June 28, 1932. F. D. GRUND 1,864,533

DOOR LATCH

Filed Dec. 4, 1929 2 Sheets-Sheet 1

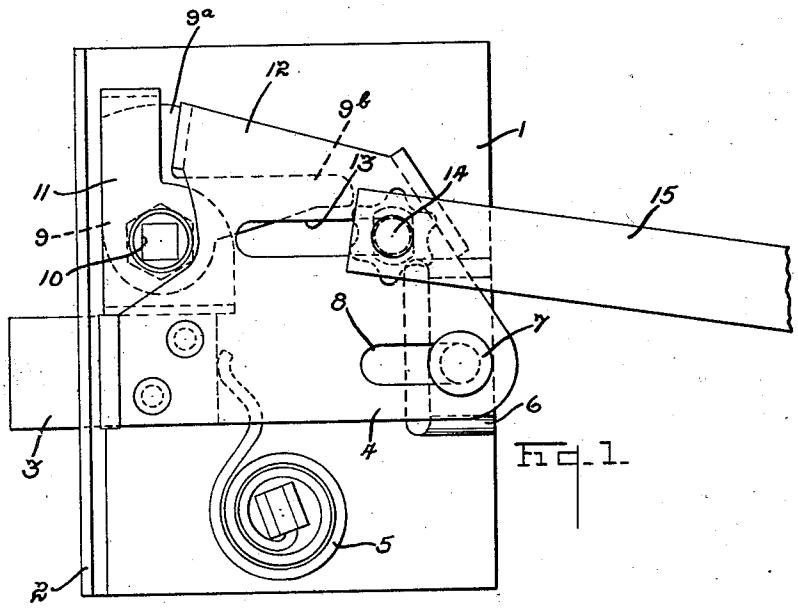

Fig. 1.

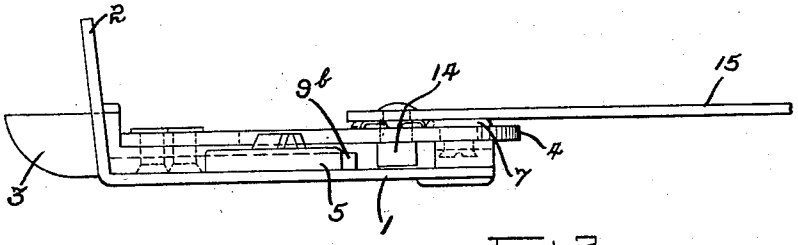

Fig. 2.

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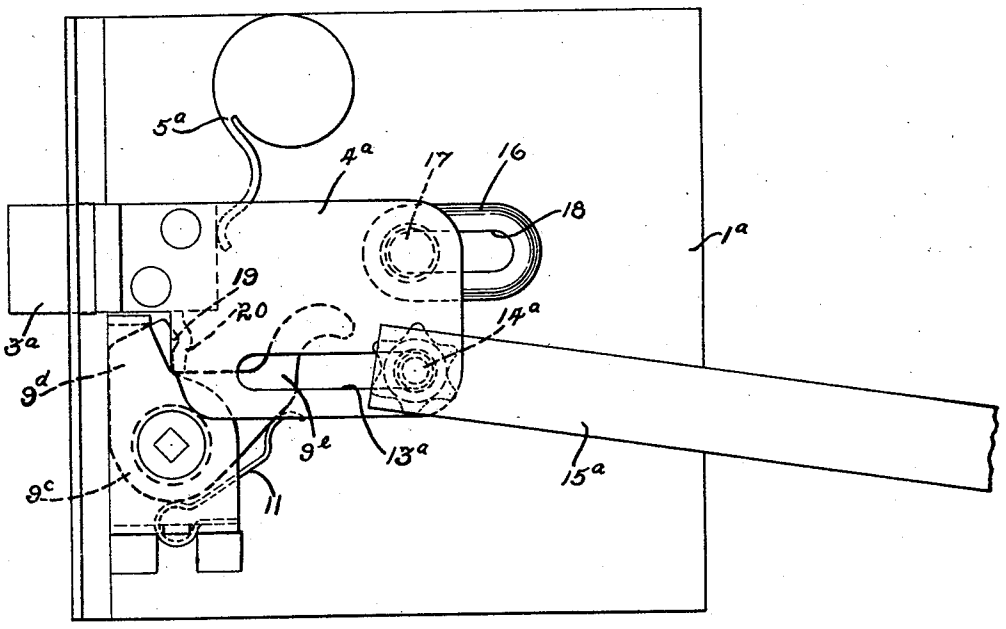

Fig. 3.

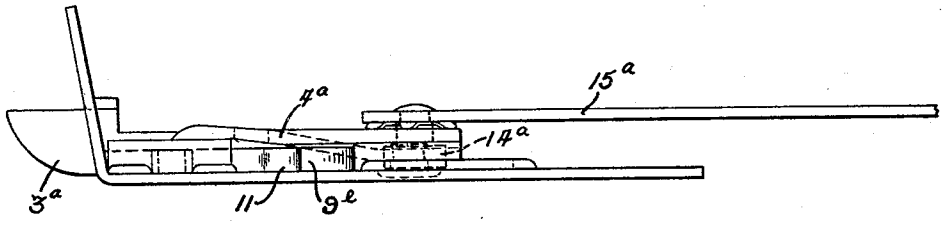

Fig. 4.

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UNITED STATES PATENT OFFICE

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DOOR LATCH

Application filed December 4, 1929. Serial No. 411,429.

This invention relates to door latches, but more particularly to latches of the type used on doors of automobiles, or the like.

An object of this invention is to provide a door latch particularly for use on automobiles which makes use of a single element for retracting the latch bolt from one side of the door, and which is movable to such position as to render the retracting mechanism on the opposite side of the door inoperative.

Another object is to produce a door latch which is sturdy in construction, economical to manufacture, the number of parts of which is reduced to a minimum, and which may be readily assembled.

For purposes of illustration, and not of limitation, embodiments of the invention are shown on the accompanying drawings, in which:

Fig. 1 is a side elevation of a door latch, a portion of the remote control mechanism being omitted as being unnecessary to an understanding of the construction or operation;

Fig. 2 is a side edge view of the parts shown on Fig. 1;

Fig. 3 is an alternate form of door latch in which the roll back mechanism is positioned below the bolt instead of above, as shown in Figs. 1 and 2; and

Fig. 4 is a side edge view of the parts shown in Fig. 3.

In the form shown in Figs. 1 and 2, the door latch comprises a back plate 1 having an upturned flange 2 to embrace the vertical edge of the door. The flange 2 is provided with an opening through which the head 3 of the latch bolt 4 projects. The latch bolt 4 is in the form of a plate, which is slidable over the back plate 1, and a spiral spring 5 fixed at one end to the back plate has its opposite end bearing against the head 3 for normally holding the bolt in latching position.

Struck from the back plate 1 is a raised portion 6, which forms a guide for the movement of the bolt 4. Fixed to the raised portion 6 is a headed pin 7, engaging the outer surface of the bolt 4 and disposed in an elongate slot 8 formed in the bolt. It will be apparent that the movement of the bolt is guided by the pin and slot arrangement above described. The bolt is withdrawn or retracted from the outside of the door by a roll back 9 having a squared opening 10 to receive a handle in the usual manner, a cover plate 11 fitting over the roll back and secured to the back plate 1 for holding the roll back in position. The arm 9^a of the roll back is engageable with an extension 12 of the bolt 4 so that upon clockwise movement (Fig. 1) of the roll back the bolt is retracted against the tension of the spring 5 away from latching position. Integral with the roll back, and disposed at substantially right angles to the arm 9^a, is an arm 9^b, the end of which is positioned above an elongate slot 13 formed in the bolt 4. Slidable in the slot 13 is a pin 14, which is fixed to a strap or link 15. The link 15 extends outwardly from the back plate 1, and is connected to a suitable remote control mechanism (not shown) to permit retraction of the bolt from the inside of the door.

A feature of cardinal importance in the above described construction is that the pin 14 not only enables the bolt to be retracted by movement of the link 15 to the right (Fig. 1) upon engagement with the end of the slot 13, but also serves to render the roll back 9 inoperative. This will be apparent in that movement of the link 15 in non-bolt retracting direction (to the left of Fig. 1) the pin 14 will be disposed immediately beneath or in contact with the arm 9^b so that attempt to retract the bolt from outside of the door is prevented, the arm 9^b being blocked from movement by the pin 14.

In the above described arrangement, it will be observed that the roll back is positioned above the latching head 3, but in the alternate form shown in Figs. 3 and 4 the roll back 9^c is beneath the latching head 3^a. In this form a raised portion 16 on the back plate 1^a serves to guide the movement of the bolt plate 4^a and a pin 17 depending from the bolt plate 4^a is movable in an elongate slot 18 formed in the raised portion 16. In this instance the arm 9^d of the roll back 9^c

has a projection 19 engageable with a groove 20 formed in the bolt plate 4^a. Disposed at substantially right angles to the arm 9^d is an arm 9^e, the outer end of which is hook shaped. For normally holding the roll back in the desired position a spring 21 bears against the arm 9^e.

An elongate slot 13^a is formed in the bolt 4^a, and a pin 14^a carried by a remote control link or strap 15^a is slidable in the slot 13^a.

It will be manifest that upon movement of the link 15^a to the right (Fig. 3) the bolt will be retracted against the tension of a spring 5^a, but movement of the link to the left will position the pin 14^a beneath the hook end of the arm 9^e so that any attempt to retract the bolt from the outside of the door will be rendered impossible, the pin 14^a blocking the downward movement of the roll back arm 9^e.

This construction also makes use of a single element in connection with the inside bolt retracting mechanism which serves not only to retract the bolt, but upon movement of the parts in a non-bolt retracting direction renders the outside retracting mechanism inoperative. This construction requires the minimum number of parts, is easy to assemble, and economical to manufacture.

It will be seen that I have provided a construction which satisfies the objects enumerated above, and one which constitutes a valuable advance in the art. While I have shown the invention in certain physical embodiments, it is to be understood that modifications of of the structure shown may be made by those skilled in this art without departing from my invention as expressed in the following claims.

What I claim as new and desire to secure by Letters Patent is:

1. A vehicle door latch comprising a latch unit having a back plate, a tensioned latching bolt movable over said back plate, roll back means for retracting said latch bolt, a second means for retracting said latch bolt located at a point remote from said latch unit and including a strap, an arm projecting from said roll back means having a hook-shaped outer end, and a lost motion connection between said strap and latch bolt, said connection including an element adapted to be moved by said strap to block movement of said arm thereby to dog said roll back means for preventing retraction of said latching bolt thereby.

2. A vehicle door latch comprising a latch unit having a back plate, a tensioned latching bolt movable over said back plate, outside bolt-retracting means including a roll back arm engageable with said bolt, inside bolt-retracting means including a strap movable longitudinally in the direction of movement of said bolt, an arm movable with said roll back arm and disposed at an angle thereto, a hook-shaped outer end portion on said arm, and a lost motion connection between said strap and bolt including an element adapted to block movement of said hook-shaped end when said strap is moved in non-bolt retracting direction.

3. A vehicle door latch comprising a latch unit having a back plate, a tensioned latching bolt movable over said back plate, outside bolt-retracting means including a roll back arm engageable with said bolt, inside bolt-retracting means including a longitudinally movable strap, an arm movable with said roll back arm having a grooved outer end, said bolt having an elongate slot, a connecting element on the end portion of said strap movable in said slot and adapted to block movement of said grooved end when said strap is moved in non-bolt retracting direction thereby to dog said outside bolt-retracting means.

4. A vehicle door latch comprising a latch unit having a back plate, a tensioned latching bolt movable over said back plate, outside bolt-retracting means including a roll back arm engageable with said bolt, inside bolt-retracting means including a longitudinally movable strap, an abutment associated with and movable with said roll back, said bolt having an elongated slot, a connecting element on the end portion of said strap movable in said slot and adapted to block the movement of said abutment when said strap is moved in non-bolt-retracting direction, thereby to dog said outside bolt-retracting means, and also adapted when said strap is moved in the opposite direction to release said roll back and retract said bolt.

In testimony whereof I have hereunto signed my name to this specification.

FLETCHER D. GRUND.