the upper opposite end, each side plate is provided with a square opening 12, within which is held the cross pin 13. This housing does not require a bottom, but the top portion 5′ of the recess 5, serves as a top for the housing.

Pivotally and tiltably held upon the pin 14, positioned within the openings 11, is the detent as used in my invention. This detent is in the form of a square preferably metallic block 16. The two opposite edges 16 and 17 extend in parallel relation, the front end, forming a continuation of the front plate 8, between the slots. This block is of such a width that it will freely move between the housing. Near the lower edge at a point opposite the pivot pin 14, the detent is provided with a projecting semi-circular lug 18. Movably held to this projecting lug 18, is the bolt 20, the upper end of this bolt being forked to provide the two tines or members 19, which stride the guiding cross pin 13. This cross pin is rectangular in cross section, and guides the bolt 20 at its upper forked end. This bolt 20 is of such a width that it

is snugly held within the channel formed between the block 15, and the back 7, of the housing as shown in Fig. 1. Near its lower end the bolt has a seat 21 to snugly receive the lug 18. The lower end of the bolt 22 is slightly rounded, as shown in Fig. 2.

Held within the forked end of the bolt 20, is the protractile spring 24, at its upper end pressing against the guide pin 13, while at its lower end pressing upon the shoulder 23 formed between the members 19. The operation of the spring 24 is such that as the bolt 20 is forced downward, the block or detent is forced inward against the bolt, which acts as a stop to the detent. The bolt 20 is of such a length, that in its normal position the bolt will project a suitable distance beyond the housing, to insure a firm seat and engagement within a shoe 25, which serves as a keeper to the bolt 20. The detent or block 15, in the closed position of the door, tilts toward the door B, and against the edge of the same. This shoe is preferably rectangular in outline, and is held within a recess 27 of the thresh-board 28. The keeper has a straight wall section 26, against which the lower front face of the bolt 20 rests, as shown in Fig. 2. The bolt receiving socket is however beveled opposite the vertical stop wall 26 as shown at 29. In a closed condition of the door A the bolt 20 is in normal spring contact with the keeper 25.

The door B is locked or bolted to the door A. Should pressure be brought against the doors A and B from the direction of the arrow X the bolt 20 will be stopped by the shoulder 26, of the keeper. If the pressure against the doors is from the direction of the arrow Y, as the door A, is forced outward, the bolt 20 will ride up the inclined surface 29, and as this bolt rises, it raises the lug 18, resulting in the block being tipped outward. However as the block is immediately in front of the edge 30 of the door B, the detent cannot be tilted outward and consequently the bolt 20 will not rise. If however the door B is first opened the door A which is held in a normal closed condition by the spring bolt 20, can be forced out, for the reason that the bolt will ride up the incline 29 and as there will be nothing to check the outwardly tilting movement of the detent 15, the detent will be carried into the position shown by the dotted line x. From this it will be seen that the door B is locked to the door A, and that the door A is held in a locked condition as long as the door B is closed.

The lock connections between the doors A and B, are to be of such construction and strength, that an unusual pressure against the door B will fracture the same, in case no time is available to operate the same.

The device is light, inexpensive, simple of construction, and can be readily attached to any swinging doors already hung.

And having thus described my said invention, what I claim as new and desire to secure by United States Letters Patent is:

1. The combination with two swinging doors, of a spring pressed latching bolt carried by one of said doors, a pivotally held detent positioned adjacent to said bolt and connected thereto, said detent tilting toward said remaining door, and a keeper arranged to normally receive the end of said bolt.

2. The combination with two swinging doors, of a spring pressed latching bolt carried by one of said doors, and normally protruding beyond the lower edge thereof, a tiltably held detent actuated by said bolt and arranged to contact with the edge of said remaining door, and a shoe positioned below said door carrying said bolt to receive said bolt, said shoe having a stop edge and an inclined surface extending therefrom.

3. The combination with an open ended housing, having a side slot near one end, a detent having two opposite parallel edges pivotally held within said housing and provided with a projecting lug, a bolt having a socket to receive said lug, said bolt being normally held between said detent and the imperforate side of said housing, one end of said bolt normally projecting beyond said housing, said detent being normally stopped against said bolt, a spring to normally hold said bolt in a protruding position, and a shoe having a stop edge and an inclined surface extending therefrom to receive said bolt end, said detent being partly held within said slot.

In testimony whereof I affix my signature, in presence of two witnesses.

DAVID S. WELCH.

Witnesses:

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A. H. LIDEEN.