C. S. BOOTH.

DOOR LATCH.

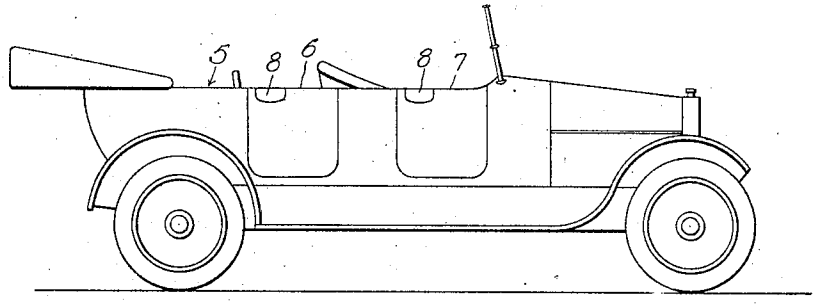
APPLICATION FILED APR. 20, 1918.

**1,285,915.**

Patented Nov. 26, 1918.

2 SHEETS—SHEET 1.

Fig. 1.



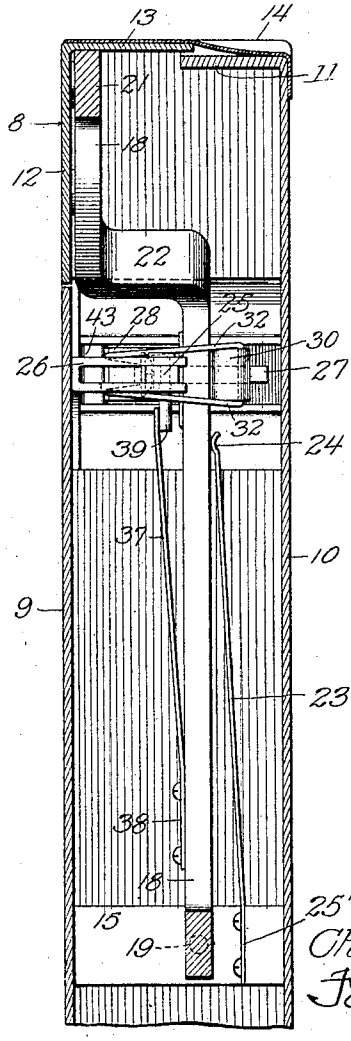




Fig. 2.

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Fig. 3.

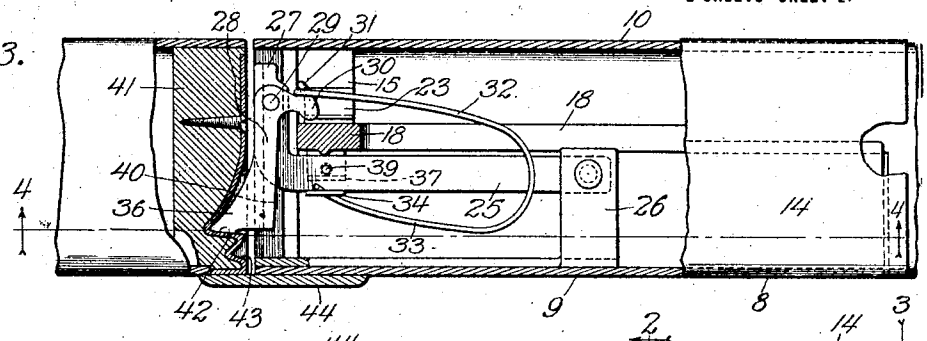
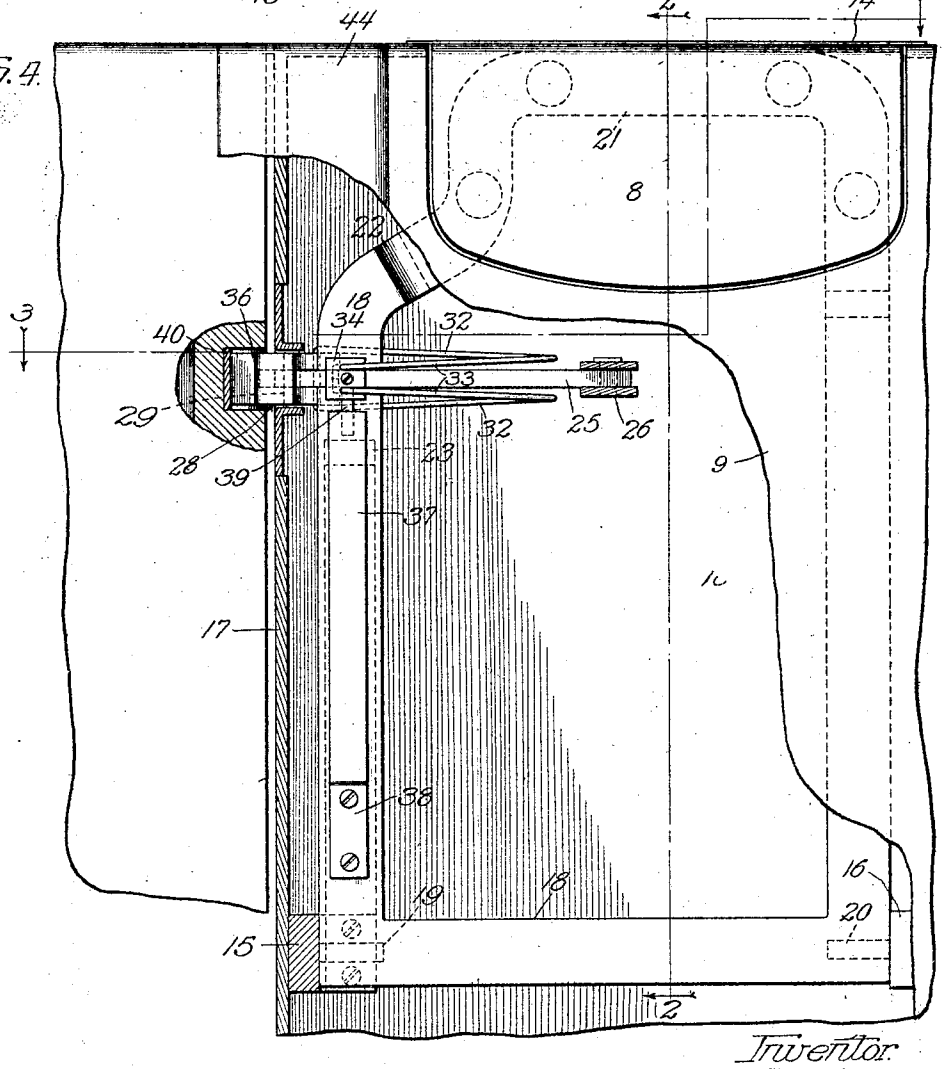



Fig. 4.




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# UNITED STATES PATENT OFFICE.

CHRISTOPHER S. BOOTH, OF CAMP POINT, ILLINOIS.

## DOOR-LATCH.

1,285,915. Specification of Letters Patent. Patented Nov. 26, 1918.

Application filed April 20, 1918. Serial No. 229,854.

*To all whom it may concern:*

Be it known that I, CHRISTOPHER S. BOOTH, a citizen of the United States, residing at Camp Point, in the county of Adams and State of Illinois, have invented certain new and useful Improvements in Door-Latches, of which the following is a specification.

My invention relates to improvements in door latches and has especial reference to latches adapted for doors of automobiles, and the like.

One of the objects of my invention is to provide a door latch for doors, when used with automobiles, that will hold the door securely closed and prevent possibility of accidental opening.

Another object is the provision of a latch that will yieldingly hold the door so that it cannot rattle when the vehicle is moving over the roughest roads.

Another object is to provide a latch, all parts of which are invisible and that cannot be manipulated by children or other persons unacquainted with its mode of operation.

And still another object of my invention is the production of a latch that will discourage the destructive habit of slamming the door but which will catch and hold the door when slammed.

Other and further objects of my invention will become readily apparent, to persons skilled in the art, from a consideration of the following description when taken in conjunction with the drawings, wherein:—

Figure 1 shows the outline of an automobile with my door latch attached thereto.

Fig. 2 is an enlarged section through the door, taken on line 2—2 of Fig. 3, showing the inclosed latch and its operating mechanism.

Fig. 3 is a section taken on line 3—3 of Fig. 4.

Fig. 4 is a section taken on line 4—4 of Fig. 3.

In all the views the same reference characters are employed to indicate similar parts.

5 is an automobile, of the conventional type, showing doors 6 and 7. 8 is the hand movable element of the latch which is adapted to be grasped by the hand and pressed inwardly in opening the door. This portion of the latch may be covered by the usual leather shield, commonly used on automobiles, to protect the upper surface of the door when grasped by the hand.

The door of an automobile is usually hollow between side walls 9 and 10. In the present embodiment the wall 10 is continued at right angles, as at 11, partway across the inclosed space at the top of the door. A section 8, movable to operate the latch, is cut from the panel, and includes a vertical wall 12 and a laterally extending wall 13. The wall 13 is above, or it may be below, the wall 11 of the relatively stationary part and is adapted to be moved inwardly toward the wall 10 when the upper part of the door is grasped by the hand and pressure is applied. The panel 8 may be covered by a leather shield 14 to obscure the joint between the walls 9 and 12.

Cross pieces 15 and 16 are secured to the side walls 9 and 10, the piece 15 is also secured to the end wall 17. A rectangular-shaped lever 18, is pivoted to the pieces 15 and 16, as at 19 and 20, respectively, so that the lever has a free, transverse movement between the walls. The lever is contracted in dimension somewhat, near the top, as at 21, and is curved to the left, viewing it in Fig. 2, as at 22, and is connected to the vertical wall 12 of the movable latch-operating member 8, as shown clearly in Fig. 2. A long leaf-spring 23 bears upon the upper end of the lever 18, as at 24, and is fixed to the cross member 15, as at 25′. The tension of this spring yieldingly holds the lever in position so that the vertical wall 9 is held in vertical alinement with the wall 12 and the spring is such as to yieldingly return the parts 8 to their normal position, shown in Fig. 2, when the member 8 is released. A lever 25 is pivoted to a bracket 26 that is fixed to the wall 9. The lever 25 extends forwardly and is turned at right angles at its free end, as at 27, which end is normally spaced apart a slight distance from the inner surface of the wall 10. Pivoted to the lever 25, as at 29, is a latch lever 28. This lever has an extension at right angles to the body part, as at 30, provided with a hook 31 that is engaged by a spring 32. The mid-portion 33 of the spring 32 is connected to the lever 25, as at 34. The under, or lower portion of the spring 32, is returned and is also

connected to the hook 30 of the lever 28 below the lever 25. This spring yieldingly tends to hold the levers 18 and 25 in mutual contact and it furthermore holds the outer tapered end 36, on the lever 28, extended.

While the spring 32 may be sufficient to hold the levers 18 and 25 in yielding contact, another spring 37, may be employed supplementary to the spring 32. The spring 37 is secured to the lever 18, as at 38, and extends upwardly and engages a pin 39 that depends from the lever 25.

A latch plate 40 is fixed in the door jamb 41, and is provided near its outside end with a relatively deep notch 42, and a supplemental, somewhat shallower notch 43. In these notches the outwardly curved end 36 of the latch lever engages.

A cleat 44 bridges the opening between the door and the jamb, as usual in structures of this character.

When it is desired to open the door the hand of the operator grasps the movable latch-operating panel 8 and the immovable part of the door opposite the panel, in this instance the wall 10, and moves the movable panel 8 from the outside, inwardly. The first effect of this operation is to move the upper end of the lever 18 inwardly toward the wall 10. This carries with it the lever 25 and also, bodily, the latch lever 28. The front end 36 of the latch lever does not, however, entirely leave the notch 42 in the latch plate 40, in which it is contained, until the end 27 of the lever 25 makes contact with the relatively stationary wall 10, whereupon further movement of the lever 18, bearing upon the outturned end 30 of the latch lever 28 moves the lever on the pivot 29 and causes the front end 36 to move laterally out of the notch 42, whereupon the door may be opened.

To close the door the hand must again grasp the door, over the part 8, and move the latter inwardly, causing the outer end 36 of the latch lever 28 to be moved inwardly on its pivot 29, whereupon the door may be closed, and when the hand moved panel 8 is released, the springs 23, 32 and 39 will move the parts back into their normal position, shown in Fig. 3. When the door is open, and the panel 8 is released, the front end 36 of the latch lever, will extend so far toward the wall 9 of the door that it will not enter the deep notch 42 when the door is slammed. To cause the front end 36 of the latch lever to enter the notch 42 it is necessary that the levers 18 and 25 should be moved farther toward the wall and move the latch lever 28 bodily with them until the end 27 of the lever 25 makes contact with the wall 10, then the lever 18 will bear sufficiently upon the end 30 of the latch lever to move it out of its latched position. When the door is slammed, the latch lever will engage the shallow notch 43, which is the supplementary notch. Before the door can be completely closed to cause the latch lever 28 to engage the deeper notch 42 it is necessary to press the panel 8 inwardly so that the latch lever 28 will be bodily moved in that direction, whereupon the curved end 36 will snap into the notch 42, after the panel 8 is released.

When the door is closed and latched, as in the position shown in Fig. 3, the springs tend to yieldingly maintain the door in that position, and if pressure is applied against the inner wall 10 of the door, it will move out slightly until the end 27 of the lever 25 makes contact with the inner surface of the wall 10 whereupon the door, thus being resisted, will not move farther by any reasonable pressure applied within the compartment closed by the door, and therefore any tendency to rattling by the door is thus resisted by the springs which control the latch.

While I have herein shown and described a single embodiment of my invention for the purpose of clear disclosure, it is manifest that many changes may be made therein within the spirit of the invention and scope of the appended claims.

Having described my invention, what I claim is:—

1. In combination with an automobile tonneau having a door hinged to open outwardly, of a latch, to hold the door closed and a latch actuator substantially flush with the outside surface of the door and extending to the upper edge thereof movable in a direction to close the door for retracting said latch to open the door.

2. In combination with an automobile tonneau having a double wall door hinged to open outwardly, of a spring latch within the walls of the door to hold the door closed and a panel, substantially flush with the outside wall of the door and extending to the upper edge thereof, supported by a latch-actuating member, and a latch actuating member movable toward the inner wall of the door to operate the latch to open the door.

3. In combination with an automobile tonneau having a double wall door hinged at one vertical edge to open outwardly; a spring latch automatically operable to hold the door closed; a vertically extending lever inside the door to actuate the latch; a panel in the outer wall of the door extending substantially to the top thereof and supported on said latch actuating lever whereby pressure on the panel to move it inwardly of the door toward the interior of the tonneau will retract the latch.

4. In combination with an automobile door, having parallel side walls with the outer wall cut away near the top to receive a panel: a latch within the door between said walls and a panel within the cut away

part movable inwardly toward the interior of the space closed by the door to operate the latch.

5. In combination with an automobile door, having parallel side walls and adjoining upper walls with part of the outer and upper wall cut away at the top to receive a panel; a latch within the door between the walls and a panel within the cut away part movable inwardly to operate the latch.

6. In combination with an automobile door, a latch having a latch-bolt pivoted to a movable part; a latch-operating lever for moving said part and said bolt on their respective pivots; a stop for said movable part, whereby to bodily move said latch with said movable part until the stop is encountered and subsequently to move said latch on its pivot to withdraw the latch from its outstanding position.

7. In combination with an automobile door having a jamb against which it closes; a pivoted latch member carried by the door; a latch plate in the jamb having a recess to receive the end of the latch and a part to oppose the movement of the latch on its pivot, and a latch-operating means for bodily moving said latch member axially and partway out of said recess and subsequently on its pivot, entirely out of said recess.

8. In combination with an automobile door; a lever 18 pivoted therein and extending to a point near the top of the door; a panel 8 cut from one wall of the door and secured to the lever; a pivoted lever 25, bearing a latch member 28, pivoted thereto, as at 29; a stop, 10, for the end, 27, of lever, 25; a spring, 32, for yieldingly holding the free end of the latch lever extended from the door; a latch plate, 40, having a notch 42 to receive the free end of the latch lever, the arrangement being such that the latch lever 28 is bodily and axially moved until the end 27 encounters the stop 10, whereupon further movement of the lever 18 will cause the free end of the latch lever to leave the recess in which it is received in the jamb, and a spring to return the lever, 18, to its normal position.

9. In combination with a hollow automobile tonneau, a door having parallel side walls and a top wall and having a part cut out of the outside wall and the top wall, to receive a panel: an inwardly movable panel in said opening, normally flush with the outside wall; a latch within the door; a lever connected to the latch and panel, to retract the latch by moving the panel inwardly of the tonneau, and a spring to move the parts to normal position when the panel is released.

10. In combination with an automobile tonneau, a door; a latch mechanism within the door and means flush with the outside wall of the door and extending to the top thereof, movable inwardly toward the tonneau to withdraw the latch to open the door.

In testimony whereof I hereunto set my hand.

CHRISTOPHER S. BOOTH.