Feb. 25, 1930. L. OTTINGER 1,748,613

LATCH STRIKE

Filed April 14, 1927

Fig. 1.

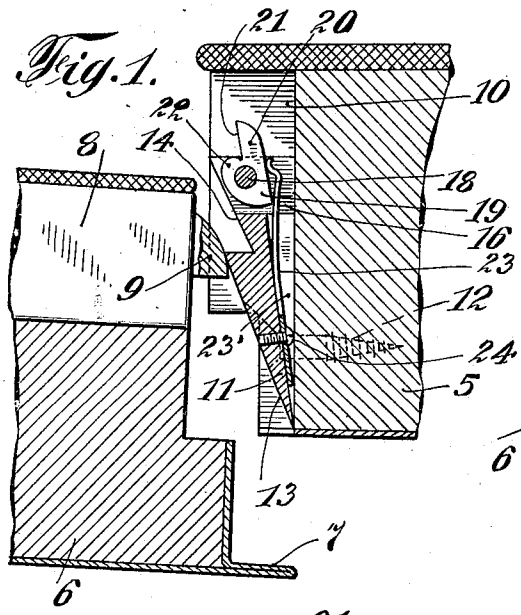


Fig. 2.

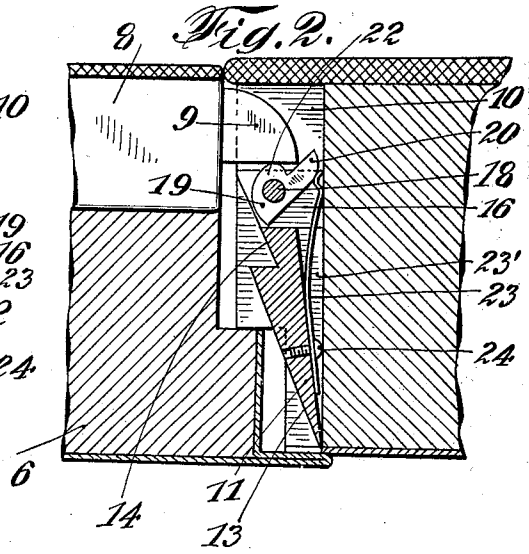


Fig. 3.

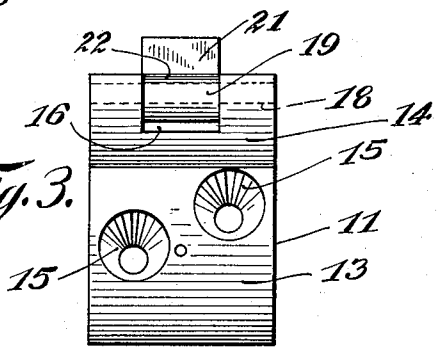


Fig. 4.

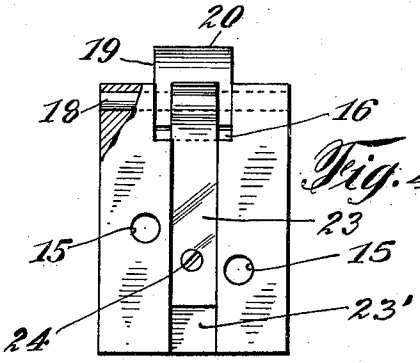


Fig. 5.

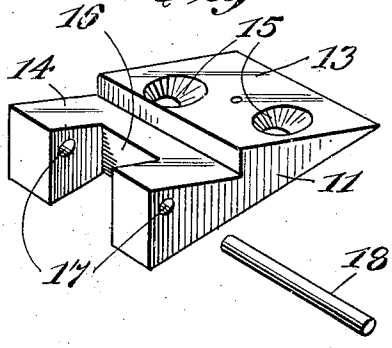


Fig. 6.

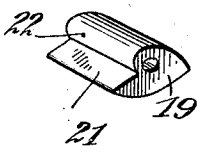
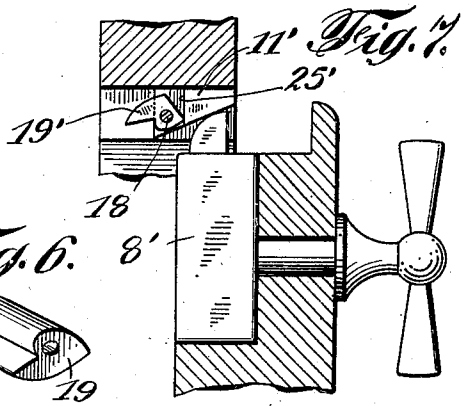


Fig. 7.



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UNITED STATES PATENT OFFICE

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LATCH STRIKE

Application filed April 14, 1927. Serial No. 183,668.

This invention relates to latch strikes, and while of more or less general application, is especially designed for use in connection with door latches for automobiles and similar vehicles.

It is the primary object and purpose of my invention to provide means associated with the strike plate and operated by the pressure of the latch bolt when the same is projected under the force of the latch spring to crowd the door to its closed position and prevent rattling and which will also obviate the possibility of repression of the bolt and the opening of the door by the accidental application of pressure against the inner side of the latter.

It is a more particular object of the invention to provide keeper means for the latch bolt mounted upon the door pillar and embodying a latch plate having a dog pivotally mounted in one end thereof adapted to be engaged and actuated by the projected latch bolt against the force of a suitable spring tending to hold the dog in a normal position, and said dog being provided with an eccentric or cam part adapted to exert a bearing pressure against the outer face of the bolt in the movement of said dog to thereby crowd the bolt and the door to its closed position. The form of this cam or eccentric and its location relative to the pivotal axis of the dog constitutes an important feature of my present disclosure, since as a result thereof, the point of application of pressure by the cam against the outer face of the bolt is approximately on a line with the pivotal axis of the dog and extends substantially at right angles to the length of the bolt, thus obviating any tendency of outward pressure by the bolt against said cam to rock the dog towards its normal position and repress the latch bolt.

It is also another object of my invention to provide a keeper means of the above construction to cooperate with the latch bolt which will however, permit of the free and easy retracting movement of the latch bolt upon the actuation of the latch handle.

It is a further general object of my invention to provide a device for the above purpose in which the several parts are of simple and inexpensive construction, positive and reliable in operation and which requires no radical changes in the usual form of strike plate and may also be readily applied to the door pillar for cooperation with the latch without necessitating any structural changes in the latter.

With the above and other objects in view, the invention consists in the improved latch strike and in the form, construction and relative arrangement of its several parts as will be hereinafter more fully described, illustrated in the accompanying drawings, and subsequently incorporated in the subjoined claim.

In the drawings, wherein I have illustrated several simple and practical embodiments of the device, and in which similar reference characters designate corresponding parts throughout the several views,—

Figure 1 is a horizontal sectional view through a part of a pillar and the free edge of a vehicle door illustrating one embodiment of my present improvements and showing the door in a partly open position;

Figure 2 is a similar view, the door being shown in its fully closed position;

Figure 3 is a front face view of the latch strike;

Figure 4 is a rear face view thereof;

Figure 5 is a perspective view of the strike plate;

Figure 6 is a perspective view of the crowding dog, and

Figure 7 is a detail vertical sectional view showing a slightly modified form of the device as applied in connection with the latch of a door of a cupboard or the like.

Referring in detail to the drawing, and more particularly to Figs. 1 to 6 thereof, for purposes of illustration, I have shown a portion of a door pillar 5 and the free vertical edge portion of the door 6 which is adapted to close against said pillar. As herein shown, this door at its outer side is provided with a laterally projecting flange 7 to contact against the outer side face of the pillar when the door is in its closed position. However, this arrangement may be reversed if desired, and the stop flange 7 provided on the pillar 5. In the inner side face of the

door, the latch 8 having the usual spring projected bolt 9 is mounted. This latch may be of any conventional or approved construction.

The side face of the door pillar 5 opposed to the door opening is provided with a suitable mortise indicated at 10, extending transversely of the pillar. Within this mortise the strike plate 11 is positioned, said plate having its rear face in contact with the base wall of the mortise 10 to which said plate is secured by means of the screws indicated at 12. The front side face of the strike plate is provided with the usual stepped inclined surfaces 13 and 14 respectively, and the countersinks of the screw receiving openings 15 are preferably formed in the longer inclined surface 13 of the plate with which the latch bolt first engages as the door is moved to its closed position.

The inner end of the strike plate 11 is bifurcated as shown at 16, the parts of the plate at the opposite sides thereof being provided with aligned transverse openings 17 to receive the pivot pin 18.

Upon the pin 18 in the bifurcation 16 of the strike plate, the bolt crowding dog 19 is loosely mounted for pivotal or rocking movement. This dog is formed with a finger 20 which projects from the bifurcation 16 beyond the inner end face of the strike plate, the outer side face 21 of said finger extending substantially radially of the pivotal axis of the dog. At its inner pivoted end, this dog is formed with an eccentric or cam portion 22 projecting forwardly of the face 21 of the bolt engaging finger and normally positioned as seen in Fig. 1 of the drawings within the bifurcation 16 of the strike plate.

The bolt crowding dog is yieldingly held in its normal position by means of a suitable spring, and for this purpose, I have herein shown a leaf spring 23 positioned within a longitudinal groove or channel 23′ formed in the rear side of the strike plate and fixed at one of its ends to said plate by means of the screw 24. The other or free end of this leaf spring projects into the bifurcation 16 and bears against the rear side of the dog at a point beyond the pivotal axis thereof so as to normally hold the dog in position with its finger 20 projecting beyond the inner end of the strike plate at a slight forward inclination relative to the pivot 18. This free end of the latch spring is preferably provided with an angular bend or a shoulder 25 therein with which the inner end of the dog is adapted to engage, said shoulder acting as a stop to limit the outward or forward rocking movement of the dog.

In the operation of the device above described, as the door 6 is moved to its closed position, after the bolt is first repressed against the action of the latch spring by striking against the outer inclined surface 13 on the strike plate, said bolt engages the inclined inner surface 14 on said plate and slides over the same until the outer face of bolt is positioned in a plane beyond the inner end of the strike plate. The bolt is then projected by the latch spring and under the pressure of the latch spring the end of the latch bolt strikes the face 21 of the finger 20 on the dog with considerable force, thus overcoming the action of the leaf spring 23 and rocking the dog on the pivot 18 to substantially the position seen in Fig. 2 of the drawings. In this rocking movement of the dog, the eccentric or cam portion 22 thereof exerts an inward bearing pressure against the outer face of the latch bolt, said cam portion of the dog projecting from the bifurcation 16 beyond the inner end of the strike plate. Thus, the bolt and the door are positively crowded to the closed position and the free edge of the door is held tightly against the door pillar so that noisy rattling due to vibration will be entirely obviated. Further, it will be noted from reference to Fig. 2 of the drawings that the point of pressure of the face of the cam or eccentric 22 against the outer face of the bolt is approximately on a line with the pivotal axis of the dog extending transversely of the door and at approximately right angles to the length of the bolt. Therefore, it will be evident that any pressure against the inner face of the door will be transmitted through the bolt to the crowding dog in line with the axis of the dog and such pressure will therefore, not have a tendency to reverse the pivotal movement of the dog and thus cause the finger 20 to repress the latch bolt. Therefore, it will be seen that the door is at all times tightly held by the crowding dog in its closed position and liability of the repression of the bolt and the accidental opening of the door by such pressure against the inner side thereof is prevented.

In Fig. 7 of the drawings, I have shown an application of my present improvements to a cupboard door or the like, in which the latch 8′ is mounted in the upper edge of the door 6′ and the strike plate 11′ is secured in a mortise in the upper edge of the door casing. In this case, the strike plate 11′ is provided with a stop shoulder 25′ at the base of the bifurcation in the end thereof to limit the gravity movement of the dog to its normal position. Under the pressure of the latch bolt projected by the latch spring, said dog is actuated in the manner above explained to crowd the door to its closed position and upon the retraction of the bolt to open the door, the dog drops by gravity to its normal position. Thus in this instance, the use of the spring 23 above referred to may be eliminated.

From the foregoing description considered in connection with the accompanying draw-

ing, the construction of my improved keeper means for door latches, as well as the several advantages thereof in practical use will be clearly understood. It will be apparent that by the provision of the crowding dog having the bolt engaging finger and the cam or eccentric portion, a very positive co-action between the parts of said dog and the bolt is assured and the latch bolt and the door are thereby crowded towards the closed position under the force of the latch spring. Also, as above explained, it will be seen that the dog is movable from its crowding position only upon the positive reaction of the bolt by the operation of the latch handle. Therefore, I obtain not only the prevention of rattling of the door or the latch bolt against the latch plate, but I also obviate the possibility of serious accidents due to the accidental opening of the door by pressure against the inner side thereof causing the latch bolt to be repressed and disengaged from the strike plate. My invention is particularly desirable for use in connection with automobile door latches as it requires no alteration whatever in the customary construction of the latch or of the door pillar. Also, the necessary changes in the conventional type of strike plate required for the application of my invention thereto are relatively simple and may be made at comparatively small cost.

While I have herein shown and described several embodiments of the device which are believed to be entirely practical for the purpose in view, it will nevertheless, be understood that the essential features of my present improvements may also be incorporated in various other alternative structures, and I accordingly reserve the privilege of adopting all such legitimate changes in the form, construction and relative arrangement of the parts thereof as may be fairly embodied within the spirit and scope of the invention as claimed.

I claim:

The combination with a vehicle door latch having a spring projected latch bolt, of a keeper provided with a pivotally mounted dog having a cam portion which when the door is closed exerts pressure against the bolt perpendicular to the line of projection thereof and intersecting the pivotal axis, and an elongated portion having an inclined plane surface making edge contact with the entering edge of said bolt and exerting pressure against said edge in substantially the line of projection of said bolt to facilitate its retraction.

In testimony that I claim the foregoing as my invention, I have signed my name hereto.

LEON OTTINGER.