H. M. TOMPKINS & H. K. KOPPIN.

DOOR LATCH.

APPLICATION FILED AUG. 4, 1917.

1,253,545. Patented Jan. 15, 1918.

FIG. 1

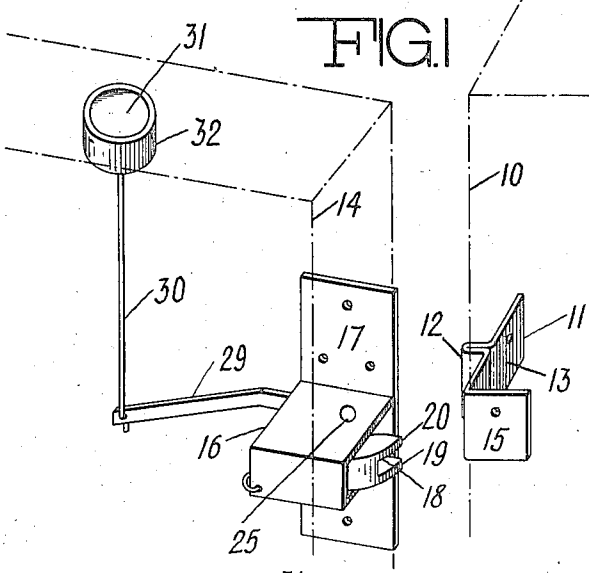


FIG. 5

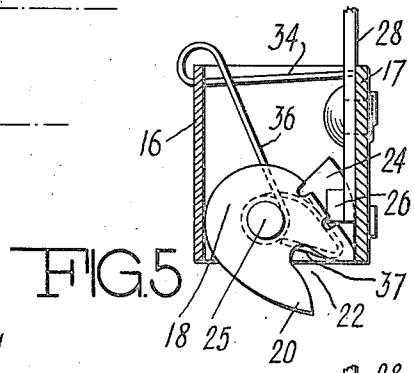


FIG. 6

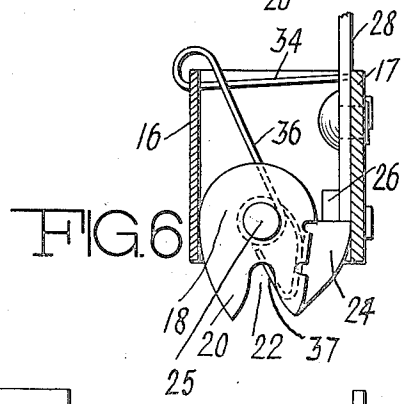


FIG. 3

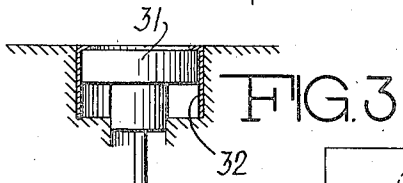


FIG. 2

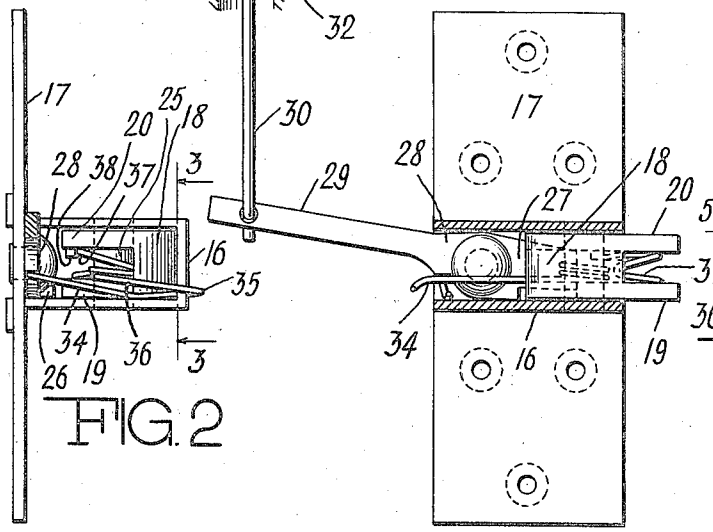
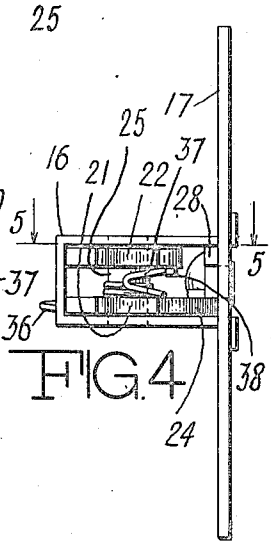


FIG. 4



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DOOR-LATCH.

1,253,545. Specification of Letters Patent. Patented Jan. 15, 1918.

Application filed August 4, 1917. Serial No. 184,537.

To all whom it may concern:

Be it known that we, HENRY M. TOMPKINS and HARRY K. KOPPIN, citizens of the United States, residing at 3000 East Grand Boulevard, Detroit, in the county of Wayne and State of Michigan, and at 405 Homewild avenue, Jackson, in the county of Jackson and State of Michigan, respectively, have invented certain new and useful Improvements in Door-Latches, of which the following is a specification.

This invention relates to door latches in general, and finds particular adaptation as a latch for automobile doors.

Among the main objects of the invention it is aimed to provide a door latch which, requiring no manipulation when closing the door, will automatically latch the door; to provide a door latch which cannot ordinarily or without great difficulty be latched when the door is open, but will remain unlatched until the door is closed; to provide a door latch which if latched, purposely or accidentally, when the door is open, can with the greatest facility be unlatched by the proper manipulation, and on the other hand, with equal facility be so unlatched when the door is closed; and to provide a door latch which when latched, will not unlatch with jarring, sagging or warping of the door or door abutment.

Another object of the invention is to provide a door latch which serves as a door check for the door when closing, with the resulting protection against slamming and banging, and which latch furthermore will not only maintain the door latched when in closed position, but so grip it as to prevent its chattering or rattling.

With the door latches at present in use, especially those provided with automobile doors, levers are ordinarily used. These levers are manipulated, one by raising, another by depressing, another by pushing, still another by pulling, and, in other words, in as many different ways, it would appear, as human ingenuity could contrive, and, obviously in view thereof, the newcomer in attempting to open the door will, of course, first try a few wrong ways before striking the right way. With the foregoing in mind, the present invention has a further special object to provide a door latch, the manipulation of which cannot be mistaken even by the most ignorant and inexperienced. The particular manipulating means of the present door latch dispenses absolutely with any obstructions when the door is closed, a feature which is of no mean importance, not only as regards appearance, but also to negative accidental opening of the door as well as to prevent catching the clothing of persons passing by.

The construction of the embodiment illustrated in the accompanying drawings embraces certain other new and meritorious features, among which an actuating spring deserves particular mention. This actuating spring comprises a single wire, one portion of which serves as a check for the door when closing, another portion to withdraw the active member of the latch out of latching position when so manipulated, and still another portion to maintain the active member controlling means in proper position.

These and other features, capabilities and advantages of the invention will appear in the detailed description of one specific embodiment thereof illustrated in the accompanying drawings in which,—

Figure 1 is a schematic perspective showing the essential portions of the latch in perspective, and the door abutment and door schematically.

Fig. 2 is an end elevation of a portion of the latch partly in section.

Fig. 3 is a side elevation of a portion thereof in section on the line 3—3 of Fig. 2.

Fig. 4 is another elevation showing the end thereof opposite to that illustrated in Fig. 2.

Fig. 5 is a section of a portion of the latch on the line 5—5 of Fig. 4, showing the latch in unlatched position.

Fig. 6 is a section similar to Fig. 5 showing the latch in latched position.

The present embodiment illustrates the application of the particular latch in use on an automobile. In Fig. 1 the door abutment or body portion 10 of the car has secured thereto the latch abutment plate 11 which comprises a nose 12, for coöperation with the active member of the door latch. The nose 12, which, if desired, may be a casting of the proper contour, in the present instance is formed by the portion 13 of the plate 11 projecting out and being bent back upon itself. The plate 11 has its portion 13 secured to the edge of the body portion 10 facing the door 14 when in closed position,

and has a flange 15 extending at right angles to the portion 13 secured to the side of the body portion 10.

The active member of the latch comprises essentially a housing 16 secured to the plate portion 17, the door 14 being cut away to receive the housing 16 and countersunk to receive the plate 17, the plate 17 in the present instance being disposed adjacent to the face of the door 14 which faces the abutment 10 when the door is in open position.

In the housing 16, the jaw member 18 is pivotally mounted on the spindle 25 and comprises essentially two cheeks 19 and 20 spaced from, but integral with, one another at their upper ends. The cheek 19 has a jaw opening 21 in alinement with the jaw opening 22 of the cheek 20. The lower end of the cheek 19 is enlarged and formed into a projection 24 to coöperate with the flange 26 formed on the short arm 27 of the link 28, which is pivotally connected to the plate 17. The link 28 has a long arm 29 to which is pivotally connected the actuating rod, in the present instance the wire 30, secured to the button 31, which is suitably housed and secured against removal in the bushing 32 which is set in the chamber formed in the upper portion of the door 14. The door 14 will, of course, be suitably chambered to accommodate the wire 30 and the link 28. The bushing 32 at one end terminates flush with the upper edge of the door 14 so that when the button 31 is in raised or normal position, its upper surface will form one continuous surface with the remaining upper edge of the door 14. The wire 30 and link 28 in the present instance are arranged to accommodate positioning of the button 31 at the upper edge of the door 14.

For normally maintaining the button in raised position and the link 28 under tension ready for action, the downwardly extending portion 34 of the spring 35 extends down into engagement with the portion of the long arm 29 adjacent to the pivotal connection of such link 28. The portion 34 extends in a direction away from the plate 17 through the portion of the housing 16 parallel to said plate 17, then the spring 35 continues in the portion 36, which extends down to the spindle 25, around which it coils and then terminates in the bumper 37 disposed between the cheeks 19 and 20, one side of the bumper 37 being flexed against the flange 38 extending inwardly from the cheek 20. The arrangement of this spring, as shown, holds the member 18 under tension so that the projection 24 will normally be raised and disengaged from the projection 26 of the link 28.

In the open position illustrated in Fig. 1, the jaw member will assume the position shown in Fig. 5. Upon swinging the door 14 into closed position, the nose 12 will be engaged by the jaw member 18, whereupon such jaw member will be rocked against the tension of the spring 35 into the position shown in Fig. 6, in which the projection 24 will pass beyond the projection 26 and permit the portion 34 of the spring to swing the link 28 so that the projection 26 serving as a secondary latch will snap into the path of movement of the projection 24 and latch the jaw member and with it the door in latched position. When the jaw member is moved into latched position, it will be seen that the nose 12 will be brought into engagement with the bumper 37 and thus resiliently maintain the door against rattling no matter how much the door sags or automobile body warps. For unlatching the door the button 31 will be depressed, whereby the link 28 will be actuated to release and permit the jaw member to be snapped back into unlatched position.

It will also be seen from the foregoing that when the nose 12 engages the jaw member 18, due to the resilient mounting of such jaw member, this will serve as a bumper and prevent undue shocks that would generally result from rapid closing of the door.

It is obvious that, if desired, the active latch member may be installed on the body and the nose on the door and that various changes and modifications may be made to the details of construction without departing from the general scope of the invention as set forth in the claims.

We claim:—

1. A latch having an active latch member and a passive latch member coöperating therewith, a secondary latch for anchoring said active latch member in latching position, and a single spring for both exercising a force on said active latch member to maintain the same in unlatched position and for also exercising a force on said secondary latch to actuate said secondary latch into a position for anchoring said active latch member in latching position.

2. A latch having an active latch member and a passive latch member coöperating therewith, a secondary latch for anchoring said active latch member in latching position, a single spring for both exercising a force on said active latch member to maintain the same in unlatched position and for also exercising a force on said secondary latch to actuate said secondary latch into a position for anchoring said active latch member in latching position, and a freely movable actuator connected to said secondary latch for releasing said secondary latch when disposed in latching position.

3. A door latch having a passive latch member and a jaw member comprising two cheek members for coöperating with said passive latch member, a spindle on which said jaw member is mounted, and a spring

disposed between said cheek members and connected to said jaw member to normally maintain said jaw member in unlatched position.

4. A door latch having a passive latch member and an active latch member comprising two parallel cheek members, a spindle on which said active member is mounted, a spring disposed between said cheek members and connected to said active latch member to normally maintain said active latch member in unlatched position, said cheek members having jaw formations to coöperate with said passive latch member.

5. A latch member having an active latch member and a passive latch member cooperating therewith, means for normally maintaining said active latch member in unlatched position, means for anchoring said active latch member in latched position, and resilient means for engaging said passive member and maintaining said active latch member wedged against said passive member when in latched position thereby to prevent chattering or rattling of the latch members relative to one another when in latched position.

6. A latch having a passive latch member, an active latch member coöperating with said passive latch member and comprising a jaw member, a spindle on which said jaw member is mounted to be tilted into latched position when moved into engagement with said passive latch member, a link, a projection on said link to engage said jaw member and latch it in latched position, and a single spring for normally maintaining said link in readiness to snap said projection into latching position, for normally maintaining said jaw member in unlatched position, and for engaging said passive member to form a wedge to anchor the passive latch member against rattling.

7. A latch having a passive latch member, an active latch member coöperating with said passive latch member and comprising a jaw member mounted to be tilted into latched position when moved into engagement with said passive latch member, a link, a projection on said link to engage said jaw member and latch it in latched position, means for actuating said link to release said jaw member, and a spring for normally maintaining said link in readiness to snap said projection into latching position, for normally maintaining said jaw member in unlatched position, and for engaging said passive member to form a wedge to anchor the passive latch member against rattling.

8. A door latch having a passive latch member, an active latch member coöperating with said passive latch member and comprising a jaw member; a spindle on which said jaw member is mounted to be tilted into latched position when moved into engagement with said passive latch member; a link; a projection on said link to engage said jaw member and latch it in latched position; means for actuating said link to release said jaw member; and a spring, a portion of which extends down into engagement with said link to maintain the same in readiness to snap said projection into latching position, another portion of which coils around said spindle and into engagement with said jaw member for normally maintaining said jaw member in unlatched position, and terminating in a bumper or wedge member for engaging the passive latch member.

9. A door latch having a passive latch member, an active latch member coöperating with said passive latch member and comprising a jaw member mounted to be tilted into latched position when moved into engagement with said passive latch member, resilient means for normally maintaining said jaw member in unlatched position and terminating in a nose to offer resistance to said passive member when being tilted into latched position thereby serving as a bumper to prevent jarring when bringing the respective latch members into engagement with one another, and control means for releasing said jaw member out of latched position.

10. A door latch having a passive member, an active latch member coöperating with said passive latch member and comprising a jaw member mounted to be tilted into latched position when moved into engagement with said passive latch member, a secondary latch member for latching said jaw member in latched position, and resilient means for normally maintaining said secondary latch in readiness to operate, for normally maintaining said jaw member in unlatched position, and for engaging said passive member to form a wedge to anchor the passive latch member against rattling.

11. A door latch having a passive latch member, an active latch member coöperating with said passive latch member and comprising a jaw member mounted to be tilted into latched position when moved into engagement with said passive latch member; a secondary latch for latching said jaw member in latched position; and a spring, a portion of which extends into engagement with said secondary latch for normally maintaining the same in readiness to operate, another portion of which engages said jaw member for normally maintaining said jaw member in unlatched position, and terminating in a bumper or wedge member for engaging the passive latch member and securely holding the same against rattling when in latched position.

12. A door latch having an active member comprising gripping means, and a passive

member comprising a plate, a nose being formed by a portion of said plate projecting out and bent back upon itself, and being adapted to be engaged by said gripping means when in latched position.

13. A door latch having a passive member, an active member coöperating with said passive latch member and comprising a portion mounted to be tilted into latched position when moved into engagement with said passive member, means for latching said portion in latched position, and a single spring for both normally maintaining said latching means in readiness to operate and for also normally maintaining said portion in unlatched position.

14. A door latch having a passive latch member, an active latch member coöperating with said passive latch member and comprising a jaw member mounted to be tilted into latched position when moved into engagement with said passive latch member, a push rod, means for anchoring said jaw in latched position when so tilted, means for both normally maintaining said jaw member in unlatched position and for normally maintaining said push rod in raised position, a button connected to said push rod, and connecting means operatively connecting said push rod with said jaw member so that upon the actuation of said button the jaw member will be released and permitted to snap back into unlatched position.

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