Oct. 9, 1956

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2,766,058

AUTOMOBILE DOOR LATCH MECHANISM

Filed Dec. 11, 1952

2 Sheets-Sheet 1

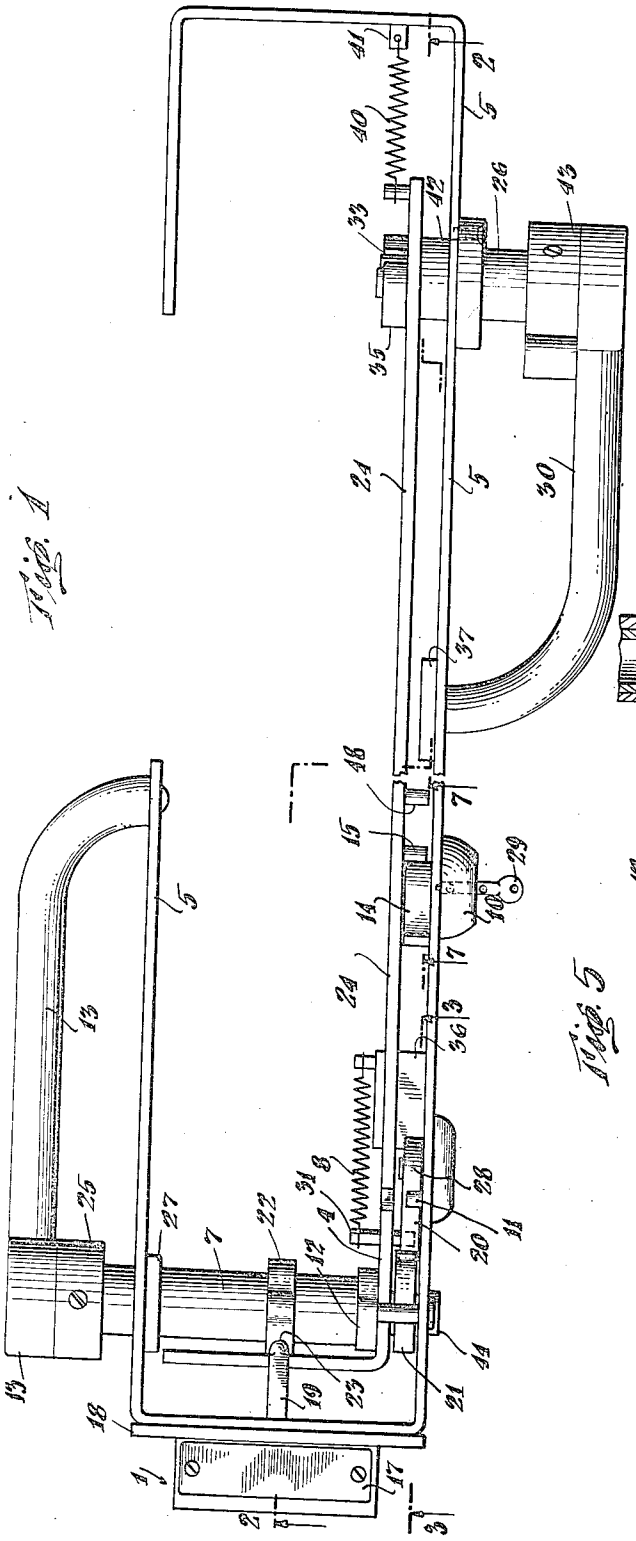


Fig. 1

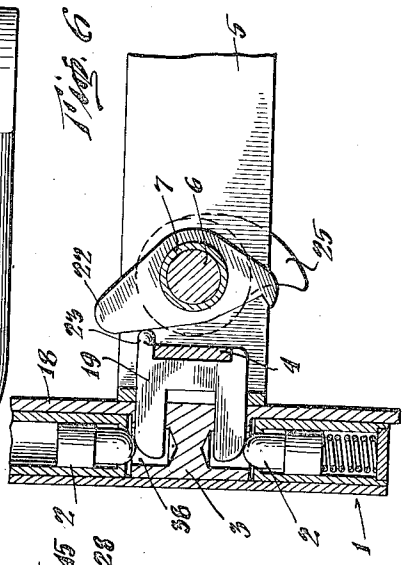


Fig. 6

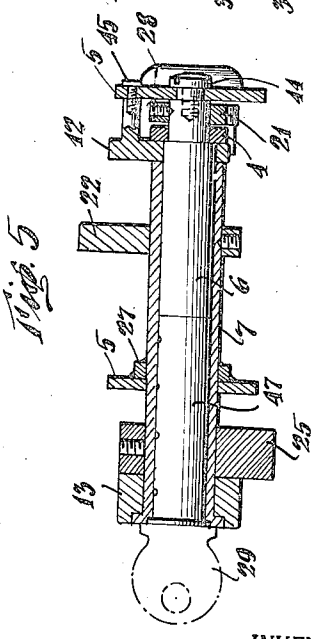


Fig. 5

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2 Sheets-Sheet 2

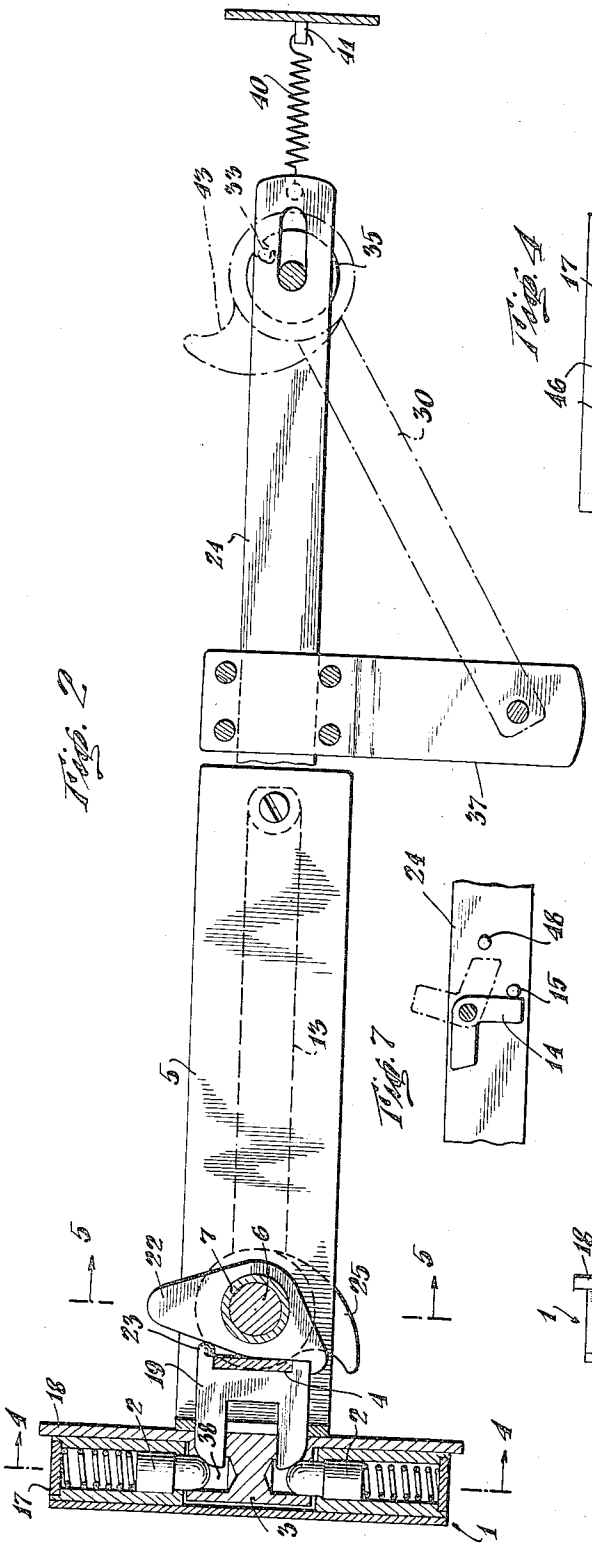


Fig. 2

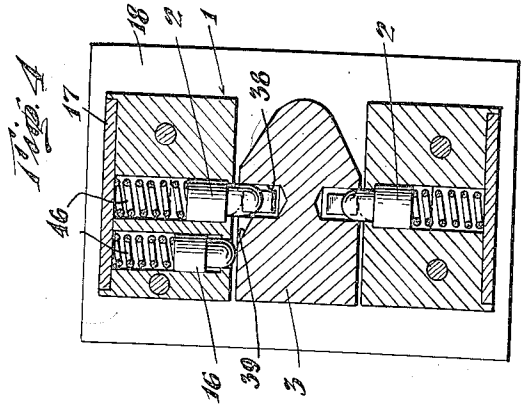


Fig. 4

Fig. 7

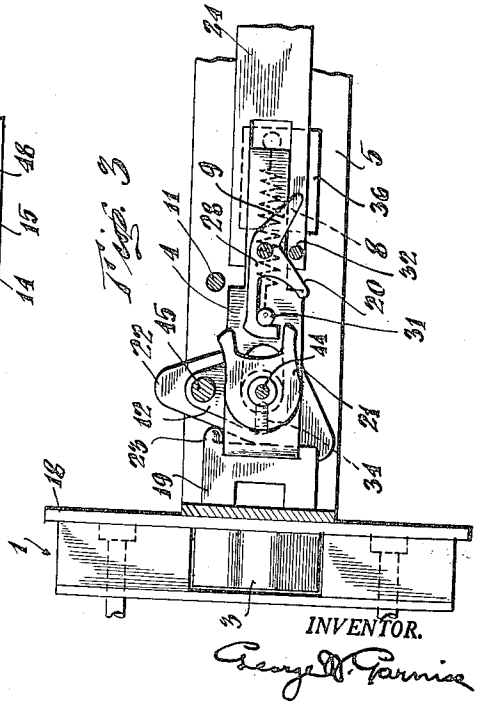


Fig. 3

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AUTOMOBILE DOOR LATCH MECHANISM

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8 Claims. (Cl. 292—254)

This invention relates to a latch mechanism for swinging doors, particularly for doors of automobiles or other vehicle bodies.

Latch mechanisms, as at present commonly used, employ a plurality of parts including rotatable bolts, detent, shiftable release members, springs and the like. Present day latches, considering the comparative simplicity of function they perform, are complicated and expensive to manufacture, to repair and replace.

I have devised a mechanism that locks by simple sliding of a part without rotation, and that offers additional advantages over the present day latch. My latch assembly is simple in construction, designed to be manufactured, repaired or replaced at relatively low cost, and less subject to wear in use. Also, it is strong, dependable, safe and easy to operate.

An object of the invention is to provide a practical mechanism that when installed in an automobile door, will allow the driver, while sitting inside the car, to set the latch to lock the door automatically when the door is closed. In other words, the lock will not become unset when the door is closed in the normal manner. The invention also facilitates the handling of packages and the like by making possible free exit from the car with no attention required to locking when the driver is outside the car.

Another important object of the invention is to provide a key-controlled safety means for the protection of children while riding in the car.

A further object of the invention is to provide a key-controlled latch that makes it impossible for a driver to lock his keys in the car. The ignition key is used to operate the latch.

Another object of the invention is to provide a latch that can be set to lock at the same time the latch is being unlocked by the key of the lock in the outside handle. This simplified manner of automatically locking the door before entering the car offers quick protection to timid women drivers who fear a sudden intruder.

A further object of my invention is to provide a latch that is operable with both inside and outside handles and controlled by the use of the ignition key when such control of operation is desired.

Other objects of this invention will appear in the following description and appended claims, reference being had to the accompanying drawings forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

Referring to the drawings:

Figure 1 is a full top view, showing the latch control assembly, the keeper, and handles mounted on a chassis.

Figure 2 is a sectional view taken on line 2—2 of Fig. 1, showing the fork disengaging means and the spring pressed latches in the keeper set in the locked position.

Figure 3 is a sectional view taken on line 3—3 of Fig. 1, showing the two stops that engage and disengage the release bars, both front and rear.

Figure 4 is a sectional view showing the spring pressed latches locked in the recesses of the striker block, the safety latch resting on the top of the striker block.

Figure 5 is a sectional view showing the lock assembly in the outside handle, and its relationship to the master cam and the chassis and front release bar.

Figure 6 is a sectional view similar to Figure 2 showing the spring pressed latches urged out of the recesses of the striker block by the fork disengaging means.

Figure 7 is a sectional view taken on line 7—7 of Fig. 1 and shows the key controlled safety and latch locking stop.

Before explaining in detail the present invention, it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also, it is to be understood that the phraseology, or terminology employed herein is for the purpose of description and not of limitation.

Referring now particularly to the accompanying drawings:

The novel latch control mechanism is shown mounted in position on a chassis 5. The chassis 5 is constructed in a manner making it uniquely adaptable as a removable control assembly unit.

The latch mechanism mounted on the post of the door frame is a separate unit from the latch control mechanism inside the door proper and is shown as a dual keeper, having two distinct keeper elements. The coordinated performance patterns of these two separate units will best be understood by a recital of the way they operate together to meet the common situations in which the automobile door and the like are used.

In the normal manner of opening the automobile door from the outside, the handle 13 is grasped by the full hand, the thumb being left free to contact the release handle 25 and rotate it clockwise. When the release handle 25 is rotated clockwise, the release cam 22 on the handle barrel 7 rotates with it to carry its upper nose against the contact knob 23, urging the sloped ends of the forked disengaging means 19 against the rounded heads of the spring pressed latch elements 2 while said latch elements are at rest in the recesses 38 of the striker block 3 shown in Figure 2. The spring pressed latch elements 2 are moved along the sloped ends of the tines of the forked disengaging means 19 until they reach the outer horizontal lands of said tines, as shown in Fig. 6. At this time the latch mechanism and the latch control mechanism are disengaged so that the door may be opened. In the initial door opening movement the latch elements 2 are completely removed out of the recesses 38 by the action of the lips of said recesses 38.

In the normal manner of opening the door from the inside while sitting in the driver seat, the handle 30 is grasped by the full left hand, the thumb being free to contact the release handle 43 and rotate it counterclockwise. When the release handle 43 is rotated counterclockwise the third stop 35 is pressed against the contact pin 33 on the rear release bar 24. When the pin 33 on the rear release bar 24 is urged in the direction of the latch by the stop 35 the release bar 24 is moved forward in the direction of the latch. Simultaneously, the contact pin 32 is pressed against the second arm 20 of the first stop 28 rocking the stop 28 out of engagement with the stop pin 31. The rear release bar 24 then continues its forward motion to engage the front release bar 4, which is united as by welding to the forked disengaging means 19, and move said forked disengaging means 19 into the striker block recesses 38 and against the rounded ends of the spring pressed latch elements 2 to move them out of the recesses 38 thus disengaging the latch mechanism

from the latch control mechanism so that the door may be opened. When pressure of the thumb against the release handle 25 is removed, the front release bar 4 is pulled back to its first position by the spring 8. When pressure of the thumb against the release handle 43 is removed the rear release bar 24 is pulled back to its first position by the spring 40.

With the exception of the door by the driver seat, the normal manner of locking the doors at any time while inside the car is as follows. This operation is performed by the inside release handle 43. The release handle 43 is rotated clockwise. The third stop 35 is then pressed against the contact pin 33 on the rear release bar 24. The release bar 24 then moves in the reverse direction of the latch pressing the release pin 32 against thet third arm 9 of the first stop. The first stop 28 is then moved into engagement with the stop pin 31. The rear release bar 24 remains in this set position when pressure on the release handle 43 is removed. The spring element 40 takes over only when the release bar 24 is pressed in the direction of the latch.

The novel manner of locking the car door from the inside with the ignition key 29 to avoid locking keys inside the car will now be described. A second stop 14 is rotated to engage the stop pin 15, see Fig. 7, by rotating the ignition key 29. When the stop pin 15 on the rear release bar 24 is urged in the reverse direction of the latch, the release pin 32 is moved into engagement with the third arm 9 of the first stop 28 moving the first stop 28 into engagement with the stop pin 31. Whenever the latch control mechanism is set to operate in this novel manner, the door must first be opened free of the safety latch 16. Thus this operation makes possible the locking of the door from the inside before the driver leaves his seat. It is to be noted that the first stop 28 is pivotally carried on a pin fixed to the chassis 5 so that when the first stop 28 engages the pin 31, the bar 4, and consequently the forked disengaging means 19, cannot be moved toward the latches 2 so that the handle 25 and the cam 22 become ineffective under these conditions and are locked against rotation.

The latch control mechanism includes a simplified safety stop 14 operated by the ignition key when the key 29 is inserted into the keyway 10 of the stop 14 and turned clockwise to the horizontal position. The stop 14 blocks the forward movement of the rear release bar 24 by contacting the safety stop pin 48. Blocking the rear release bar 24 in this manner nullifies the function of the inside release handle 43. A child cannot release the latch 2 from the striker block 3 when the stop 14 is set on safety. While the stop 14 is set against stop pin 48 the front release bar 4 can be moved by the outside release handle 25 to release the latch 2 from the recess 38 in the striker block 3.

To lock the door with the cylinder lock 47 (structural details of this lock contained in my Patent 2,525,344 issued October 10, 1950), the key 29 is inserted into the keyway of the lock 47 mounted in the outside handle 13. The lock cam 21 is then turned counterclockwise to contact the first arm of stop 28 and press said stop into engagement with stop pin 31. When stop 28 is in engagement with pin 31, the front release bar 4 is blocked against forward movement in the direction of the latch. To unblock the front release bar 4, the lock cam 21 is turned clockwise to contact stop 28 and press it out of engagement with the stop pin 31. The locking and unlocking of the door can be done without removing the key. The key 29 must however be turned to the neutral position before the release handle 25 can operate, or the key removed from the lock. When stop 28 is disengaged from the pin 31, it remains in the neutral or disengaged position until further engagement by the lock cam 21 or the release pin 32 operated by the release handle 43, or by the second stop 14 operated by the ignition key 29. When the second stop 14 is pushed out of contact with the stop pin 15 on the rear release bar 24 it remains in a neutral or disengaged position until moved into operation position again by the ignition key 29.

What I claim is:

1. A latch mechanism comprising a keeper member and a striker member, said members mounted for relative movement into and out of latching position, said keeper member including an axially movable spring pressed latch having a normally outwardly extending portion, said striker member including a recess aligned in latching position of said members with said latch and adapted to receive said portion to lock said members against relative movement, and means entering said recess through the wall thereof in a direction substantially transverse to the path of movement of said latch adapted to move across said recess to displace said portion out of said recess to thereby unlock said members for relative movement.

2. A latch mechanism comprising a keeper member and a striker member, said members mounted for relative movement into and out of latching position, said keeper member including an elongated bore and a spring pressed latch therein having a portion thereof normally extending outwardly of said bore, said striker member including a second bore adapted in the latching position of said members to be aligned with said first bore and to receive said extending portion to lock said members against relative movement, and means entering said second bore through the wall thereof in a direction substantially transverse to the longitudinal axis of said second bore adapted to move across said second bore to displace said extending portion out of said second bore to thereby unlock said members for relative movement.

3. A latch mechanism comprising a keeper member and a striker member, said members mounted for relative movement into and out of latching position, said keeper member including an elongated bore and a spring pressed latch therein having a portion thereof normally extending outwardly of said bore, said striker member including a second bore adapted in the latching position of said members to be aligned with said first bore and to receive said extending portion to lock said members against relative movement, said second bore having a port in its wall adjacent the bottom end thereof, and means entering said second bore through said port and movable across said second bore, said entering means including a tapered end adapted to engage said outwardly extending portion to displace said latch from said second bore as said entering means moves across said second bore.

4. A latch mechanism as defined in claim 3, in which said outwardly extending portion terminates in a hemispherical end and said tapered end is of curved contour, said second bore, said hemispherical end and said entering means being so proportioned that when said entering means has displaced said latch to the limit of its ability said hemispherical end at least partly extends above said striker member to permit relative motion between said members thereby in the initial stages of said motion said hemispherical end engages the lip of said second bore and is ultimately completely displaced from said second bore thereby.

5. A latch mechanism comprising a keeper member and a striker member, said members mounted for relative movement into and out of latching position, said keeper member including a channel adapted to accommodate said striker member in latching position of said members, said keeper member having a pair of aligned bores therein opening into said channel, an axially movable spring pressed latch in each of said bores, each of said latches including a portion normally extending outwardly of the respective bore, each of said extending portions terminating in a hemispherical end, said striker member including a pair of aligned bores opening in said channel in latching position of said members, said striker bores adapted to align with said keeper bores to receive said extending portions of said latches in latching position of said elements, ports in said striker member open-

ing into said striker bores inwardly of the channel ends thereof, a forked member entering said ports and including tapered ends, and means for moving said forked member to carry said tapered ends across said striker bores to displace said extending portions out of said striker bores in latching position of said members.

6. A latch mechanism comprising a keeper member and a striker member, said members mounted for relative movement into and out of latching position and in said latching position having juxtaposed surfaces, a bore in said striker member opening at its respective one of said surfaces, a pair of bores in said keeper member opening at the respective one of said surfaces and adapted to align sequentially with said striker bore as said members relatively move into latching position, a spring pressed latch in each of said keeper bores having a portion extending outwardly from its respective one of said surfaces, said portions adapted to sequentially enter said striker bore during said relative movement of said members, said striker member having a slanted groove formed therein connecting its respective one of said surfaces to said striker bore and positioned to permit the exit of the first of said portions to enter it, and means movable across said striker bore for displacing from said striker bore the second of said portions to enter it.

7. A latch control mechanism comprising a latch disengaging member mounted for movement into and out of latch disengaging position, actuating means for said latch disengaging member, a stop having three arms each angularly disposed relative to the others, means pivotally mounting said stop, the first of said arms adapted in one position to engage said disengaging member to hold said disengaging member against movement toward latch disengaging position and in another position to permit said movement, a stop release bar, means for slidably mounting said bar for movement towards and away from said stop, an element on said bar positioned to contact the second arm of said stop to rotate said stop on its mounting to carry said first arm from said one position to said another position when said bar is moved towards said stop, said element contacting the third arm of said stop to rotate said stop on its mounting to carry said first arm from said another position to said first position when said bar is moved away from said stop.

8. A latch control mechanism comprising a latch disengaging member mounted for movement into and out of latch disengaging position, actuating means for said latch disengaging member, a stop having three arms each angularly disposed relative to the others, means pivotally mounting said stop, the first of said arms adapted in one position to engage said disengaging member to hold said disengaging member against movement toward latch disengaging position and in another position to permit said movement, a stop release bar, means slidably mounting said bar for movement towards and away from said stop, an element on said bar positioned to contact the second arm of said stop when said bar is moved towards said stop to rotate said stop on its mounting and to carry said first arm from said one position to said another position, said element contacting the third arm of said stop when said bar is moved away from said stop to rotate said stop on its mounting to carry said first arm from said another position to said first position, and means operable by said actuating means in its actuation of the latch disengaging member into latch disengaging position adapted to move said first arm into said another position.

References Cited in the file of this patent

UNITED STATES PATENTS

1,007,859	Gerwien	Nov. 7, 1911
1,479,744	Salata	Jan. 1, 1924
1,618,851	Thunberg	Feb. 22, 1937
2,604,345	Roethel	July 22, 1952

FOREIGN PATENTS

399,990	Great Britain	Oct. 19, 1933