April 26, 1955 J. B. PARSONS 2,707,127

DOOR LATCH CONTROL RESPONSIVE TO WINDOW MOVEMENT

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FIG. 1.

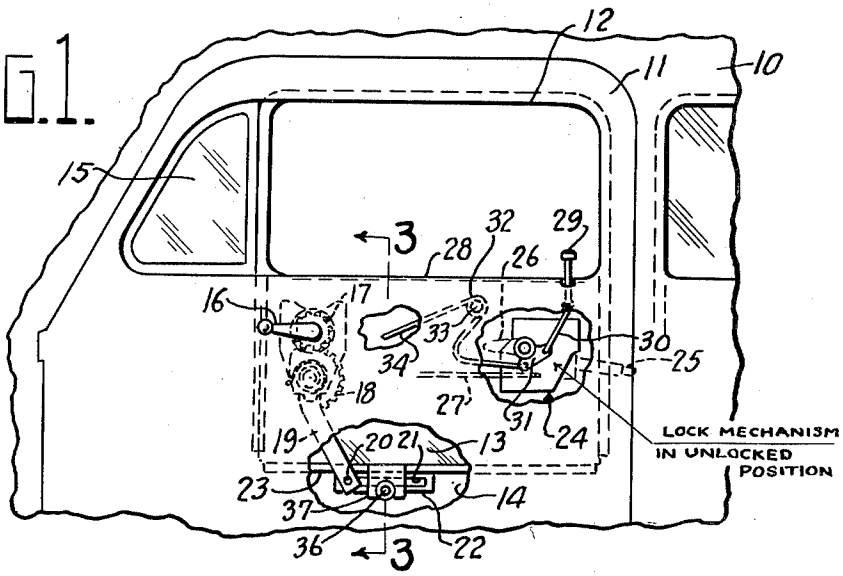


FIG. 2.

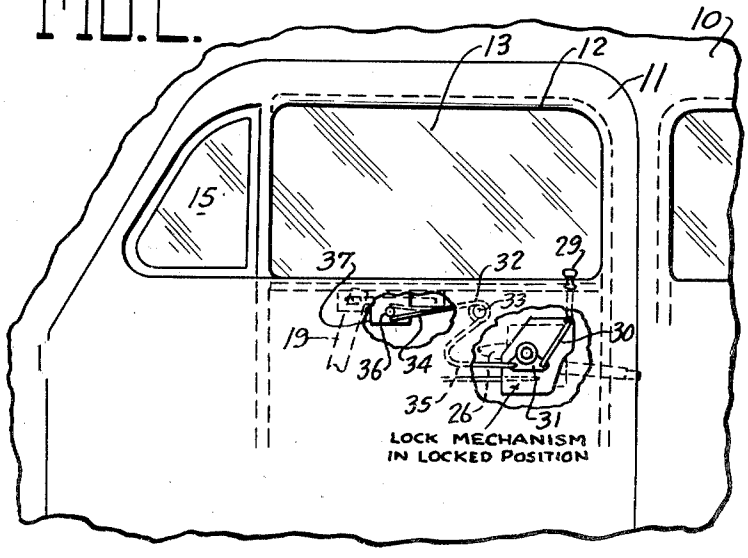
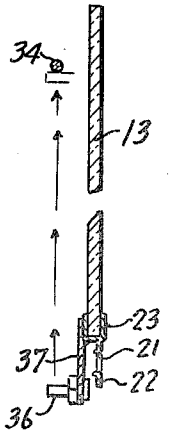


FIG. 3.



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DOOR LATCH CONTROL RESPONSIVE TO WINDOW MOVEMENT

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5 Claims. (Cl. 296—44)

This invention relates to vehicles equipped with regulator operated window panels but particularly to vehicle doors equipped with latching mechanism and a vertically slidable window panel actuated by regulator mechanism.

In many automobiles, the doors are equipped with latch mechanism having inside and outside operated latch retracting handles and associated with these mechanisms are push buttons usually accessible at the window garnish molding, these push buttons being operatively connected to the latch mechanism so that in a depressed position, the latch mechanism is rendered ineffective or inoperative by the outside door handle, thereby preventing unwarranted access to the interior of the vehicle and requiring the use of a key for restoring the operative connection between the outside operated handle and the latch mechanism. When the button is in its raised position, then the outside operated handle or retractor is rendered operative or effective for door opening or door releasing purposes. Not infrequently, it appears that these push buttons or all of them are not depressed and access can be effected to the interior of the vehicle even though the operator thought he had locked all of the doors. These doors are equipped with window panels which are operated by regulator mechanisms either manually or power operated. Of course, the operator, when leaving the automobile will almost invariably close all the windows of the vehicle.

In accordance with this invention, the movement of the window to its closed position automatically depresses the button thereby rendering the outside door handle inoperative or ineffective for latch retracting purposes. This operation takes place automatically and thus regardless of whether the windows are manually or power actuated to closed position, the doors are locked. Conversely, upon lowering of the window glass, the buttons are automatically raised and the outside handle or latch retractor is rendered effective. Although this operates satisfactorily in connection with manually operated window regulators, it is particularly desirable in connection with automatic or power operated window regulator mechanisms which may be controlled from the front seat by the operator. Thus the operator may quickly lock both rear doors by closing the rear windows. By opening one or the other window, the respective door is unlocked without the necessity of the operator moving from his position.

An object is to produce a simple and efficient control for a vehicle door latch mechanism responsive to the opening and closing movements of the associated window panel for rendering the outside operated door handle or latch retracting mechanism effective or ineffective depending upon the direction of window panel movement.

For purposes of illustration but not of limitation, an embodiment of the invention is shown in the accompanying drawing, in which

Figure 1 is a fragmentary elevation showing the inside of the front door of an automobile, parts being broken away for purposes of clarity, and the window panel being shown in its lowered or open position, the door latch controlled push button being in its raised position;

Figure 2 is a view similar to Figure 1, but showing the window panel in its raised or closed position, the latch controlled push button being in its depressed position rendering the outside operated handle or latch retractor ineffective; and

Figure 3 is a vertical sectional view substantially on the line 3—3 of Figure 1.

The illustrated embodiment of the invention comprises an automobile body **10** of the closed type having a right front door **11** provided with a window opening **12** which is adapted to be covered and uncovered by a glass window panel **13** which is vertically slidable in and out of a well **14** formed in the door beneath the window opening **12**, suitable guides being provided for guiding such up and down movement. Directly in advance of the opening **12** is a triangularly shaped opening controlled by a window or vane **15** suitably mounted on an up and down axis for swinging movement.

For raising and lowering the window glass **13** there is provided a regulator mechanism of conventional type embodying a manually operated crank handle **16** to which is connected a pinion **17** meshing with a gear sector **18** suitably mounted for oscillatory movements. Fixed to the gear sector **18** is an arm **19** which has a stud or button **20** at its free end mounted for horizontal sliding movement in a slot **21** formed in a retainer plate **22** which is suitably fixed to and depends from a channel **23** which intimately embraces the lower edge of the window glass panel **13**. Manifestly by turning the crank handle **16**, the window **13** may be raised to cover the opening **12** or lowered into the well **14** for uncovering or opening the window.

It is to be understood that the manually operated regulator is shown purely by way of illustration, and other forms of regulator may be used without departing from the spirit of the invention. For example, automatic means, well-known to those skilled in this art, such as hydroelectric or electric regulators may be used advantageously in this connection. As a matter of fact, this invention is particularly advantageous in connection with power operated regulators in connection with which a master control is arranged convenient to the operator's station, thus enabling the several windows of the automobile to be operated from the front seat. The importance and desirability of this will be apparent as the description proceeds. By way of example, reference is made to my Patent No. 2,425,391, dated August 12, 1947, and entitled "Hydraulic Regulator Mechanism for Vehicle Windows or the Like."

A latch mechanism **24** is provided adjacent an edge portion of the door for retaining the door in its closed position. The specific construction of the latch mechanism **24** forms no part of the present invention, and detailed description and illustration thereof is not considered necessary for a full understanding of this invention. Suffice it to say that the latch mechanism embodies a latching member **25**, an outside operated door handle or latch retractor **26**, and an inside operated handle or retractor (not shown) connected to the mechanism by a link **27**. Extending through an aperture in the garnish molding **28** is a push button **29** which is connected by a link **30** to a rockable part **31**, the arrangement being such that when the push button **29** is in its raised position as shown in Figure 1, the outside operated door handle or latch retractor **26** is rendered inoperative or ineffective. On the other hand, when the button **29** is in its depressed or lowered position, shown in Figure 2, the outside door handle **26** is rendered effective for retracting or releasing the latching element **25**. Reference is hereby made to the Andersen et al. Patent 2,039,873, granted May 5, 1936, and entitled "Coach Latch" which shows and describes one form of latch mechanism suitable for this purpose.

In this instance, a spring member **32** is pivotally mounted on a stud **33** carried by the door beneath the window opening. The spring **32** includes an arm **34**, a coil carried by the stud **33** and in this instance an approximately V-shaped arm **35**, the free end of which is attached to the oscillatable latch member **31**. The spring arm **34** has its free end normally disposed in the path of travel of a stud **36** which is carried by a bracket **37** secured to and depending from the channel member **23**. Thus as the window panel **13** moves upwardly, the stud **36** engages the arm **34** and rocks it in a clockwise direction, thereby to rock the latch member **31** in a clockwise direction, depressing the push button **29** and through the latch mechanism, rendering the outside door handle **26**

ineffective for latch releasing or retracting actuation. It will be understood that the stud **36** passes over the end of the spring arm **34** so that when the window **13** is moved downwardly, it again operates against the arm **34** and causes the spring to rock in a counterclockwise direction, imparting corresponding movement to the latch part **31** and raising the push button **29** to its elevated position shown in Figure 1.

From the above it will be manifest that when the window is in its raised position, the outside door handle **26** will always be dogged or rendered ineffective for latch retraction. At this time, the push button **29** will be in its depressed position shown on Figure 2. On the other hand, when the window is in its open position, the push button **29** will automatically be moved to its raised position and the outside handle **26** rendered effective for opening of the door.

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 claims.

What I claim is:

1. In a vehicle body, the combination of a door having a window slidable between open and closed positions, a manually operable push button for rendering a door latch mechanism inoperative when in one position and operative when moved to another position, abutment means moveable with the window, and means connected to said button and engageable by said abutment means for moving said button to the position rendering the door latch mechanism inoperative when the window is moved toward closed position and to move the button to render the door latch mechanism operative when the window is moved toward open position.

2. The combination claimed in claim 1 in which the button moving means comprises a resilient arm disposed in the path of travel of the abutment means.

3. In a vehicle body, the combination of a door having a window slidable between open and closed positions, a door latch operator including an element moveable between first and second positions, in the first of which positions said operator renders a door latch operative and in the second of which positions said operator renders the door latch inoperative and manually operative means extending externally of the door for moving said element from one of said positions to the other, abutment means moveable with the window, and mechanical means connected to said element and engageable by said abutment means for moving said element to the second of said positions when said window is moved towards closed position and to move said element to the first of said positions when the window is moved toward open position.

4. The combination claimed in claim 3, said mechanical means comprising a spring arm having one end portion connected to said element and an opposite end portion disposed in the path of said abutment means and in the region occupied by said abutment means when said window is substantially closed.

5. The combination claimed in claim 3, there being a window support moving with the window, said abutment means comprising a pin projecting from said support at substantial right-angles to the plane of the window, said element being pivotally mounted on said door for swinging between said two positions about an axis substantially parallel to said pin, said mechanical means comprising a spring mounted intermediate its ends on said door, one end of the spring being connected to said element so as to rock the same upon movement of the spring, the other end of the spring being interposed in the path of said abutment as the latter moves with the window.

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