April 25, 1939. E. I. VANDERLINDE 2,156,004

LATCH MECHANISM AND OPERATING MEANS THEREFOR

Filed March 29, 1938

Fig. 1

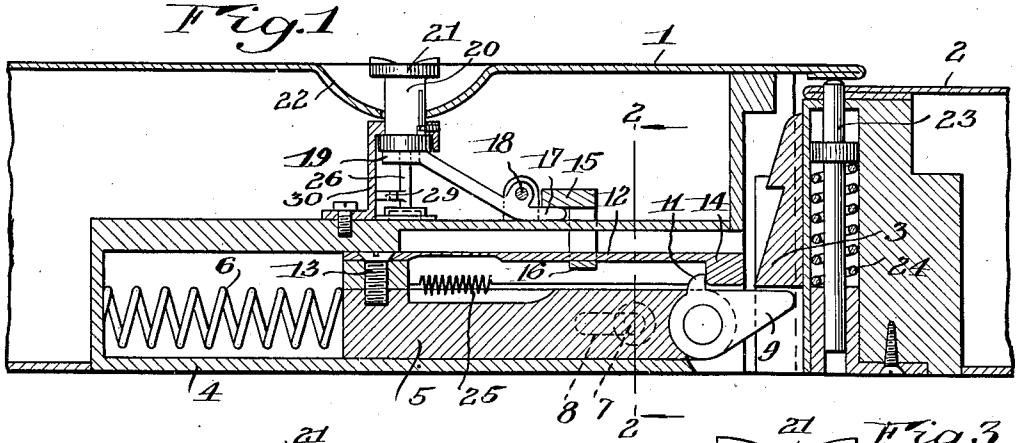


Fig. 2

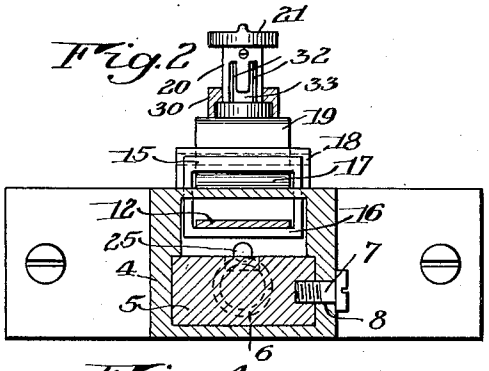


Fig. 3

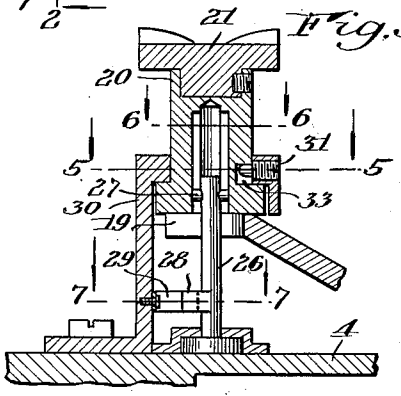


Fig. 4

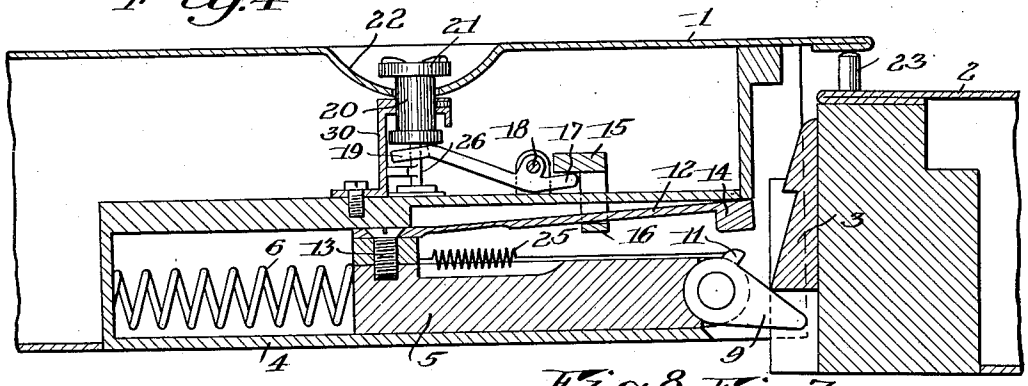


Fig. 5

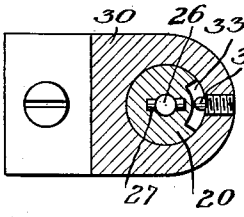


Fig. 6

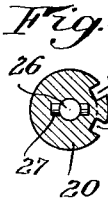


Fig. 8

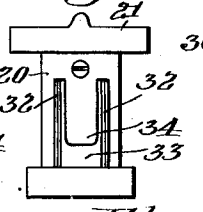
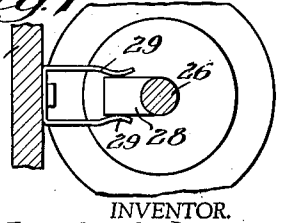


Fig. 7



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2,156,004

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LATCH MECHANISM AND OPERATING MEANS THEREFOR

Edward I. Vanderlinde, Rochester, N. Y.

Application March 29, 1938, Serial No. 198,723

3 Claims. (Cl. 292—192)

This invention relates to a latch mechanism and operating means therefor, and has to do more particularly with a construction that is especially adaptable to the doors of automobiles.

One object of the invention is to afford a construction that eliminates the use of a pivoted or swinging door latch operating handle, thus obviating the danger of accident incidental to the use of this type of handle.

Another purpose of the invention is to provide a latch operating mechanism that can be readily controlled by a push button or suitable depressible member mounted on the door of an automobile and movable inwardly and outwardly.

Still a further object of the invention is to afford a structure in which a latch member, instead of having only a sliding movement as in conventional mechanisms, includes an element that is pivotally or otherwise movably mounted upon a sliding support, and is held normally in latching position on the support by retaining means that is operable to release the latch member and permit it to move on the support when the door is to be opened.

To these and other ends, the invention consists in the construction and arrangement of parts that will appear clearly from the following description when read in conjunction with the accompanying drawing, the novel features being pointed out in the claims following the specification.

In the drawing:

Fig. 1 is a horizontal sectional view showing the application of one possible embodiment of the invention to a door or door frame;

Fig. 2 is a transverse sectional view on the line 2—2 of Fig. 1;

Fig. 3 is an enlarged sectional view in the same plane as Fig. 1, showing the actuating member and its associated parts;

Fig. 4 is a sectional view similar to Fig. 1 showing the position of the parts when the latch member is released and the door is in opening position;

Fig. 5 is a transverse sectional view on the line 5—5 of Fig. 3;

Fig. 6 is a transverse sectional view on the line 6—6 of Fig. 3;

Fig. 7 is a transverse sectional view on the line 7—7 of Fig. 3, and

Fig. 8 is a side elevation of the actuating member, with the associated parts removed.

Referring more particularly to the drawing in which like reference numerals refer to the same parts throughout the several views, 1 designates a door that is pivotally mounted in a frame designated generally at 2, the frame being provided with the usual latch plate 3 for engagement with a latch to hold the door closed. The latching mechanism includes a housing 4 and a support 5 that is slidable in the housing and actuated outwardly by a spring 6, movement of the support 5 being limited in opposite directions by a stop pin 7 carried thereby and engaging a slot 8 in the side wall of the housing.

The support 5 has a latch member movably mounted thereon, and in the construction shown, the latch member is designated at 9 and is pivotally arranged on the support 5, and adapted to swing from its latching position, as shown in Fig. 1, to a releasing position, as illustrated in Fig. 4. The latch member 9 carries an ear 11 which engages a shoulder on the support 5 when the latch member is in latching position, as shown in Fig. 1, and it is held in such position by retaining means preferably in the form of a spring plate 12 secured to the support 5 by the screw 13 and having a projection or dog 14 at its free end that engages the ear 11 on the latch member to hold it normally in latching position.

Suitable means are provided to release the retaining plate for opening the door, and such releasing means may include a plate 15 that is movable inwardly and outwardly in a suitable slot in the housing wall and carries a strap 16 underlying the spring plate 12. Engaging under the plate 15 is a projection or extension 17 carried on a lever pivoted at 18 and having its opposite end 19 located in the path of the actuating device which is preferably in the form of a plunger 20 having a head or operating portion 21 that is depressible in the recess or pocket 22 formed in the door.

It will be understood that when the plunger 20 is pressed inwardly from the position shown in Fig. 1 to that shown in Fig. 4, the lever carrying the projection or extension 17 is rocked, moving the actuating plate 15 outwardly and the spring retaining plate 12 to the position shown in Fig. 4, thus releasing the latch member 9. The instant this is released, the door opens either by its own weight, or by the action of an opening means which may consist of a plunger 23 operated by a spring 24, as shown in Fig. 1. The latch member 9 is restored to its normal position on the support 5 by a spring 25 having one end connected to the support and its opposite end connected to the latch member 9, but the action of spring 24 is sufficiently greater than that of the spring 25 to overcome the latter and open the door when

the latch member 9 is released by the spring retaining plate.

In order to prevent accidentally depressing the operating member or plunger 20, means are provided requiring the latter to be partially rotated before it can be pushed inwardly, and to effect this, the plunger 20 is slidable on a post 26, the latter being provided with a transverse key 27 that engages an opening in the plunger and prevents relative turning of these two parts, while permitting the plunger to slide inwardly on the post. The post 26 is suitably mounted for turning movement and carries an arm 28 that is held in its normal position between two springs 29 of a spring yoke fixed to a bracket 30. Also carried by the bracket 30 is a pin that has an inwardly projecting stop portion 31 engageable with either of the slots 32 provided in the plunger, the stop portion 31 normally occupying a position between the slots 32 in the cutaway portion 33 and thus preventing endwise movement of the plunger by engagement with the wall 34. It will be understood that the springs 29 normally hold the post 26 and with it the plunger 20 in a normal or intermediate position in which the plunger may not be pushed inwardly, but by turning the plunger 20 until the stop 31 is in line with either of the slots 32, the plunger may be pressed inwardly to effect opening of the door, and when released, the plunger 20 is returned to its outermost position by the action of spring plate 12.

While the invention has been described herein with reference to certain details characterizing the illustrated embodiment, the invention is not confined to the particular arrangement disclosed, and this application is intended to cover any modifications or departures coming within the purposes of the improvement or the scope of the following claims.

I claim:

1. Door controlling mechanism comprising a housing, a spring-actuated support slidable in said housing, a latch member pivoted on the support and engageable with a stop on a door frame, an ear carried by the latch member, a leaf spring secured to the support and having a projection at its free end which is engageable in front of said ear to hold the latch member in locked position, a spring permanently connected to said latch member and acting to restore it to locked position, a slidable plate having a strap engaging under said leaf spring, a pivoted lever having an extension at one end engaging said plate to move it outwardly, and a reciprocating element engaging the opposite end of said lever.

2. A latch mechanism, for a pivoted door, the outer surface of the door being free of any projecting parts and having a depression within which means for releasing the latch is arranged, and a spring actuated plunger mounted on the door frame engageable with the free edge of the door for opening it when released; said latch mechanism comprising a housing carried by the door, a spring-actuated support slidable in said housing, a latch member pivoted on the support and engageable with a stop on the door frame, a spring retaining member carried by the support and engaging the latch member for holding it in locked position on the support, releasing means comprising a reciprocating device mounted in the aforesaid recess of the door and operatively connected with said retaining member to move the latter and release the latch member, said releasing means when in its outermost position being flush with the outer surface of the door, and a spring mounted on the aforesaid support and connected to the latch member for returning it to locked position.

3. A latch mechanism, for a pivoted door, the outer surface of the door being free of any projecting parts and having a depression within which means for releasing the latch is arranged, and a spring actuated plunger mounted on the door frame engageable with the free edge of the door for opening it when released; said latch mechanism comprising a housing carried by the door, a spring-actuated support slidable in said housing, a latch member pivoted on the support and engageable with a stop on the door frame, a spring connecting said latch member with the support and acting to restore the latch member to locked position, an ear carried by the latch member, a leaf spring carried by the support and having a projection at its free end engaging said ear on the latch member to hold the latter in locked position, a slidable plate having a strap engaging said leaf spring, a pivoted lever having at one end an extension engaging said plate to operate the latter, and a reciprocating device engageable with the other end of said lever for operating it, said reciprocating device being mounted in the aforementioned recess of the door and located flush with the outer surface of the door when in its outermost position.

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