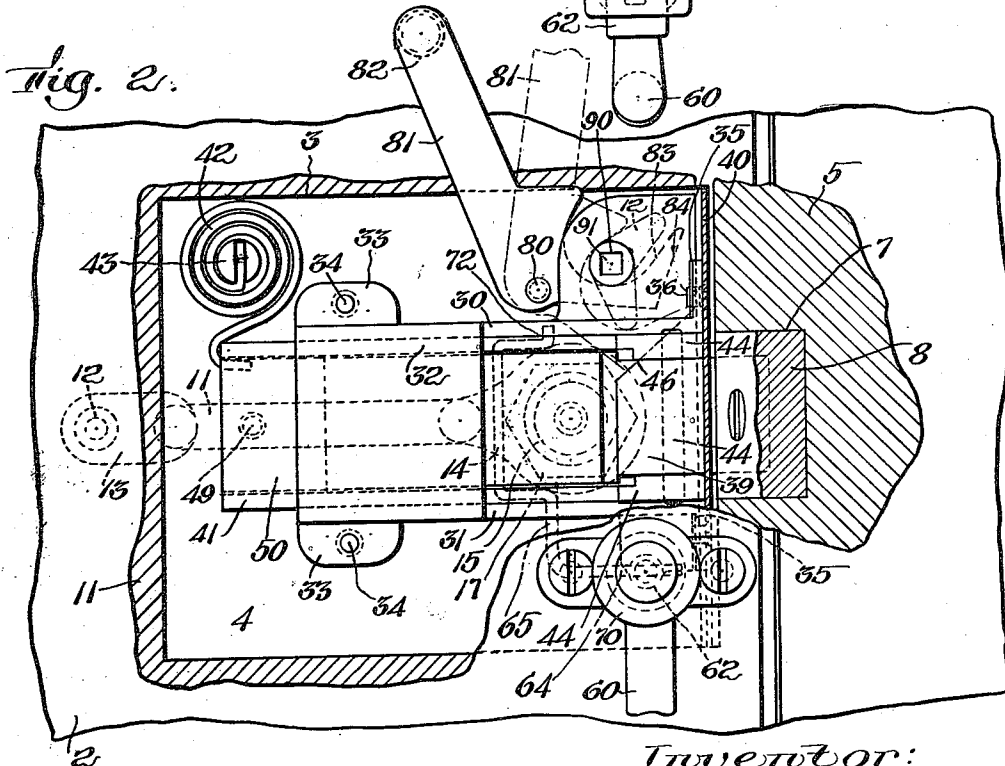
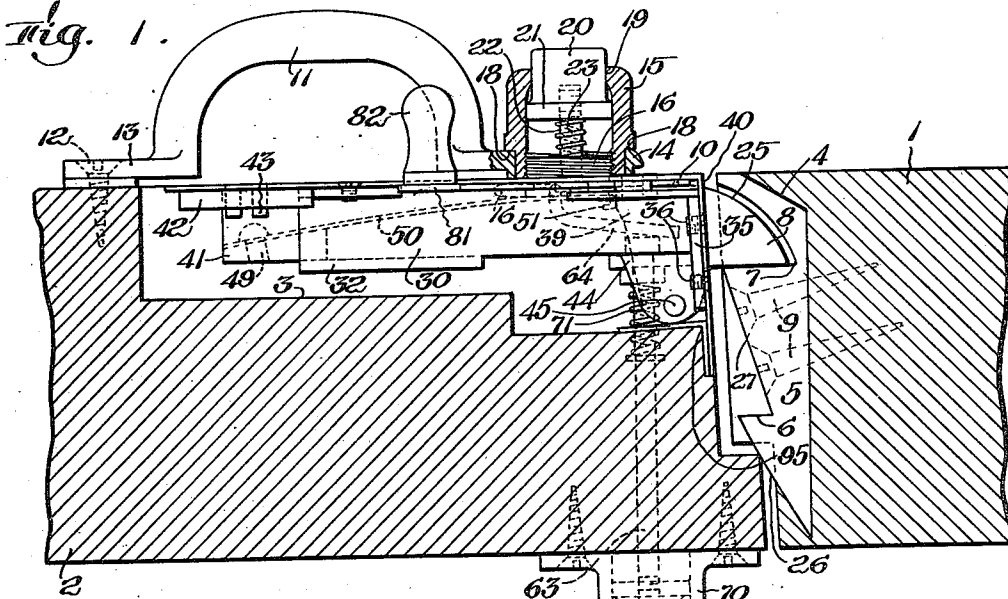


J. MILLER.
 AUTOMOBILE DOOR LOCK.
 APPLICATION FILED MAR. 29, 1918.

1,300,991.

Patented Apr. 15, 1919.



Inventor:
 John Miller,
 by James R. Hodder
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UNITED STATES PATENT OFFICE.

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AUTOMOBILE-DOOR LOCK.

1,300,991.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN MILLER, a citizen of the United States, and resident of Amesbury, in the county of Essex and State of Massachusetts, have invented an Improvement in Automobile-Door Locks, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My present invention is an improved door catch and lock intended particularly for use in vehicle bodies, such as side doors of automobiles. Important features of the invention consist in a novel arrangement of a safety door lock and catch, means to hold the door automatically locked while permitting a simple and easy unlocking actuated simultaneously with the door opening and also including novel means of permanently fastening the door lock.

In the construction of automobile doors and catches therefor it is extremely important to have a device which will firmly and securely hold the door closed and locked, preventing accidental opening and also eliminating the danger of the lock springing open through the jarring and jouncing of the car when in motion over rough roads. My invention provides a simple, efficient and strong lock and catch with novel means to operate the same from either outside or inside of the door.

Other features of the invention, details of construction and novel combinations of parts will be hereinafter more fully pointed out and claimed.

In the drawings illustrating a preferred embodiment of the invention.

Figure 1 is a view, partly in cross section, illustrating an automobile door and my improved lock thereon;

Fig. 2 is a plan view, looking from within the lock mechanism rearwardly.

As shown in the drawings, the side frame 1 is the fixed portion and the door portion is shown at 2, the latter being formed with a recess 3 to receive the lock mechanism. The door portion 1 is provided with a recess 4 to receive the plate 5, having therein the usual catches 6, when the door is half locked, and 7 when it is fully locked, these catches being of suitable form, depth and size to cooperate with the latch or locking

bolt 8. This plate 5 is rigidly attached by screws 9, 9, as illustrated in dotted lines.

In the door 2 the movable and operating portions of the lock are provided, consisting in a plate 10 carrying the main portion of the door mechanism and fitting within the recess 3. Secured to the plate 10 is a handle 11 having one end attached to the door 2, by the screw 12 through the flange 13. The other end of the handle comprising a flange 14 held to the plate 10 by a hollow member 15 being internally threaded to receive the threaded hub 16 of a flanged screw 17 engaging the inner side of the plate 10 and thus holding the handle and member 15 firmly in position to said plate. I form an annular shoulder 18 on the outside of the member 15, which overlaps and engages the top surface of the adjacent flange 14 of the handle, thus providing a compact and firm construction. The member 15 is hollow to receive the movable press button 20, having an inner rim 21 of greater diameter than the opening 19 through the top of the member 15, as clearly shown in Fig. 1, so as to provide a stop to prevent outward movement of the press button 20. Attached to the button 20 is a stem 22 extending downwardly and through an appropriate bored recess in the hub 16 of the retaining screw, to engage and release the locking spring for the bolt 8, as will be explained. A coiled spring 23 around the stem 22 exerts expansible tension between the hub 16 and rim 21 hold the press button 20 normally at the outward limit of its movable position.

I provide a double spring arrangement for the locking bolt 8, mounting said bolt on a sliding carrier which carrier is normally movable outwardly by a strong spring and permits said carriage to reciprocate and allow the bolt 8 to be forced inwardly while automatically spring outwardly when the door is closed by a sufficient force to swing the carrier inwardly through engagement of the beveled surface 25 of the bolt 8 upon striking the correspondingly beveled surface 26 or 27 on the plate 5. I also provide yielding means, preferably a leaf spring, which directly engages the locking bolt 8, holding and retaining same in outward position at all times during the reciprocation of the carrier, but permitting release of the locking bolt 8 when it is desired to open the

door without the necessity for moving the carrier and bolt against the tension of the carrier actuating spring.

To this end I secure to the plate 10 a
 5 guide, consisting in the side plates 30 and
 31 having a connecting plate 32, securing
 said guides firmly to the plate 10 by flanges
 33, 33, at one end and similar flanges 35,
 35 and bolts 36, 36, adjacent the other end,
 10 the latter uniting and bracing said guides
 30 and 31 respectively to the downwardly
 turned flange portion 40 of the plate 10,
 through which portion the bolt 8 moves in
 an appropriate slot, as will be readily under-
 15 stood. Adapted to slide within the guides
 30 and 31 and bottom plate 32 is the carrier
 41, said carrier being normally pressed for-
 wardly or toward the door opening by a
 coiled spring 42 attached to a bolt 43 secured
 20 to the plate 1—see Fig. 2. At the forward
 end of the carrier 41 are depending lugs
 44, 44, through which a pin 45 passes, en-
 gaging also an appropriate recess through
 the rearward part 39 of the bolt 8 and con-
 25 stituting a pivotal mounting for said bolt 8.
 A corner of this bolt 8 is beveled, as shown
 at 46, to enable it to be permanently locked,
 as will be described. Secured to the carrier
 41 by a screw 49 at the rearmost portion is
 30 a leaf spring 50, having its forward end
 curved as shown at 51, normally bearing
 against a shoulder at the top portion of the
 stud 8. This construction enables the car-
 35 rier 41 with the bolt 8 pivoted at its forward
 end, to be moved to and fro in the guides
 30 and 31 with the bolt 8 always in outward
 position. If the door 2 is open and swung
 into closed position, the action of the bev-
 40 eled faces 25 and 26 serves to move the car-
 rier rearwardly against the tension of the
 spring 42, a sufficient distance to permit the
 bolt 9 while always in outward and locking
 position to engage first the catch 6 and when
 45 moved farther to engage the locking catch
 7 and be in full closed position as shown in
 Fig. 1. The leaf spring 50 holds the bolt
 thus outwardly. To open the door I provide
 means to depress the leaf spring 50 against
 its engagement with the shoulder on the bolt
 50 8, whereupon the mere opening movement of
 the door 2 will rock the bolt 8 upon the
 pivot 45, enabling the door to be opened,
 whereupon the action of the leaf spring
 against the rearwardly beveled face of the
 55 portion 39 of said part acts to normally
 throw out the bolt 8 and to hold the same
 in locked position. To accomplish this de-
 pression of the spring 50 the stem 22 of the
 movable button 20 may bear directly against
 60 the leaf spring 50, the slight inward move-
 ment of the button 20 thus acting to force
 the spring 50 below engagement with the
 shoulder on the locking bolt 8 and permit
 the door to be opened. I have provided
 65 this spring 50 in convenient position ad-

jacent the handle 11, so that the operator
 may grasp the handle 11 with one hand and
 press the button 20 with the thumb, simul-
 taneously moving the door and opening it,
 the carrier 41 being at all times in forward
 70 position abutting against the portion 40 of
 the plate 10 adjacent the slot opening for
 the bolt 8. In order to also open the door by
 depressing the leaf spring 50, from the op-
 75 posite side, I provide a similar handle 60
 and button 62, actuating a stem 63 extend-
 ing through the door and adapted to bear
 against one end 64 of a bent arm having
 its other portion 65 extending up over the
 spring 50 so that inward movement of the
 80 button 62 and stem 63 oscillates the arm
 65 to depress the spring 50 and move it be-
 low the locking shoulder, thus permitting
 the door to be opened from the other side,
 by simply swinging the door open, the bolt
 85 8 swinging on its pivot until free of the
 catch 7. A member 70 similar in construc-
 tion, arrangement and function to the mem-
 ber 15 already described, to hold the button
 62, is provided, and a coiled spring 71 nor-
 90 mally acts to press the stem 63 and button
 62 outwardly into position, allowing the
 leaf spring 50 to normally be in locking en-
 gagement with the bolt 8. It may be desir-
 able to provide a pivotal bearing 72 for the
 95 inner end of the arm 65, as illustrated in
 dotted lines in Fig. 2.

I also provide means to lock the bolt 8 so
 that it cannot be opened, from either side,
 by a very simple and effective arrangement.
 100 To this end I pivot to the plate 10 at 80,
 a lever 81, having a handle 82 extending
 therefrom, in convenient position for the op-
 erator, to be manipulated while grasping the
 handle 11 to either lock or unlock the bolt.
 105 The other end of the lever 81 as shown at 82,
 has a recess on one side and a flat bearing
 surface 84 on the other, said surface 84 be-
 ing of suitable form to engage the beveled
 corner 46 of the bolt 8 when the lever 81 is
 110 rocked on its pivot 80, as illustrated in dot-
 ted line position, Fig. 2. When the lever is
 moved in locking engagement with the bolt
 8, the actuation of the movable button 20 or
 62 depressing the leaf spring 50, did not
 115 permit the door to be opened, as the arm 82
 firmly engages the bolt 8 and holds it rigid
 with the plate 10. To still further lock this
 bolt and hold the door permanently closed,
 I mount a barrel lock 90 in the plate 10,
 120 said barrel having a key socket 91 which
 may be square or of any desired form, and
 said barrel carrying a cam 92 in position to
 engage the recess in the arm 83 when the
 latter is in contact with the beveled face 46
 125 of the bolt, as shown in dotted line posi-
 tion, Fig. 2. When thus locked it is im-
 possible to open the door until a key is in-
 serted in the socket 91 of the barrel 90 and
 the cam 92 turned to uppermost position, 130

whereupon the lever 81 may be rocked on its pivot and the bolt released, then permitting the door to be opened by depression of the button 20—or 62—forcing downwardly the leaf spring 50 and permitting the swinging of the bolt 8 on its pivot 45, as already described.

My improved lock thus comprises, in a novel, economical and efficient construction, a sliding bolt lock which is held with great force and strength by the strong spring 42 in door-closing position, while permitting a very easy movement to open said door, instead of requiring the strength required to move the bolt against the tension of such a strong spring as it is desirable to employ at 42. The simple release of the leaf spring 50 and the rocking of the locking bolt 8 on its pivot, permits instant and easy opening operation of the door, and by a slight pressure of the thumb when grasping the handle to open the door. The spring 50 instantly returns the bolt to locking position when the button 20—or 62—is released, and the door may be slammed or forced shut and is held when thus closed. The movement of the lever 81 insures against accidental opening of the door, and the simple provision of the locking barrel 80 effects a permanent locking of the door, until released by suitable key. The entire construction is strong, the guides 30 and 31 actually bracing both themselves and the plate 10 and its flange 40, securing a trusslike structure, which is yet accessible and economical to manufacture. If desired, I may add an angle plate 95, on which the lugs 44 of the carrier holding the pivot 45, may slide, and in turn rest

and are supported on said angle plate, thus adding a further sliding and bracing structure for the carrier 41.

My invention is further described and defined in the form of claims as follows:

1. In a door lock of the kind described, a sliding carrier, a coiled spring arranged to hold said carrier in forward position, a bolt pivoted to the forward part of said carrier and having a shoulder on its rearward portion, a leaf spring secured to the carrier and engaging said shoulder, to hold the bolt in outward locking position, said bolt having a beveled face adjacent the shoulder, a latch adapted to be moved into and out of engagement with said beveled corner, to hold the bolt in locked position and a lock to operate therewith and prevent the bolt moving, and thereby holding the bolt in locked position.

2. In an automobile door lock of the kind described, a sliding carrier, a bolt pivoted thereto, a handle secured to the lock and to the door, one part of said handle being recessed to receive a movable button in convenient reach of the operator's hand when grasping the handle, connections from said movable button to the bolt, permitting the bolt to be rocked on its pivot and the door opened independently of moving the carrier in its slide.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JOHN MILLER.

Witnesses:

JAMES R. HODDER,
HAROLD J. CLARK.