Nov. 13, 1923. 1,474,158

R. G. MOORE

DOORLATCH

Filed May 18, 1922

Fig. 1,

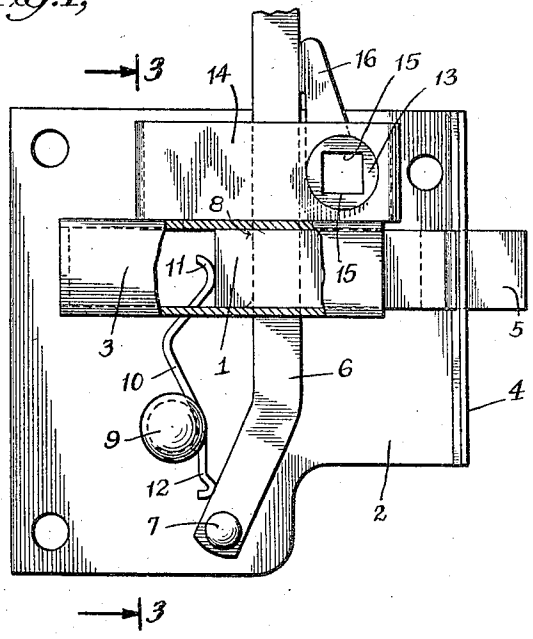


Fig. 2,

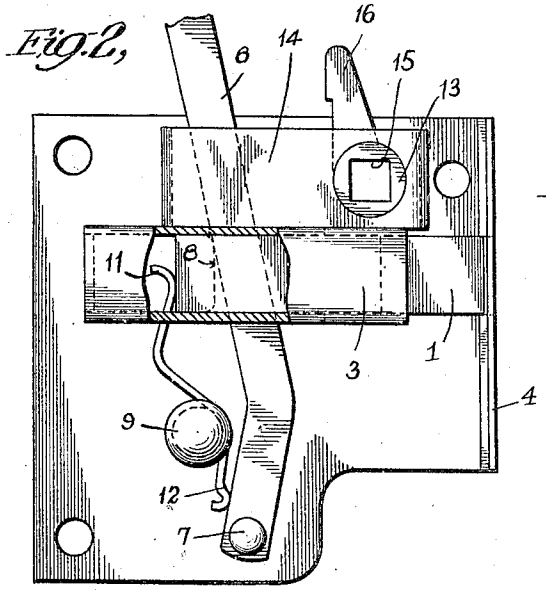


Fig. 3,

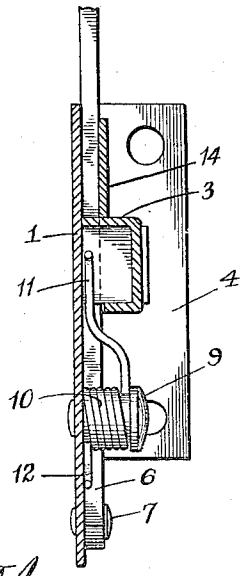
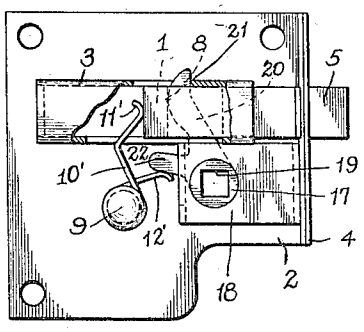


Fig. 4,



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Raymond G. Moore,
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his ATTORNEYS.

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UNITED STATES PATENT OFFICE.

RAYMOND G. MOORE, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE BASSICK COMPANY, OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF CONNECTICUT.

DOORLATCH.

Application filed May 18, 1922. Serial No. 561,832.

To all whom it may concern:

Be it known that I, RAYMOND G. MOORE, a citizen of the United States, and resident of Bridgeport, county of Fairfield, and State of Connecticut, have invented certain new and useful Improvements in Door-latches, of which the following is a specification.

The invention relates to improvements in door latches and particularly to latches embodying a spring actuated bolt which may be retracted by means of a hand lever, or handle. Such constructions are commonly used on automobile doors, the bolt being provided with a shoulder or surface against which the hand operated member will press, to retract the bolt, when the same is swung back. In such constructions a hand lever or other hand operated member may be used for opening the door from the inside, a handle also commonly being provided on the outside of the door, rotation of which will also serve to retract the bolt.

In such constructions the bolt is commonly pressed forward into its projected position by means of one spring while a second spring is used to press the hand operated member forwardly to hold it in its inoperative position.

The object of the present invention is the provision of an effective and simple device of the character referred to in which a single spring is used in place of the two springs referred to, the single spring being arranged to provide one portion which bears against the bolt and a second portion which bears against the hand lever, or other pivoted hand operated member for retracting the bolt. This spring is preferably coiled about or secured to a stud in such manner as to provide two end portions, one of which bears against the rear of the bolt while the other, extending in another direction from the stud, bears against a surface of the hand operated member. By such means the hand operated member and bolt will both be spring pressed towards their forward positions, the hand operated member being held firmly against a forward seat regardless of whether or not the bolt is in a fully projected position. In operation the bolt may, at times, be not fully projected in which case the bolt will, of course, not serve to press the hand operated member against its seat and prevent rattling thereof.

In order that the invention may be more clearly understood attention is directed to the accompanying drawings illustrating certain forms of the invention. In the drawings—

Fig. 1 represents a front elevation, shown partly in section, of a door latch construction embodying the invention;

Fig. 2 is a similar view, the hand lever being shown as swung rearwardly to retract the bolt;

Fig. 3 is a vertical section taken on line 3—3 of Fig. 1, and

Fig. 4 is a front elevation, partly in section, of a modified form of construction.

Referring to the drawings, the bolt 1 is slidably mounted on a plate 2, which may be secured to a door in the usual manner. The bolt is guided and held in place by any suitable means such as the cover plate 3 secured to plate 1. Plate 1 is provided with a flange 4 at its forward edge, through an opening in which the nose 5 of the bolt is slidable into the projected position shown in Fig. 1.

A hand lever 6 is shown in Figs. 1, 2 and 3 as pivoted to plate 2 by a rivet or pivot pin 7, the hand lever extending upwardly and extending through suitable openings in the upper and lower walls of the cover plate 3. Bolt 1 is so formed, as by cutting away a portion thereof, as to provide an opening through which the hand lever will extend with a shoulder 8 at the rear edge of the cut away portion. The hand lever will bear against this shoulder and will press the same rearwardly to retract the bolt when the hand lever is swung rearwardly, in the usual manner.

A spring is provided, as stated, to both press the bolt forwardly and to bear against the hand lever, to press the hand lever forwardly independently of the pressure exert-

ed thereon by shoulder 8 of the bolt. This is preferably accomplished by providing a stud or pin 9 on plate 2 about which several convolutions of the spring 10 are coiled to secure the same. This spring may conveniently be formed of spring wire. It has one end portion 11 which extends upwardly from stud 9 through a suitable slot in the lower wall of cover plate 3 so as to bear against the rear end surface of the bolt. The other end portion, 12, of the spring extends downwardly from stud 9 and bears against the rear surface of the hand lever.

A seat or abutment is provided against which the forward edge of the hand lever will bear when the latter is in its forward or inoperative position. This seat may take any desired form within the present invention, and is shown as comprising a member 13 rotatably mounted in plate 2 and in a flanged plate 14 secured thereto. This rotatable member 13 has a squared socket 15 therethrough through which the shank of an outside handle member may be inserted to rotate the same. A dog or nose 16 of member 13 is adapted to bear against the forward surface of the hand lever, as is common, so that the hand lever and the bolt may be moved rearwardly by rotation of member 13. Forward movement of dog or arm 16 beyond the position shown in Fig. 1 is prevented by a suitable stop (not shown), this stop preferably comprising the end of the slot in the casing through which dog 16 extends. Arm 16, when in its stopped position, comprises an abutment against which the hand lever is normally spring-pressed forwardly. It is common in certain other prior constructions for the rotatable handle operated member to operate directly upon the bolt, to retract the latter without swinging the hand lever rearwardly, and it should be understood that my invention is not limited in this respect.

It will be noted that with the construction described the hand lever is spring pressed forwardly through the pressure of the bolt against one portion of the same, the hand lever also being spring pressed forwardly by the pressure of portion 12 of the spring against a different part of the hand lever, separated from the point at which the bolt presses against the hand lever. Thus when the bolt is in its fully projected position the hand lever will be pressed against its forward seat by the action of a single spring, acting upon it at two separated points, that is, both directly, at one point, and through the bolt, at a second point; and when the bolt is not fully projected the hand lever will still be pressed against its forward seat by the same spring.

In the modification shown in Fig. 4 a handle-operated member is substituted for the hand lever. Member 17 is rotatably mounted in plate 2 and flanged plate 18 secured thereto, and has a squared socket 19 therein, in which the shank of a handle may be inserted. An arm 20 on member 17 will bear against shoulder 8 on the bolt to retract the latter. This arm will bear, in its normal inoperative position, against a forward stop indicated at 21. Spring 10^1 is coiled about stud 9, with one end portion 11^1 pressing against the rear of the bolt. The other end portion, 12^1, of the spring, bears against a lug or ear, 22 on member 17 so as to press arm 20 against its forward seat, regardless of whether the bolt is fully projected.

It will be understood that the invention is as broad as is indicated by the accompanying claims.

What I claim is:

1. In a door latch, the combination of a supporting plate, a bolt slidably mounted thereon, and having a transverse surface, a hand lever pivoted on said plate, and adapted to be swung back in engagement with said surface to retract the bolt, a rotatable barrel in said plate, adapted to be rotated by a handle, an arm on said barrel having a surface against which said hand lever bears when in its forward position, said arm having a stopped position in which it is engaged by said hand lever in the forward position of the latter, a stud on said plate, and a spring secured to said stud, said spring having one end portion pressing said bolt forwardly and another end portion pressing against said hand lever to press it forwardly.

2. In a door latch, the combination of a supporting plate, a bolt slidably mounted thereon, and having a shoulder, a hand lever pivoted on said plate, and adapted to be swung back in engagement with said shoulder to retract the bolt, a forward seat against which said hand lever bears when in its forward position, a stud on said plate, to the rear of said lever, below said bolt and above the pivot of said hand lever, and a spring coiled about said stud, with one end portion extending upwardly and bearing against the rear of said bolt to press it forwardly, and the other end portion extending downwardly and bearing against said hand lever above the pivot thereof to press it forwardly.

3. In a door latch, the combination of a supporting plate, a bolt slidably mounted thereon, and having a transverse surface, a hand operated member pivoted on said plate and adapted to be swung back in engagement with said surface to retract the bolt, a single spring, having an end portion pressing said bolt forwardly and press-

ing said surface against a point on said hand operated member to press it forwardly, when the bolt is in fully projected position, and having its other end portion pressing against a separated point on said hand operated member, to tend to swing said member forwardly, regardless of the pressure of said bolt surface against the same, and an abutment against which the hand operated member is normally thus pressed forwardly.

In testimony whereof I have signed my name to this specification, this 15 day of May 1922, at Bridgeport, Conn.

RAYMOND G. MOORE.