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VEHICLE DOOR LATCH

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FIG. 1.

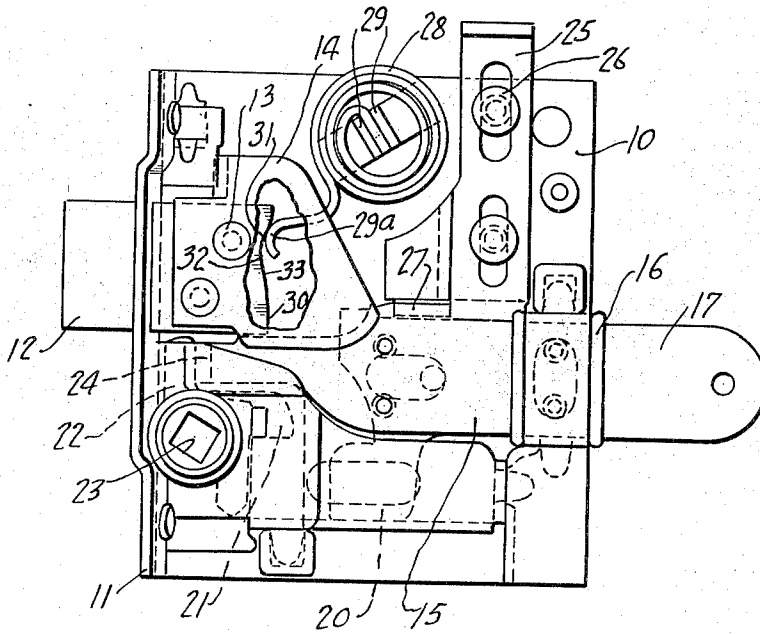
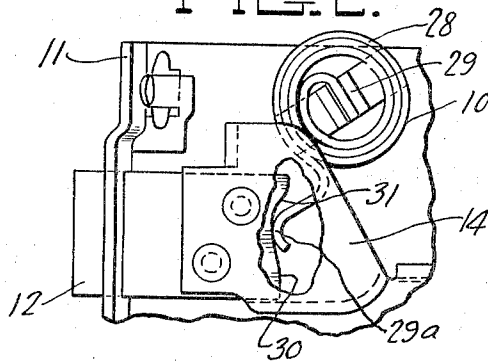


FIG. 2.



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## VEHICLE DOOR LATCH

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Application August 9, 1937, Serial No. 158,138

### 1 Claim. (Cl. 292—163)

This invention relates to vehicle door latches particularly adapted for use on automobile doors and an object is to produce a door latch of this character which is relatively easy acting and in which the latch bolt may be more easily retracted against a substantially uniform spring tension, thereby enabling the door to be closed readily upon slamming and facilitating retraction of the latch bolt by means of the inside or outside operated handles.

Another object of the invention is to provide a latch structure, wherein the spring acts upon the bolt, in a manner so that the tension of the spring is lessened during the initial retractile movement of the bolt, and is then increased during the continued movement of the bolt.

By way of illustration but not of limitation an embodiment of the invention is shown on the accompanying drawing in which

Figure 1 is a plan view of a vehicle door latch, a portion of the bolt plate being broken away to show the construction of the rear end of the bolt head and the manner in which it is engaged by the spiral spring; and

Figure 2 is a fragmentary view of the latch shown in Figure 1 with the bolt partially retracted and showing the manner in which the spring end acts.

The illustrated embodiment of the invention comprises a vehicle door latch having a back plate or case plate 10 formed with an upwardly inclined flange 11, one end thereof which is provided with an opening through which the bolt 12 extends. Secured by rivets 13 to the rear end portion of the bolt 12 is a bolt plate 14 which has a rearwardly extending portion 15 guided by a clip 16 for sliding movements relative to the case plate 10. Disposed beneath the extension 15 is a plate 17 also guided for sliding movements by the clip 16. The plate 17 is engageable with a flange 27 in the bolt plate for retracting the bolt, and, as will hereinafter appear, can move forwardly to dog the outside operated roll back. The slide plate 17 is adapted to be connected by the usual link or strap to the remote control handle on the inside of the door, illustration and description of such remote control not being given because the same is well-known to those skilled in this art.

Integral with the forward end of the slide plate 17 and depending therefrom is an extension 20 which when the plate 17 is moved forwardly or in non-bolt retracting direction, the extension engages beneath an arm 21 integral with the roll back cam 22. The usual handle

shaft fits in the squared opening 23 in the roll back cam and normally it will be apparent that upon turning the roll back cam, the latter engages an abutment or flange 24 on the bolt plate 14 thereby retracting the latch bolt. Such turning movement of the roll back cam 22 will be blocked by the extension 20 when the latter is disposed beneath the arm 21 as will be readily understood.

A vertically movable slide 25 having a pin and slot connection 26 with the case plate 10 is adapted to block retracting movement of the latch bolt when in lowered position, the flange 27 on the bolt plate extension 15 engaging the slide 25 when in such position.

The latch bolt is urged to its projected or latching position by a spiral spring 28, the end of which is disposed between a pair of lugs 29 on the case plate 10. The opposite or free end of the spring engages the rear face 30 of the bolt nose 12 and urges it to latching position. The surface at the rear end of the bolt acted upon by the spring lies in a general plane at right angles to the longitudinal axis of the bolt or to its plane of movement, and has a central or intermediate concave portion 32 from which slightly convex side portions emanate (33 and 31), the latter portions gradually merging into the concave portion, whereby abrupt or sharp portions or projections are eliminated. The spring has a free curved end 29a, which acts against the rear end of the bolt, and by virtue of the formation of said end as described, the tension on the spring is lessened during the initial retractile movement of the bolt.

It is further to be noted that the curved end of the spring, when the bolt is shot, lies above the concave part of the surface, and thus acts against convex part 31, consequently, when the bolt is retracted said spring is moved downwardly and enters the concave part and then acts against the convex part 33. Thus, during initial retractile movement of the bolt, the tension on the spring is lessened, and then increased by the convex part 33 upon continuance of such movement.

Also, when during such retractile movement the spring encounters the convex part 31, no abrupt or sudden action occurs.

It is to be understood that numerous changes in details of construction, arrangement and operation may be effected without departing from the spirit of the invention especially as defined in the appended claim.

What I claim is:

A vehicle door latch, including a case plate, a

latch bolt, means to mount the bolt for reciprocal movement, said bolt having an operating face disposed in a plane at substantially right angles to its plane of movement, said operating  
5 face having a substantially central concave part and slightly convex side parts which gradually merge into the concave part, and a spring disposed rearwardly of the operating face and having a free curved end which acts against the  
10 operating face, and means to anchor the spring

to the case plate so that its said curved spring end initially acts against one of the convex parts, and sequentially acts against the central concave part and finally acts against the other of the convex parts, whereby the tension of the spring  
5 is lessened during the initial retractile movement of the bolt and is then increased during the continued retractile movement of the bolt.

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