May 24, 1927. 1,629,614

W. C. DEVEREAUX

DOOR LATCH

Filed June 2, 1924

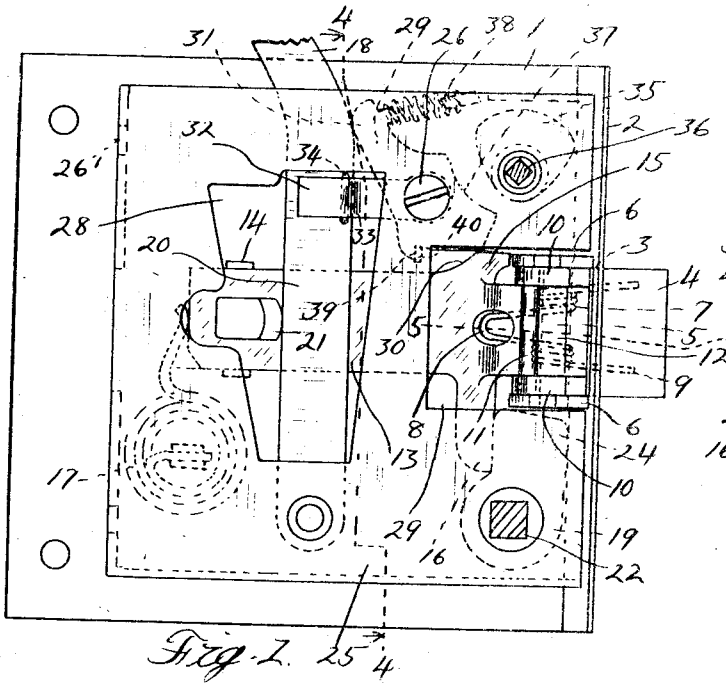


Fig. 1.

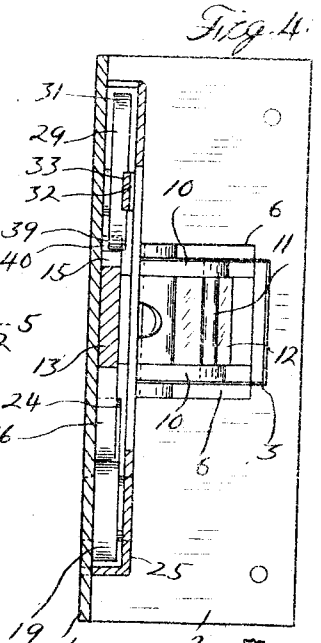


Fig. 4.

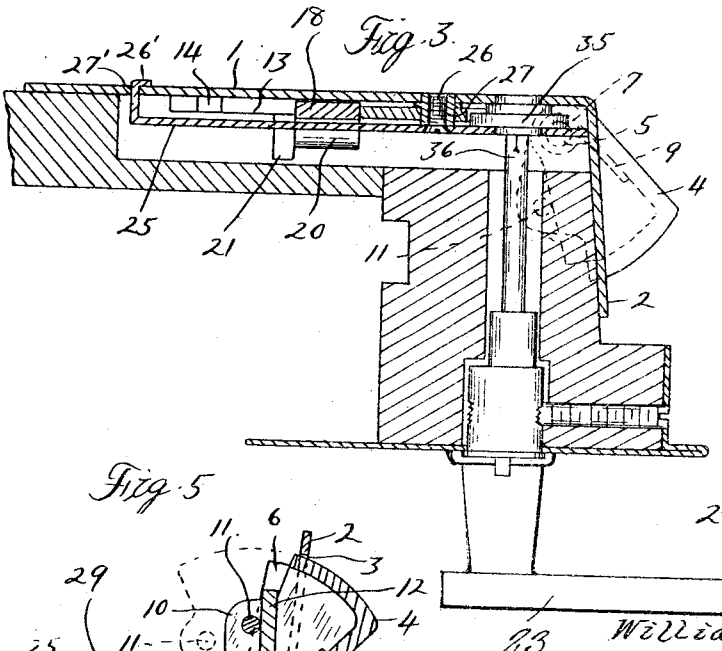


Fig. 3.

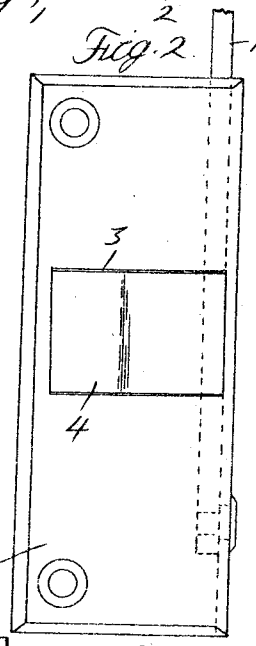


Fig. 2.

Fig. 5.

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UNITED STATES PATENT OFFICE.

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DOOR LATCH.

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This invention relates generally to latches and refers more particularly to vehicle door latches having swingingly mounted latch bolts which may be actuated from either the inside or the outside of the vehicle.

One of the essential objects of the invention is to provide a strong and durable latch in which the swinging latch bolt is provided with a slidably mounted shank that is adapted to be dogged by either the inside operating mechanism for the bolt or independent key-operated means for rendering the outside operating mechanism for the bolt inoperative.

Another object is to provide means for automatically returning the dog to inoperative position when released by either the inside operating mechanism for the bolt or the key-operated means.

A further object is to provide a simple form of latch that can be manufactured at a comparatively low cost.

With the above and other objects in view the invention consists of certain novel features of construction, combinations and arrangements of parts as will be more fully described and particularly pointed out in the appended claims

In the accompanying drawing:

Figure 1 is a side elevation of a latch embodying my invention;

Figure 2 is an end elevation thereof;

Figure 3 is a fragmentary horizontal sectional view of a door with latch mechanism embodying my invention applied thereto.

Figure 4 is a sectional view taken on the line 4—4 of Figure 1;

Figure 5 is a sectional view taken on the line 5—5 of Figure 1.

Referring now to the drawing in which like characters of reference designate corresponding parts throughout the several views, the numeral 1 designates a case plate that is adapted to be secured to the inner side of a vehicle door having a laterally extending flange 2 that is adapted to be secured to the outer edge of the door. Extending through an opening 3 in the flange 2 is a latch bolt 4 that is adapted to engage a suitable keeper (not shown) to hold the door in closed position. This bolt is preferably pivoted on a pin 5 extending through parallel flanges 6 projecting inwardly from the upper and lower edges of the opening 3 and is normally held in extended position for engagement with the keeper by means of a coil spring 7 having arms 8 and 9 respectively abutting the case plate and bolt As shown, the bolt 4 is preferably hollow and is provided with a pair of parallel rearwardly extending lugs 10 through which extends a suitable pin 11 that is adapted to engage a lateral extension 12 of the shank 13 to limit the outward swinging movement of the bolt The shank 13 is preferably slidably mounted on the inner face of the case plate between struck out ears 14 and is preferably provided at its forward end with vertical upstanding and depending projections 15 and 16 respectively that are normally held in engagement with the flanges 10 by means of a helical spring 17 anchored on the case plate Thus, the flanges 10 limit the forward sliding movement of the shank 13 and the latter cooperates with the pin 11 to limit the outward swinging movement of the bolt 4

For retracting the bolt 4 to release the door, I preferably provide an inside operating lever 18 and an independently operable outside roll back 19. As shown, particularly in Figure 1 of the drawing, the lever 18 is pivoted at the lower end thereof to the inner face of the case plate and is provided with an intermediate offset portion 20 that is engageable with a laterally projecting lug 21 on the shank 13 of the bolt, while the roll back 19 is preferably non-rotatably secured to the operating shank 22 of a suitable rotatable handle 23 located outside of the door and is provided with a cam 24 that is engageable with the depending projection 16 on the shank 13 of the bolt. Thus, with this construction, the projection 16 on the shank will be disengaged from the cam 24 of the roll back when the lever 18 is moved rearwardly to retract the bolt. Likewise, the lug 21 will be disengaged from the offset portion 20 of the lever 18 when the roll back 19 is swung rearwardly to retract the bolt.

To enclose the working parts of the latch, I preferably provide a cover plate 25 that is arranged parallel to the case plate and is detachably secured thereto by means of a screw 26 that threadedly engages a tubular spacer 27 riveted to the case plate. The cover plate 25 is also preferably provided with laterally extending tongues or projections 26′ that engage suitable openings 27′ in the case plate and is provided with suitable openings 28 and 29 respectively for receiving the extension 12 of the bolt shank

13 and the offset portion 20 of the lever 18.

In order that the outside operating handle may be rendered inoperative by the lever 18, I preferably provide a dog 29 that is pivoted on the spacer 27 and is adapted to swing into engagement with the curved rear edge 30 of the projection 15 on the shank 13 of the bolt. Projecting upwardly from the dog above the pivot is an extension 31 that is adapted to be engaged directly by the inside operating lever 18 when the latter is moved forwardly. For detachably holding the dog in engagement with the projection 15 on the bolt shank when the lever 18 is moved forwardly, I preferably provide a suitable leaf spring 32 that is preferably permanently secured at the end to the spacer 27 by the screw 26 and projects rearwardly across the lever 18 in substantial parallel relation to the case plate 1. To return the lever 18 in dogging position the spring is provided with a laterally extending offset portion 33 that is engageable with the correspondingly shaped recess or depression 34 in the lever.

In order that the outside operating handle 23 may be rendered inoperative by independent means located upon the inside of the door, but operable from the outside of the door, I preferably provide a suitable cam 35 that is adapted to be rotated by a key-operated shank 36 into engagement with the curved portion 37 of the dog to swing the latter in rear of the projection 15 on the bolt shank. For holding the dog in proper position to be engaged by either the lever 18 or the cam 35, I preferably provide a suitable coil spring 38 that normally holds a shoulder 39 of the dog against a struck out lug 40 on the case plate. Thus, this spring will automatically return the dog to normal position after being released by either the lever or the cam 35.

From the foregoing description it will be readily apparent that the bolt 4 may be retracted by operating either the lever 18 or the handle 23. It will also be apparent that the outside operating handle 23 may be rendered inoperative by moving the dog 29 in rear of the projection 15 of the bolt shank 13. Furthermore, this dog may be actuated by either the lever 18 or the cam 35 on the key-operated shank 36. Thus, the door may be locked from either the inside or the outside thereof.

While it is believed that from the foregoing description the nature and advantages of the invention will be readily apparent, I desire to have it understood that I do not limit myself to what is herein shown and described, and that such changes may be resorted to when desired as fall within the scope of what is claimed.

What I claim as my invention is:

1. In a latch, the combination with a latch bolt, of a shank in rear thereof having a lateral projection operatively connected to the bolt for retracting the same, a member engageable with a projection on the shank for operating said bolt, and a pivoted dog positioned adjacent to said operating member and adapted to be moved thereby into locking engagement with said shank.

2. In a latch, the combination with a pivoted latch bolt having a shank, of a member engageable with a projection on the shank for operating said bolt, and a spring-pressed dog positioned adjacent to said operating member and adapted to be moved thereby into locking engagement with said shank.

3. In a latch, the combination with a pivoted latch bolt, of a slidably mounted shank operatively connected to the bolt, a lever for operating said shank, and a spring-pressed dog positioned adjacent to said lever and adapted to be moved thereby into locking engagement with said shank.

4. In a latch, the combination with a latch bolt having a shank, of a pivoted dog, an operating member for the bolt movable in one direction for moving the dog into locking engagement with the shank of said bolt, and means independent of the operating member for automatically returning the dog to normal position when the operating member is moved in the opposite direction.

5. In a latch, the combination with a pivoted latch bolt, of a slidably mounted shank operatively connected to said bolt, of a pivoted dog, an operating member for the bolt movable in one direction for moving the dog into locking engagement with the shank of said bolt, and a yieldable member independent of the operating member for automatically returning the dog to normal position when the operating member is moved in the opposite direction.

6. In a latch, the combination with a pivoted latch bolt, of a slidably mounted shank operatively connected to said bolt, a member engageable with a projection on said shank for retracting said bolt, a key-operated member, and means adapted to be actuated by either of said members for dogging said shank.

7. In a latch, the combination with a pivoted latch bolt, of a slidably mounted shank operatively connected to said bolt, a member engageable with a projection on said shank for retracting said bolt, a key-operated member, and a spring-pressed dog adapted to be actuated by either of said members for dogging said shank.

8. In a latch, the combination with a case plate having a flange provided with an opening, flanges projecting rearwardly from the upper and lower edges of said opening, a latch bolt in said opening pivoted on the rearwardly projecting flanges, a pin carried by said bolt, and means for actuating said bolt, said means including a shank slidably

mounted on said case plate and having a lateral extension engageable with said pin.

9. In a latch, the combination with a case plate having a flange provided with an opening, flanges projecting rearwardly from the upper and lower edges of said opening, a latch bolt in said opening pivoted on the rearwardly projecting flanges, a pin carried by said bolt, means for actuating said bolt including a shank slidably mounted on the case plate and having an extension engageable with said pin, a projection on said shank engageable with one of said rearwardly extending flanges for limiting the forward movement of said shank, a horizontal member carried by said case plate and having a cam engageable with said projection, a lug on said shank, and a vertical member carried by said case plate and engageable with said lug.

10. In a latch, the combination with a movable bolt, of means for actuating said bolt including a shank connected to the bolt, a lug on the shank, a vertical member engageable with the lug, projections on the shank, a horizontal member having a cam engageable with one of said projections, and means for rendering said horizontal member inoperative including a dog engageable with the other of said projections, said dog being adapted to be actuated directly by said vertical member into engagement with said projection.

11. In a latch, the combination with a movable bolt, of means for actuating said bolt including a shank connected to the bolt, a lug on the shank, a lever engageable with the lug, projections on the shank, a roll back having a cam engageable with one of said projections, and means for rendering said roll back inoperative including a member engageable with the other of said projections, said member being adapted to be actuated directly by said lever into engagement with said projection.

12. In a latch, the combination with a case plate and a latch bolt pivoted on said case plate, of means for actuating said bolt including a shank connected to the bolt, a lug on the shank, a lever carried by the case plate engageable with the lug, projections on the shank, and a roll back carried by the case plate having a cam engageable with one of said projections, a key-operated cam carried by said plate, and means adapted to be actuated by either said cam or said lever for dogging said shank to render the roll back inoperative.

13. In a latch, the combination with a case plate and a latch bolt pivoted on said case plate, of means for actuating said bolt including a shank connected to the bolt, a lug on the shank, a lever carried by the case plate engageable with the lug, projections on the shank, and a roll back carried by the case plate having a cam engageable with one of said projections, a key-operated cam carried by said plate, and a pivoted dog adapted to be actuated by either said cam or said lever for dogging said shank to render the roll back inoperative.

14. In a latch, the combination with a case plate and a latch bolt carried thereby, of means for actuating the bolt including a shank slidably mounted on the case plate and connected to the bolt, a lug on the shank, and an operating handle engageable with the lug, a projection on the shank, and means for dogging the shank including a member carried by the case plate adapted to be moved directly by the said handle into engagement with said projection.

15. In a latch, the combination with a case plate and a latch bolt carried thereby, of means for actuating said bolt including a shank slidably mounted on the case plate and connected to the bolt, a lug on the shank, a lever carried by the case plate engageable with the lug, projections on the shank, a roll back carried by said case plate and engageable with one of said projections, a dog pivoted on the case plate engageable with the other of said projections, said dog being adapted to be actuated directly by said lever, and means carried by the pivot for said dog for retaining said lever in dogging position.

16. In a latch, the combination with a case plate and a latch bolt carried thereby, of means for actuating said bolt including a shank slidably mounted on the case plate and connected to the bolt, a lug on the shank, a lever carried by the case plate engageable with the lug, projections on the shank, a roll back carried by said case plate and engageable with one of said projections, a dog pivoted on the case plate engageable with the other of said projections, said dog being adapted to be actuated directly by said lever, and a yieldable member having a lateral extension engageable with the recess in the lever for retaining the latter in dogging position.

17. In a latch, the combination with a case plate and a latch bolt carried thereby, of means for actuating said bolt including shank connected thereto, a lug on the shank, a lever pivoted on the case plate and engageable with the lug, projections on the shank, a roll back carried by the case plate engageable with one of said projections, a dog pivoted on the case plate engageable with the other of said projections, said dog being adapted to be actuated directly by said lever, a stop for said dog, and yieldable means normally holding said dog against said stop.

18. In a latch, the combination with a case plate and a latch bolt carried thereby, of means for actuating the bolt including a shank connected thereto, a lug on the

shank, a lever pivoted on the case plate and engageable with the lug, projections on the shank, a roll back carried by the case plate engageable with one of said projections, a dog pivoted on the case plate engageable with the other of said projections, a lug on the case plate limiting the swinging movement of said dog in one direction, and a yieldable member carried by the case plate normally holding said dog against said lug.

19. In a latch, the combination with a latch bolt, a shank connected thereto, and a roll back engageable with the shank for retracting the bolt, of a dog engageable with the shank for rendering the roll back inoperative, and a vertical member alternately engageable with the shank and dog respectively for retracting the bolt and moving the dog into operative dogging engagement with the shank.

20. In a latch, the combination with a latch bolt, a shank connected thereto, and a roll back engageable with the shank for retracting the bolt of a dog engageable with the shank for rendering the roll back inoperative, and a vertical member for retracting the bolt engageable directly with the dog for moving the same into position with respect to the shank and a yieldable member engageable with said vertical member for detachably holding said dog in dogging position.

In testimony whereof I affix my signature.

WILLIAM C. DEVEREAUX.