Nov. 4, 1924. 1,514,528

N. B. HURD

DOOR LOCK

Original Filed March 18, 1922

Fig. 1.

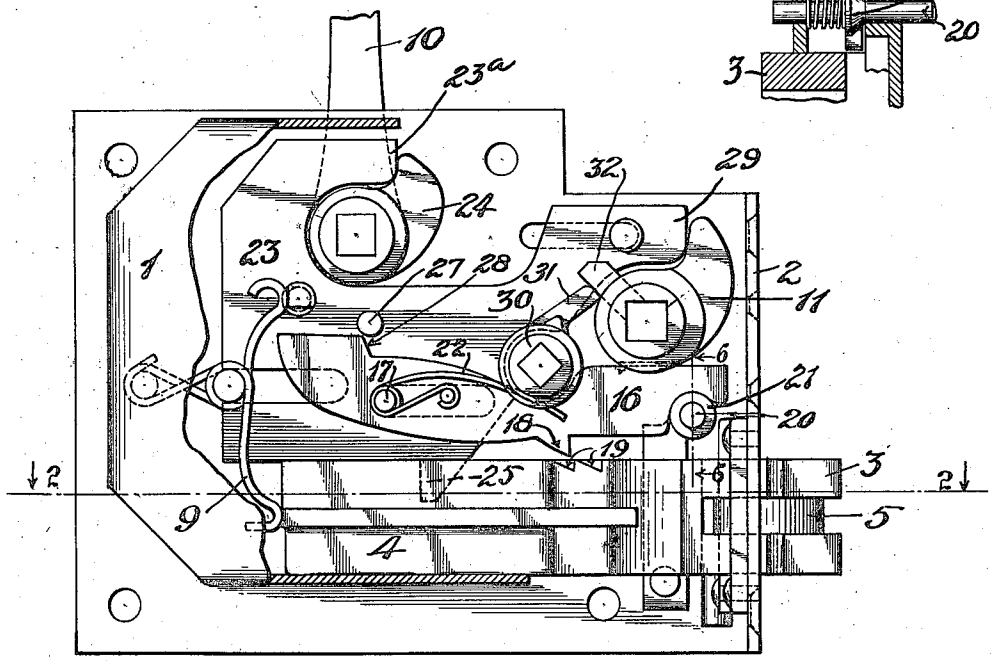


Fig. 6.

Fig. 2.

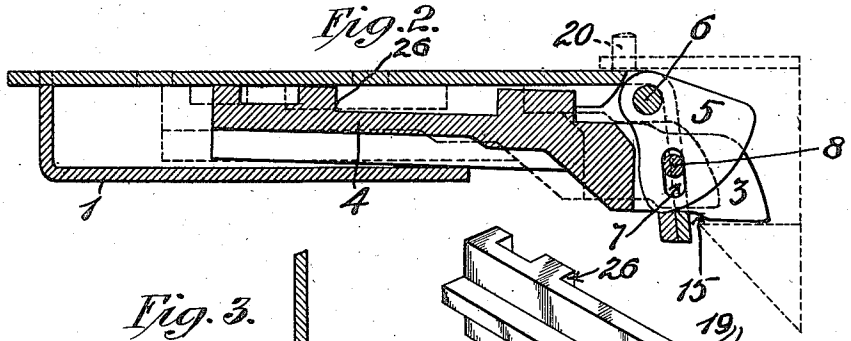


Fig. 3.

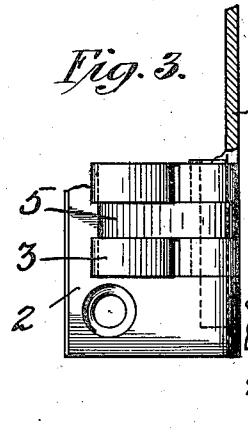


Fig. 4.

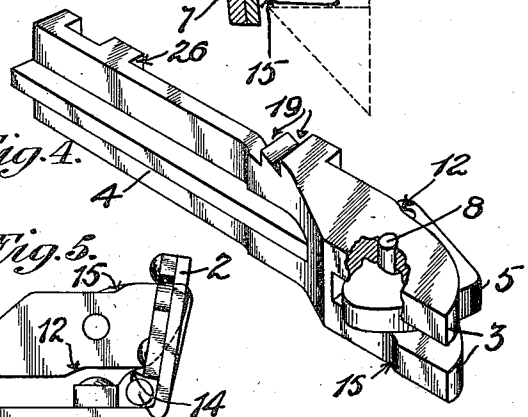
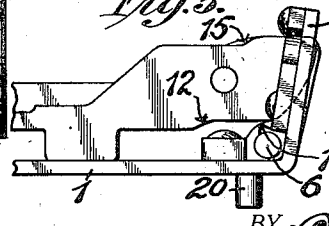


Fig. 5.



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UNITED STATES PATENT OFFICE.

NORMAN B. HURD, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO THE AMERICAN HARDWARE CORPORATION, OF NEW BRITAIN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

DOOR LOCK.

Application filed March 18, 1922, Serial No. 544,845. Renewed September 11, 1924.

To all whom it may concern:

Be it known that I, NORMAN B. HURD, a citizen of the United States of America, residing at New Britain, Hartford County, Conn., have invented a new and useful Door Lock, of which the following is a specification.

My invention relates to improvements in locks particularly useful as applied to automobile doors.

One of the objects is to provide means whereby the latch bolt will effectively perform its regular function of locking the door and will also operate to take up any loose play in the door and thereby prevent rattle. Other features include means for dogging the latch against accidental or unintentional retraction. Other means provide for ease of operation and certainty of action.

In the drawings:

Fig. 1 is a side view of the lock case partly broken away to show the internal mechanism.

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

Fig. 3 is an end view of certain parts.

Fig. 4 is a plan view of certain parts.

Figure 5 is a detail plan view of a portion of the lock, showing the latch retracted.

Fig. 6 is a section on the line 6—6 of Fig. 1.

1 represents the lock case. 2 represents the face plate through which projects the latch bolt head. 3 is the latch bolt head, while 4 represents the latch bolt tail. 5 is a latch actuator pivotally mounted at 6 in the face plate 2. As shown, the actuator swings in a slot in the latch bolt head. The actuator has a slot 7 through which passes a pin 8 carried by head 3. 9 is a spring employed to normally impel the latch bolt forwardly. 10 is a handle arranged to retract the latch bolt by hand from the indoor side of the lock. The out door side of the lock is provided with a handle (not shown) which operates a roll-back 11. 12 is a cam shoulder on the latch bolt just back of the face plate 2 and arranged to coact with a shoulder 14 for the purpose hereinafter described. 15 represents a bevel or incline on the abrupt side of the latch bolt. This bevel corresponds generally to the cam 12 but is located forwardly of the same as best seen in Fig. 5. By comparing Figs. 2 and 5 it will be seen that the latch bolt head partakes of not only a longitudinal but a lateral movement, the lateral movement occurring at the end of the outward movement for the purpose of crowding the door tightly against the casing when it is closed so that it will not rattle, assuming the door to which the lock is applied is closing. When the door is nearly closed the actuator 5 will encounter the strike plate (indicated in dotted lines, Fig. 2), and will swing back thereby repressing the latch. A very slight repressing movement of the latch brings the incline 15 against the edge of the latch passage in the face plate so that continued rearward movement will cause the latch to swing laterally into the position indicated in Fig. 5. The moment the end of the latch clears the edge of the keeper slot in the strike plate it will be impelled forwardly by the spring 9. On the last part of the forward movement the cam or incline 12 will encounter the shoulder 14 and force the latch bolt head laterally against the inside of the keeper in a direction to crowd the door tightly closed and hold it against rattling.

16 is a dogging device pivoted at 17 and having a nose 18 arranged to lock into either of the notches 19—19 on the latch bolt tail. 20 is a pin which is mounted transversely in the lock case, the end of the pin projecting through near the edge of the face plate so as to strike against the door casing when the door is closed and to be repressed thereby. 21 is a cam on the pin 20, which cam lifts and frees the dog 16 when the door is open. When however the door is closed the cam 21 is withdrawn from the dog which latter is moved into the dogging position, preferably by a spring 22. 23 is a sliding latch retractor mounted within the case. This slide has a nose 23^a for engagement by the roll-back 24 operated by handle 10. The slide also has a nose 25 which engages a shoulder 26 on the tail of the latch bolt. 27 is a pin on the slide 23 which engages a shoulder 28 on the dog 16 to free the latter from the latch

when the slide 23 is drawn back. The outside operated roll-back 11 engages a shoulder 29 on the slide 23 whereby the latch may be retracted from the outside.

When the lock is to be applied to the door of a closed car, I preferably provide a suitable dogging device whereby the outside roll-back may be dogged. For example, 30 represents a roll-back operated by a suitable inside thumb turn or the like. This roll-back has an arm or shoulder 31 arranged to engage a shoulder 32 on the roll-back 11 when the parts are positioned as shown in Fig. 1 thereby preventing anyone from operating the lock from the outside. As shown, the end of spring 32 frictionally holds the roll-back 30 in the on and off position. Obviously, the roll-back 30 may be thrown back so as to free the outside roll-back 11.

It will be noted that by the pin and slot connection between the actuator and the latch bolt head I am enabled to not only transform the swinging movement of the actuator into a rectilinear movement of the latch, but said slot affords adequate clearance to permit the latch bolt head to partake of a lateral movement toward the end of its outward reciprocation and near the beginning of its inward reciprocation without binding, thus I embody in the lock the advantages of the so-called anti-friction latch operator as well as the advantages of an anti-door rattling device.

It will be noted that there are two notches shown in the latch tail for engagement by the latch dog. The second notch is provided simply in the event that if the door fits so tightly that it cannot be crowded by the latch bolt head to a degree which allows the latch to be fully projected, the said dog may still engage the latch by dropping into the said second notch.

What I claim is:

1. A lock comprising, a case, a spring projected reciprocating latch bolt mounted therein and including a head portion adapted to project from said case, with means operating to impart a bodily lateral movement to the outer end of said bolt on the last part of its outward reciprocating movement and the first part of its rearward reciprocating movement, a dogging device for locking said latch in its projected position against unintentional repression, with manually operable means for casting off said dogging device and retracting said latch.

2. In a lock, a case, a spring projected latch bolt projecting through the edge of said case, a latch actuator pivoted to said case and coacting with said latch to repress the same when said actuator encounters a strike plate and is swung thereby, means for imparting a bodily lateral movement to the outer end of said latch bolt on the last part of its outward reciprocation and the first part of its inward reciprocation.

3. In a lock, a case, a latch member mounted to reciprocate therein, a spring for imparting reciprocating motion in one direction to said latch, and a manually operable retracting device for reciprocating said latch in an opposite direction, positive means for imparting lateral movement to the latch bolt head in a direction to crowd the door into its closed position to prevent rattling, a latch dog for holding the latch against unintentional repression, said manually operable retracting device coacting with said dog to release the latch to permit it to be retracted.

NORMAN B. HURD.