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AUTOMOBILE DOOR SAFETY LOCK

Filed Nov. 23, 1964

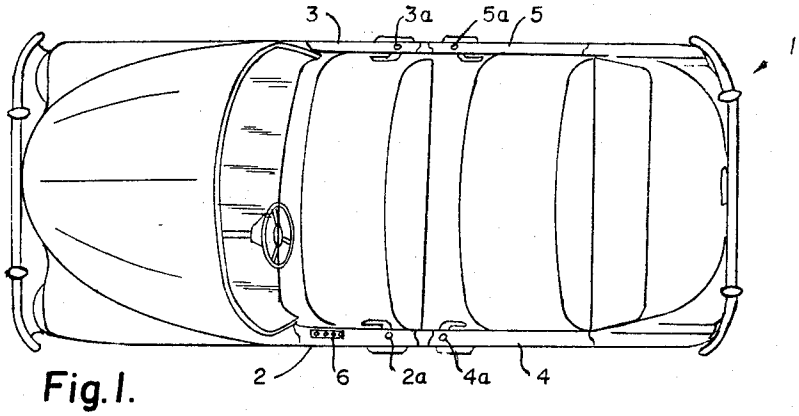


Fig. 1.

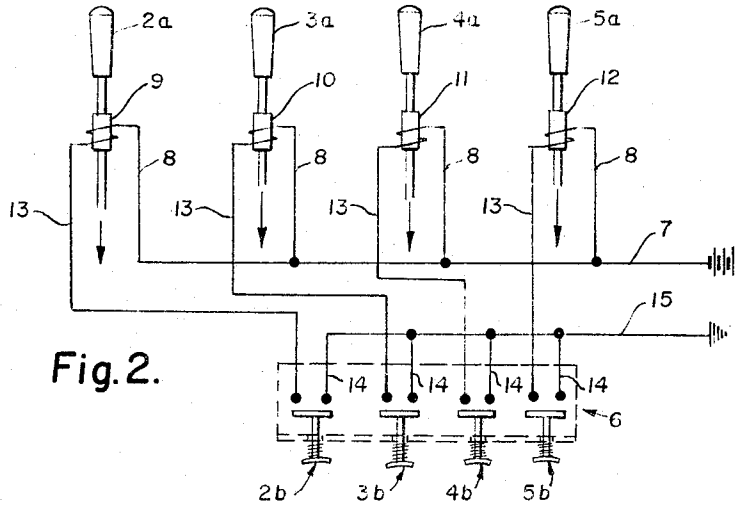


Fig. 2.

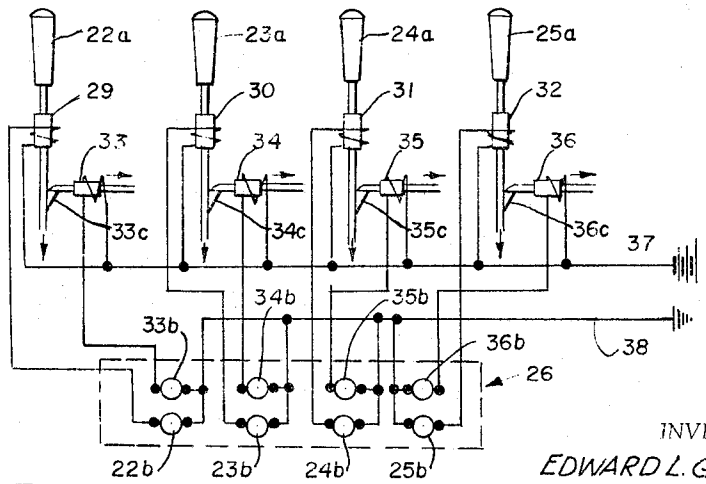


Fig. 3.

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AUTOMOBILE DOOR SAFETY LOCK

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This invention relates to a safety lock for automobile doors and, more particularly, to a safety device for preventing accidental unlocking by children.

In the past, conventional door locks for automobiles have been operated by plungers mounted on the inside of the doors which, when depressed, would prevent opening of the door from the outside. However, numerous accidents have occurred by the lifting of such plungers by children seated in the back seat who, through curiosity will often turn the inside handle causing the door to open and their falling out of the automobile while in motion, resulting in serious accidents.

An object of the present invention is to provide a safety device to prevent the aforesaid accidental opening of vehicle doors by children.

A further object of the invention is to provide a control panel within the driver's reach for preventing the necessity of the driver's reaching behind to the rear doors to depress the latches to effect locking of the rear doors. Other objects and advantages will become more apparent from a study of the following description taken with the accompanying drawing wherein:

FIG. 1 is a top or plan view of an automobile with the top removed and showing the location of the various latches and control buttons embodying safety means for door locks in accordance with the present invention;

FIG. 2 is a schematic diagram showing the electrical circuit which includes the control buttons and the door plunger or latches of FIG. 1; and,

FIG. 3 is a modified schematic diagram embodying an improvement whereby the plungers may not be accidentally lifted after being depressed.

Referring more particularly to FIG. 1 of the drawing, numeral **1** generally denotes an automobile having a front door **2** at the side of the driver provided with a control panel **6** on which is mounted four control buttons such as *2b*, *3b*, *4b* and *5b*, shown in FIG. 2, for controlling plungers or latches *2a*, *3a*, *4a* and *5a*, respectively, mounted on different doors **2**, **3**, **4** and **5**, respectively, of the automobile. Instead, control panel **6** may be mounted on the dash board. The remaining mechanical latching or locking structure associated with each plunger, such as *2a*, is not shown since it is well known in the art and per se, forms no part of the present invention. Suffice it to say that when the plunger, such as *2a*, is depressed, the door is locked and cannot be opened by turning the outside handle, and when the plunger is lifted the door may be unlocked by turning the outside handle.

In operation, and referring to FIG. 2, upon depressing a control button *2b* against the action of a spring surrounding its stem, contact elements are bridged across one of the pairs of terminals **13**, **14** completing an electrical circuit which may be traced from ground through conductor **15**, the bridged contact elements, conductor **13**, the solenoid coil surrounding magnetic core **9**, conductor **8**, conductor **7**, thence through the battery which is connected to ground. This will effect energization of the coil which will attract the plunger or latch *2a* downwardly into the locking position. The plunger *2a* will remain downwardly by virtue of friction or toggle action associated with conventional locks so that after the button *2b* is released, the plunger still remains down.

Likewise, upon depression of button *3b*, a similar circuit is completed through the coil of solenoid **10** to effect downward attraction of plunger *3a* locked on the right

front door **3**. Similarly, a button *4b* will effect energization of solenoid **11** and depression of plunger *4a*. Likewise, depression of button *5b* effects downward movement of plunger *5a*.

While the described circuit provides the important advantage of enabling the driver to selectively depress the respective buttons *2a*, *3a*, *4a*, and *5a*, without reaching over and losing control of the steering wheel, there is a disadvantage in that children are still able to lift the respective latches or plungers *2a*, *3a*, *4a* and *5a* and cause accidental opening of a door.

FIG. 3 shows a modification of the circuit which will prevent such accidental lifting movements by children of the respective latches or plungers *22a*, *23a*, *24a* and *25a*. In operation, control button *22b*, similar to *2b* of FIG. 2, is depressed to complete a circuit extending from round, conductor **38**, button *22b*, solenoid **29**, and conductor **37** leading to battery and ground which will energize the coil and effect downward movement of plunger *22a* until a latch *33c* on its stem is latched by a horizontally moving stem of solenoid **33** moved to the left under the action of a spring (not shown). Thus it is impossible for a child to lift plunger *22a* in view of said latching. However, if the driver desires to lift plunger *22a*, he will merely depress a second button *33b* for completing a circuit extending from a conductor **38**, through the contacts of button *33b* and the solenoid coil of **33**, and conductor **37** to energize the solenoid coil and withdraw, horizontally, the latch and thereby enable plunger *22a* to be lifted by a spring (not shown) which normally biases the stem of plunger *22a*, vertically upwardly.

Likewise, depression of control button *23b* causes energization of solenoid **30**, and depression of control button *34b* energizes solenoid **34** to effect unlatching. Similarly, control buttons *24b* and *25b* will energize solenoids **31**, and **32**, respectively, and pressing of control buttons *35b* and *36b* will energize solenoids **35** and **36**, respectively, to unlatch plungers *24a* and *25a*, respectively, to allow the return springs to push them upwardly into the unlocked position. Thus, the circuit shown in FIG. 3 is fool-proof insofar as children are concerned.

Thus it will be seen that I have provided an efficient safety device for facilitating locking of the various door plungers without the necessity of having the driver reach out to the respective doors; furthermore, I have provided a safety system which will not only facilitate locking of the door plungers by the driver, but will prevent the possibility of unlocking by children and thereby prevent the possibility of accidental opening of the door and falling out into the roadway by children; furthermore, I have provided a safety lock system which will protect motorists from robbers, hitch hikers or other unwanted persons by enabling the driver to quickly lock all doors, including the front doors, to prevent forcible entry into a car, particularly when the motorist has stopped for a red light or other reasons, which locking can be done without observation by the unwanted person.

While I have illustrated and described several embodiments of my invention, it will be understood that these are by way of illustration only, and that various changes and modifications may be made within the contemplation of my invention and within the scope of the following claim.

I claim:

An automobile having a plurality of doors, each provided with a lock and a vertically movable latching plunger mounted on the door on the inside of the automobile, electrical control means mounted inside the automobile near the position of the driver comprising a plurality of electrical switches, each in circuit relationship with one of said plungers, each of said plungers having

a stem with an electromagnetic core mounted thereon and surrounded by an electrical coil for attracting the core downwardly in response to depression of one of said switches so as to effect downward and locking movement of the corresponding plunger, together with a latch on said stem, and a horizontally movable plunger and solenoid core having a stem for effecting latching engagement with said latch so as to prevent upward lifting movement of the plunger from the locking position, and a second control switch for effecting energization of said second solenoid to effect unlatching and permit lifting movement of said vertically movable plunger.

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