July 28, 1931. D. W. WOOD 1,816,134

DOOR LATCH

Filed Aug. 9, 1928

Fig. 1.

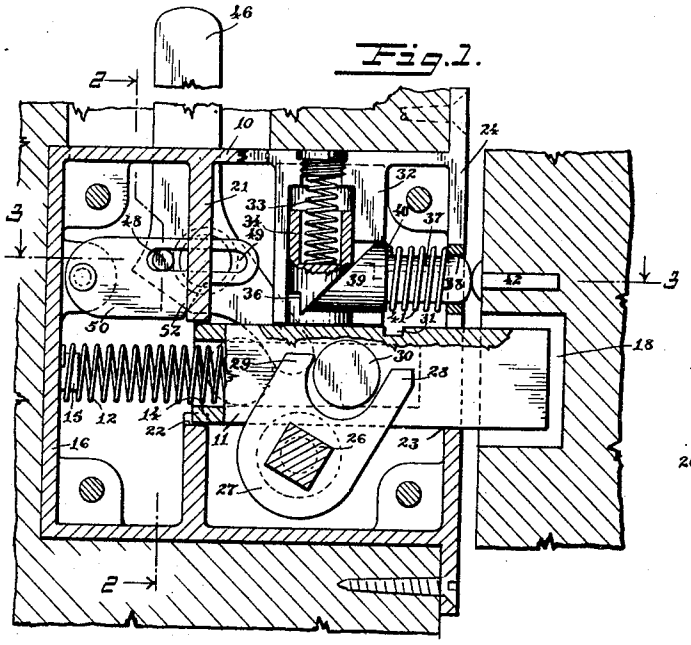


Fig. 2.

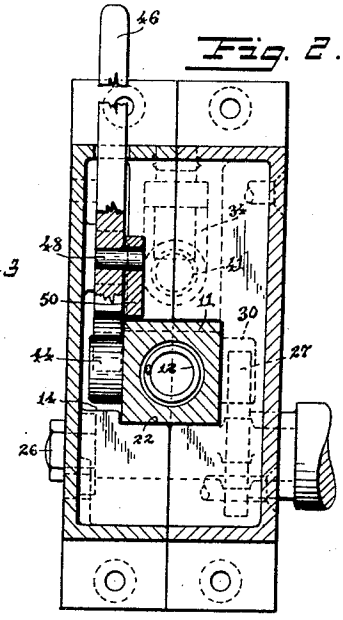


Fig. 3.

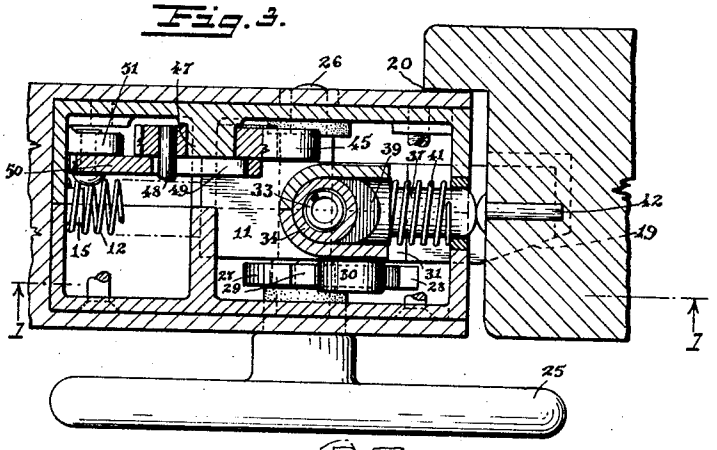


Fig. 4.

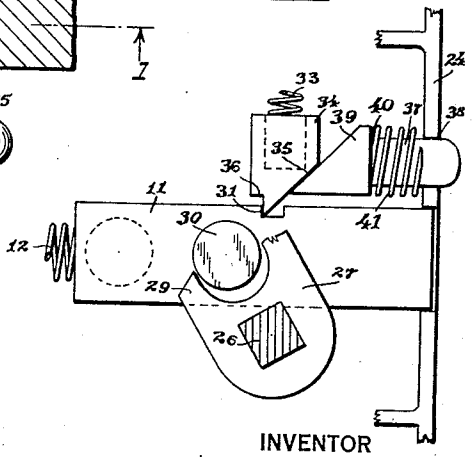
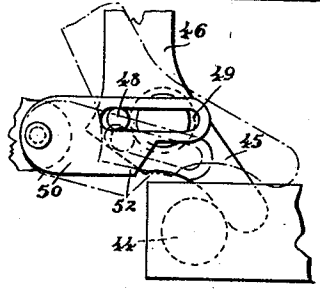


Fig. 5.



WITNESSES

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DOOR LATCH

Application filed August 9, 1928. Serial No. 298,537.

This invention relates to locks and latches.

It is an object of the invention to provide an improved device of this character, the operation of which may be controlled from the inside, thus preventing unauthorized use.

A further object of the invention is to provide a device of the character described in which a bolt is provided normally controlled by an outside handle, means being provided however, for retaining the bolt in either extending or withdrawn position; a former means being controlled from within.

Other objects of the invention include the improved structure and the combination and interrelation of parts whereby the whole forms an efficient device which will be simple in construction and operation, and which will be inexpensive to manufacture.

With these and other objects in view, reference may be had to the specification and the drawings, in which—

Fig. 1 is a longitudinal vertical section of one form of my present invention.

Fig. 2 is a vertical section taken on the line 2—2 of Fig. 1.

Fig. 3 is a horizontal section taken on the lines 3—3 of Fig. 1, and showing by the lines 1—1 the section lines of the Fig. 1.

Fig. 4 is a detailed view illustrating one feature of the operation of the invention.

Fig. 5 is a similar view of another feature of the invention.

Referring more particularly to the drawings, there is provided a casing 10 within which there is positioned a sliding spring pressed bolt 11 normally urged outwardly by the expansion spring 12 which is receivable within an aperture 14 of the bolt 11. A projection 15 is provided in the rear wall 16 of the casing 10 about which the spring 12 is secured for holding it in proper alignment with respect to the bolt 11. When in extended position, the bolt 11 is adapted to be received within a keeper chamber 18.

By referring to Fig. 3 it will be noted that the extending portion of the bolt 11 is bevelled as at 19 to conform with a similar bevel of the wall of the keeper 18; thus, as the bolt is forced outwardly by the action of the spring 12, a camming action takes place between the bolt and the keeper 18 holding the closure carrying the casing 10 in abutment with the keeper wall 20. The alignment of the bolt 11 with respect to the casing 10 and the keeper 18 is provided by a vertical transversely extending wall 21 apertured as at 22 to receive therethrough the bolt 11. The bolt is also maintained in alignment by an aperture 23 in the front wall 24 of the casing 10 through which it is adapted to pass.

For manually controlling the movement of the bolt from the outside there is provided a handle 25 adapted to rotate a transversely extending shaft 26; rotation of which is adapted to move a bifurcated actuating member 27, the bifurcated ends of which form operating fingers 28 and 29. The actuating fingers 28 and 29 are adapted to coact with a projecting lug 30 extending from one side of the bolt 11. It may readily be seen that by rotation of the handle 25 in a counterclockwise direction, the finger 28 coacts with the lug 30, moving the bolt 11 against the tension of the spring 12 and withdrawing the extremity of the bolt from the keeper 18. It may also be seen that the reverse action of the handle 25 causes finger 29 of the actuating member 27 to engage the lug 30 for extending the bolt into the keeper. This action is assisted by the pressure exerted from the expansion spring 12.

Referring more particularly to Fig. 4 for retaining the bolt in the withdrawn position against the tension of the spring 12, there is provided a notch 31 in the upper surface of the bolt 11. Directly over the bolt a casing is provided with a cylinder 32 within which an expansion spring 33 is provided normally urging downwardly a piston 34, the outer base of which is inclined as at 35 and is also provided with a recess 36. For maintaining the piston 34 in the position illustrated in Fig. 1 against tension of the spring 33, there is a coacting similarly bevelled piston 37 journalled through an aperture 38 in the front wall 24 of the casing 10.

The inner end of the piston 37 is enlarged as at 39 to provide a shoulder 40 against which an expansion spring 41 abuts to hold the slanting surface of the head 39

against the similarly slanting surface 35 of the piston 34. For retaining the piston 37 in the withdrawn position as shown in Fig. 1, thus holding the piston 34 in raised position, a coacting pin 42 is provided adjacent the keeper 18. Thus, it may be seen that when the door is in closed position with the pin 42 abutting the extremity of the piston 37, piston 34 is maintained in inoperative position, and the bolt 11 is thus free to move in and out of the keeper 18 under the action of the handle 25. If however, when the bolt is withdrawn, the door is open, the piston 37 is free to move outwardly due to the camming action of the adjacent bevelled surfaces of the pistons 34 and 37.

The piston 34 thus moves downwardly to assume the position shown in Fig. 4. The notch 36 of the head engages the notch 31 in the upper surface of the bolt 11, thus retaining the bolt in its withdrawn position against the tension of the spring 12. It may be readily seen that upon closing the door, the pin 42 forces inwardly the piston 37, a reverse camming action taking place between the bevelled surfaces, and the piston 37 thus moves upwardly the piston 34 against the tension of its spring 33 and releases the notch 31 of the bolt 11 and permits the bolt to be forced outwardly to be received within the keeper 18 under influence of the spring 12.

For dogging the bolt 11 in operative or inoperative position from the inside, which is the side opposite the handle 25, there is provided a lug 44 on the bolt 11 on the side opposite the lug 30 and preferably positioned adjacent the spring end of the bolt. The bolt 11 is adapted to be retained in its withdrawn position by a finger 45 carried by a pivoted actuating arm 46. By referring to Fig. 5, it will be noted that the full line position of the arm 46 illustrates the position of the arm and finger 35 for retaining the bolt 11 in the withdrawn position against the tension of a spring 12.

The arm 46 is preferably journalled upon a projection 47 of one side wall of the casing 10. Adjacent its journalling aperture, the arm 46 is provided with an extending pin 48 which is adapted to be received through an elongated slot 49 carried by a pivoted stop arm which may preferably be journalled upon a projecting lug 51 of the back wall 16 of the casing 10. It may be readily seen that upon clockwise motion of the arm 46, the pin 48 moves upwardly, thus moving in counter-clockwise upward movement the stop arm 50, whereby a projecting bevel 52 thereof is moved upwardly and allows the free inward movement of the bolt 11. At the same time, the finger 45 of the arm 46 cams the lug 44 inwardly, thus moving the bolt 11 in against the tension of the spring 12.

It may thus be seen that the bolt 11 may be withdrawn by the handle 25 when the arm 46 is in approximately vertical position. The bolt 11 however, may not be moved inwardly under the influence of the handle 25, after the arm 46 has moved in a counter-clockwise direction from its vertical position shown in Fig. 1. By movement in this direction, the pin 48 moves downwardly, thus moving in downward clockwise direction the stop arm 50 and bringing its bevelled surface 52 in line with the inner end of the bolt 11, and thus preventing inward movement thereof.

It may thus readily be seen that the invention provides for a novel and improved latch member particularly adaptable for automobiles or the like, wherein it is desired to provide an outer operating handle with locking means controlled from the inside. It will be understood that numerous changes and modifications of the invention may be resorted to without departing from the spirit or scope of the appended claims.

I claim:

1. A device of the character described, comprising a casing, a spring urged bolt movable within said casing, a projection on one side of said bolt, means associated with said projection for moving said bolt rectilinearly, a projection on the opposite side of said bolt, a pivoted arm adapted to engage said last mentioned projection to move said bolt within said casing, a pivoted latch movable by said arm to prevent inward movement of said bolt, said bolt further including a recess in its upper surface, a spring urged plunger to engage said recess to prevent outward movement of said bolt from said casing, and a second plunger movable at substantially right angles with respect to said first mentioned plunger to cam said plunger away from said bolt.

2. A device of the character described, comprising a casing, a spring urged bolt movable within said casing, a projection on one side of said bolt, means associated with said projection for moving said bolt rectilinearly, a projection on the opposite side of said bolt, a pivoted arm adapted to engage said last-mentioned projection to move said bolt within said casing, a pivoted latch movable by said arm to prevent inward movement of said bolt, said bolt further including a recess in its upper surface, a spring-urged plunger to engage said recess to prevent outward movement of said bolt from said casing, and a second plunger to cam said plunger away from said bolt, said last-mentioned plunger including a stem extending outwardly from said casing to be engaged by a door structure whereby said bolt will release the first-mentioned plunger by movement of the casing within the door structure.

DAVID WILSON WOOD.