S. J. WAY.

ATTACHMENT FOR OPENING AND CLOSING AUTOMOBILE DOORS.

APPLICATION FILED MAR. 31, 1910.

986,880. Patented Mar. 14, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

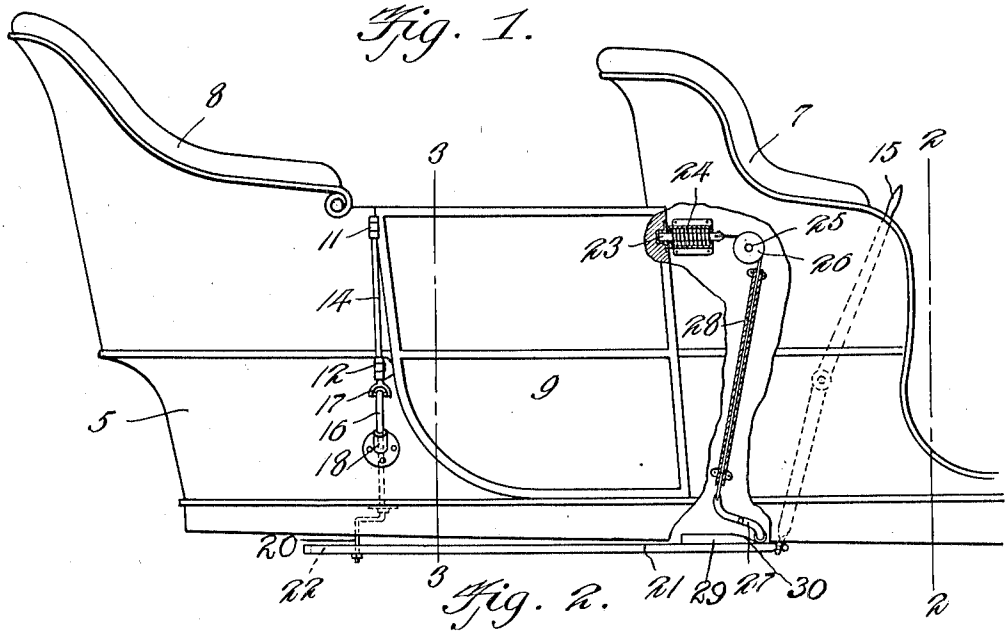
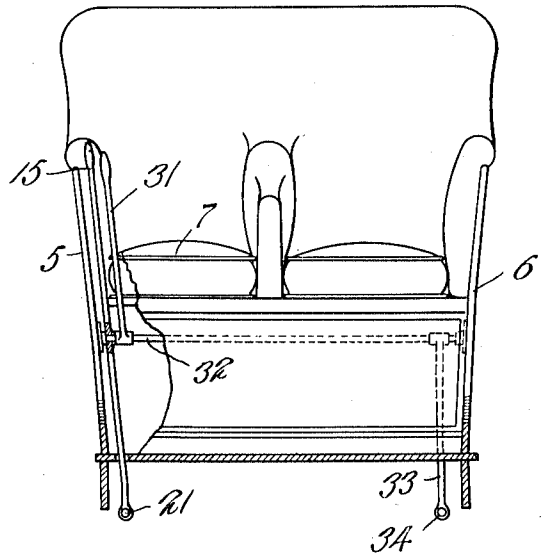


Fig. 2.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

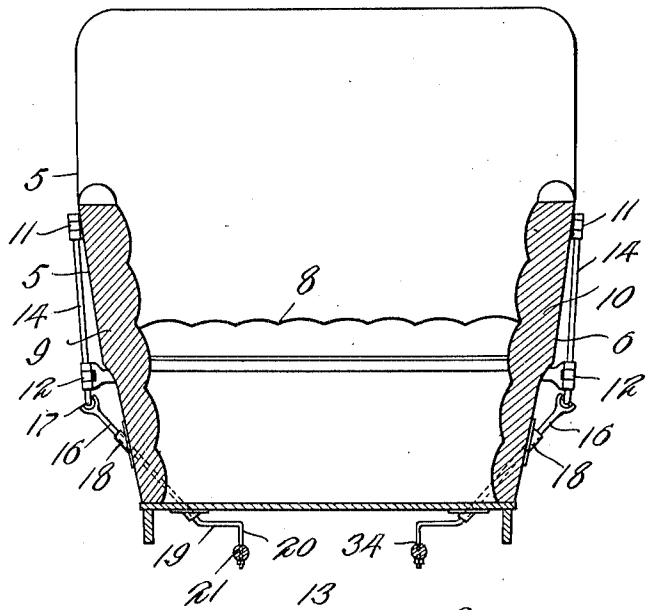
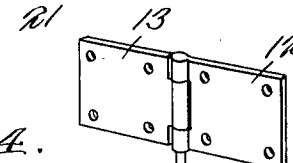
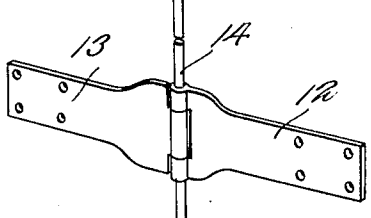


Fig. 4.





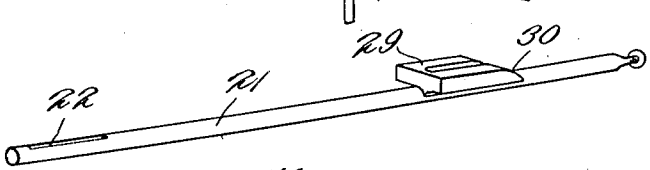


Fig. 5.

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ATTACHMENT FOR OPENING AND CLOSING AUTOMOBILE-DOORS.

986,880. Specification of Letters Patent. Patented Mar. 14, 1911.

Application filed March 31, 1910. Serial No. 552,612.

To all whom it may concern:

Be it known that I, SOLYMAN J. WAY, a citizen of the United States, residing at Manchester, in the county of Bennington and State of Vermont, have invented new and useful Improvements in Attachments for Opening and Closing Automobile-Doors, of which the following is a specification.

This invention relates to improvements in door operating devices and has particular reference to a device of that kind adapted to open and close the side doors on the body of an automobile or other vehicle.

One object of the invention is the provision of a device whereby the driver occupying the front seat may, without the necessity of leaving the vehicle or in any way changing his position, open and close either side door.

Another object is the provision of a construction whereby the latches which hold the doors in locked position will be actuated to release the doors in advance of the opening movement of the doors.

With these and other objects in view as will more fully hereinafter appear, the present invention consists in certain novel details of construction, and arrangement of parts hereinafter to be more fully described, illustrated in the accompanying drawings and more particularly pointed out in the appended claims; it being understood that various changes in the form, proportion, size and minor details of the device may be made, within the scope of the appended claims, without departing from the spirit or sacrificing any of the advantages of the present invention.

In the accompanying drawings forming a part of the specification: Figure 1 is a side elevation of a portion of the body of an automobile with a portion of the side thereof broken away and showing my improved device applied. Fig. 2 is a sectional end elevation on the line 2—2 of Fig. 1. Fig. 3 is a similar view on the line 3—3 of Fig. 1. Fig. 4 is a detail perspective of the hinges and pintle. Fig. 5 is a similar view of the operating rod for the door and latch.

Similar numerals of reference are employed to designate corresponding parts throughout.

The sides of the body are designated by the numerals 5 and 6, the front seat by the numeral 7 and the rear seats by the numeral 8. The doors sealing the space between the front and rear seats are designated by the numerals 9 and 10. Since these parts are all of well known construction, a detailed description of the same need not be given.

By reference now to the drawings it will be seen that the doors are, as usual, hingedly united with the body by hinges 11 and 12. These hinges are of peculiar construction each comprising a pair of leaves 12 and 13. Each door is provided with a pair of hinges arranged adjacent to its upper and lower ends, the leaves 13 being fixedly secured to the body while the opposite leaves 12 are fixedly secured to the doors. A common pintle is employed for each pair of hinges. These members are designated by the numeral 14 and extend, as usual, through the pintle lugs of the leaves 12 and 13 and are fixedly secured in the pintle lugs of the leaves carried by the doors. With this construction it is obvious when the pintles 14 are turned in one direction, the doors will move outwardly from the body, and when turned in the opposite direction, the said doors will move inwardly.

By reference to Fig. 2, it will be seen that an operating lever is arranged at one side of the front seat 7. This member is designated by the numeral 15 and is fulcrumed on the inner face of the body and extends downwardly to a point considerably below the lower face of the body. The upper end of the operating lever extends to the upper side of the seat and is in convenient reach of the driver.

What will subsequently be termed a rock arm is designated by the numeral 16. This member is provided at its upper end with a U-shaped extension, the opposite terminals of which receive the opposite ends of a cross tree 17. It might here be stated that the lower end of the pintle 14 is divided so as to provide a U-shaped extension similar to the upper end of the rock arm 16. The opposite terminals of the U-shaped extension of the pintle 14 receive the opposite ends of the cross tree 17, whereby a universal joint is established between the rock arm and pintle. The rock arm 16 extends downwardly and obliquely and through the flared lower end of the body and at that portion of the body through which the rock arm extends, a boxing 18 is provided in which the said rock arm is journaled. The lower end

of the rock arm terminates in a crank 19 arranged below the flare of the body and extending toward the central line of the latter. The crank 19 terminates in a handle 20 extending vertically downward with its lower end in a plane with the lower end of the operating lever 15.

Connection between the handle 20 and lower end of the operating lever 15 is established by means of a connecting rod 21, one end of which is pivoted for horizontal movement to the lower end of the operating lever while the opposite end is provided with an elongated slot 22 which receives the lower end portion of the handle 20.

In the operation of the device thus far described and assuming that the door 9 is in closed position as shown in Fig. 1, and the operating lever 15 moved rearwardly to its full extent, the rear end of the slot 22 will bear against the lower end portion of the handle 20. By now moving the upper end portion of the operating lever forwardly will result in moving the lower end rearwardly whereby the connecting rod will likewise be moved rearwardly until the forward end of the slot 22 abuts against the lower end portion of the handle 20 whereupon continued rearward movement of the connecting rod will turn the said handle whereby the rock arm 16 and pintle 14 will be rotated and the door opened.

Reference to Fig. 1 discloses the fact that the door is held in closed position by means of a latch 23. This member is slidably fitted in the body of the vehicle and is normally held outward and into the path of movement of the door by means of a helical compression spring 24. The engaging end of the latch projects beyond the side of the door frame and is in alinement with an opening formed adjacent to the upper end of the free side of the door and is adapted to enter said opening in order to hold the door in closed position. It is evident that some means must be provided to disengage the latch from the door in order that the latter may be opened in the manner before described; in order to carry out this construction whereby the latch will be released in advance of the outward movement of the door the following is employed: Rotatably mounted on a shaft 25 arranged between the free end of the door and operating lever 15 is a grooved sheave 26, located below the latch 23, and pivoted to the bottom of the body and in alinement with the sheave is the intermediate portion of a lever 27. Connection between one end of the lever 27 and the rear end of the latch 23 is established by means of a flexible element 28 trained over the sheave 26, the opposite ends of which are fixedly secured to the latch and lever. Fixedly secured to the upper side of the connecting rod 21 and underlying the lever 27 is a stud 29, one end of which is beveled as shown at 30. The beveled end of the stud lies adjacent to the operating lever 15, and the stud is so disposed that when the door 9 is closed, the free end of the lever 27 will bear on the extremity of the beveled end 30 of the stud; when however, the operating lever is moved to open the door in the manner before described, and the connecting rod 21 moves forwardly the said beveled end 30 of the stud will tilt the lever 27 so that the end of the latter connected with the flexible element 28 will descend whereupon the latch 23 will be moved from engagement with the door and in advance of the opening movement of the door. When the door on the opposite side of the body is to be manipulated, the same arrangement of parts is provided for the said opposite door and a second operating lever 31, is employed which is arranged adjacent to the operating lever 15. The lower end of the operating lever 31 however, is keyed to a transversely disposed shaft 32 having its opposite ends journaled in the sides 5 and 6 of the body. That end of the shaft remote from the lever 31 is provided with a depending arm 33, the lower end of which is pivoted to a connecting rod 34 similar to the rod 21. The connecting rod 34 is connected to the pintle 14 of the door opposite to the door shown in Fig. 1 in the same manner in which the connecting rod 21 is connected, so that movement of the operating lever 31 in either direction will result in opening or closing the door 10 and operating the latch in the manner described.

From the foregoing it can be seen that I have provided a device that is comparatively simple in structure and inexpensive to manufacture embodying few parts and is so arranged that the juncture of derangement will be reduced to a minimum.

Having thus described the invention what is claimed, is:—

1. In a door manipulating apparatus, the combination with a door and its frame; of leaf hinges connecting the said door and frame, a common pintle for said hinges fixedly secured to the leaves carried by the door, a latch arranged in the door frame to engage with the door and maintain the latter in closed position, an operating lever, a rocker arm, means connecting the rocker arm with the latch and a connection between the operating lever and the pintle operating to turn the latter, and means associated with the said connection operating to actuate the rocker arm to move the latch from engagement with the door in advance of the turning movement of the pintle.

2. In a door manipulating apparatus, the combination with a door and its frame, of leaf hinges uniting the said door and frame and having a common pintle fixedly secured to the leaves carried by the door, a spring

latch carried by the door frame to engage with the door when the latter is in closed position, an operating lever, a connecting rod having its terminals connected with the pintle and operating lever and serving to open the door when the said operating lever is moved in one direction, and a flexible element operable by the connecting rod and connected to the latch for retracting the latter in advance of the opening movement of the door.

In testimony whereof I affix my signature in presence of two witnesses.

SOLYMAN J. WAY.

Witnesses:
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