Nov. 26, 1940. L. J. GOUIN 2,222,659

COMBINATION LATCH OPENING AND WINDOW PANE ACTUATING MECHANISM

Filed Jan. 23, 1937 2 Sheets-Sheet 1

Fig. 1.

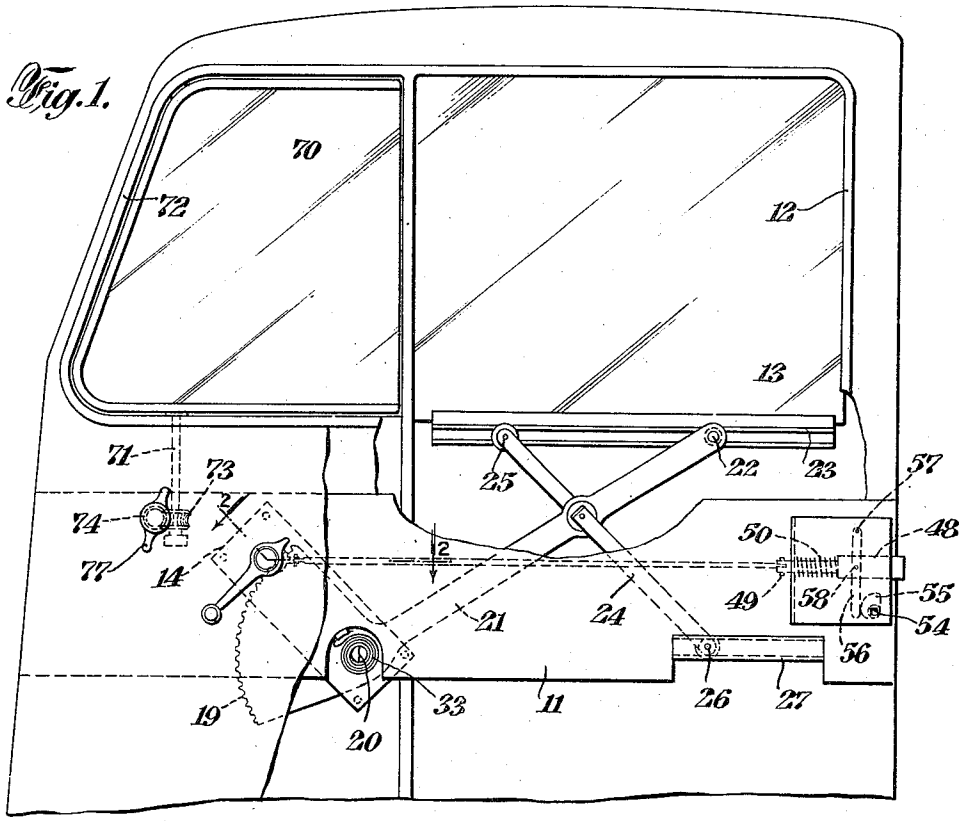


Fig. 2.

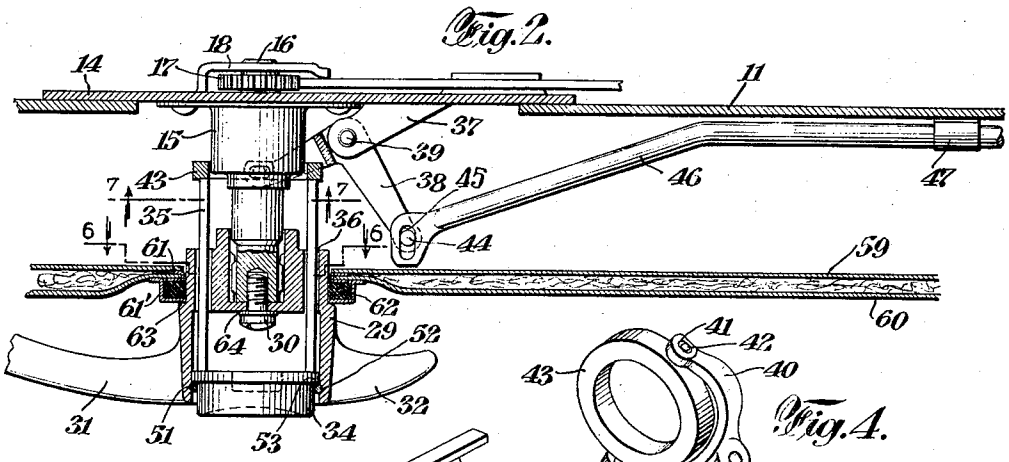


Fig. 3.

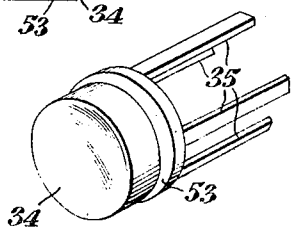


Fig. 4.

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Fig. 5.

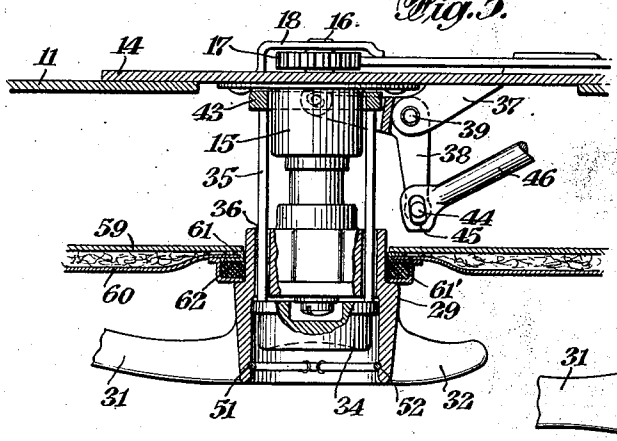
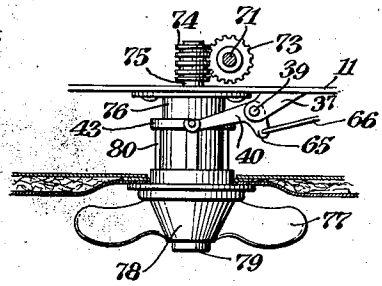


Fig. 10.



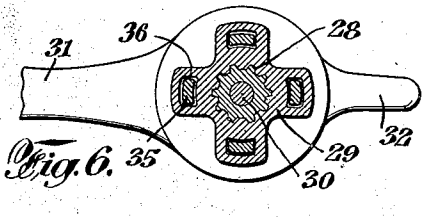


Fig. 6.

Fig. 7.

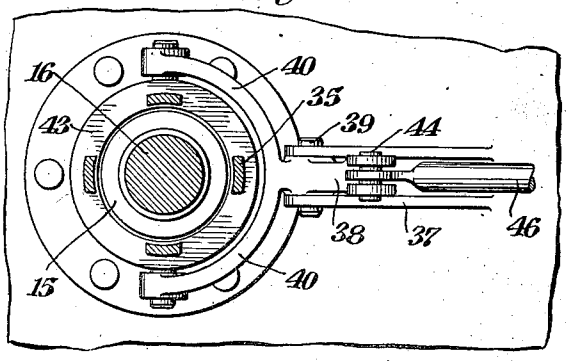


Fig. 9.

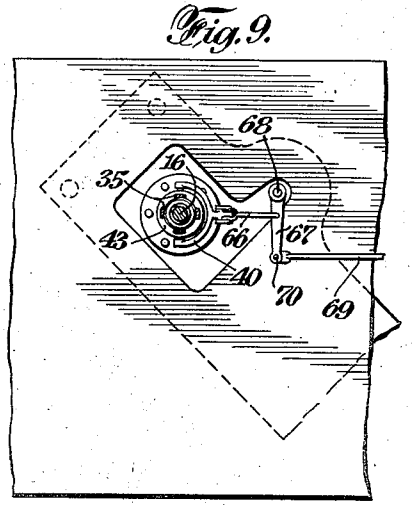
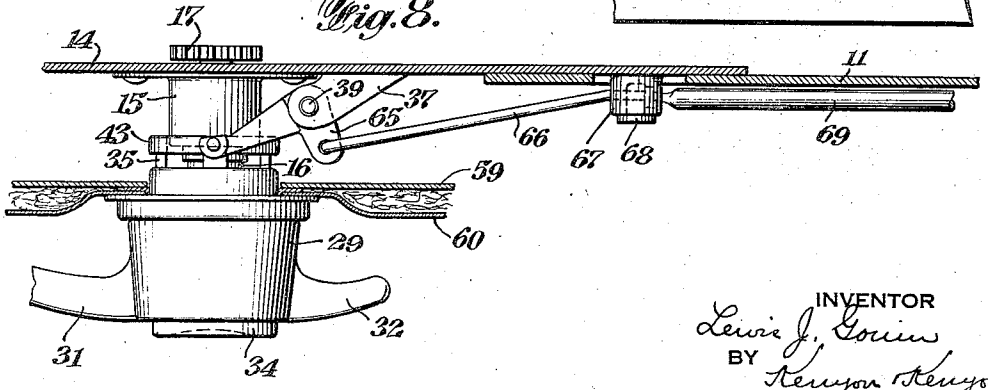


Fig. 8.



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UNITED STATES PATENT OFFICE

2,222,659

COMBINATION LATCH OPENING AND WINDOW PANE ACTUATING MECHANISM

Louis J. Gouin, East Orange, N. J.

Application January 23, 1937, Serial No. 121,915

12 Claims. (Cl. 268—126)

This invention relates to a combination latch opening and window pane actuating mechanism and relates especially to mechanism for releasing the latch and actuating a window pane in the door of an automobile.

The doors of an automobile are customarily equipped with a latch adapted to keep the door from opening after it has been closed. For releasing the latch to open the door a handle is necessary both on the inside and on the outside of the door. It has also been common practice to provide the door of an automobile with a window pane and a suitable regulator by which the window pane can be raised and lowered to suit the desires of occupants of the automobile. The regulator for the window pane is actuated by a handle or crank which is on the inside of the door and which may be grasped by an occupant of the automobile and turned for the purpose of regulating the window; the handle for the regulator presenting a second handle on the inside of the door in addition to the handle that is required to release the latch of the door.

In recent years it has been popular to provide in a portion of the window frame a movable pane designed to control ventilation. Several different devices have been developed for moving a window pane so as to control the ventilation. The ventilation control device is likewise operated by a handle or crank on the inside of the door. Thus in the present day automobile there are as many as three handles or cranks on the inside of each door. The necessity for three handles or cranks on the inside of each door presents a difficult problem. In the first place from the standpoint of design it is difficult to make the interior of the car attractive when there are as many as three handles on the inside of each of the doors. Moreover, the positioning of the handles so that they will not be inconvenient to the passengers and so that they will not catch on the clothes of persons getting in and out of the car presents further difficulty.

In the manufacture of automobiles wherein a latch handle of conventional type is used there has always been the problem of safety. If an occupant of an automobile such as a child should accidentally press against the handle that operates the door latch, the latch might easily be opened throwing the occupant out of the car. To guard against this contingency the only remedy heretofore has been to make the spring which holds the latch bolt in position to keep the door latched very strong so that considerable pressure is required to retract the latch bolt in opening the door. This, of course, makes it difficult, especially for women and children, to readily open the door. Moreover, automobile doors are notorious for the vigor with which it is necessary to slam them in order to overcome the strong spring of the door latch that is regarded as necessary from the standpoint of safety.

It is a purpose of this invention to overcome the difficulties above mentioned. According to this invention, a single handle is all that is required to release the latch of the door and to actuate a window pane. Where a door of an automobile is equipped with a window regulator and a latch, a single handle on the inside of the door affords means for actuating both the regulator and the latch. When a ventilating device is also employed, all that is required is two handles on the inside of the door. In addition to the improvement that results from the elimination of one of the handles which has heretofore been regarded as necessary, increased safety is afforded because, according to this invention, the actuating member which is utilized to release the door latch may be so guarded that accidental release of the latch is virtually impossible. This improvement in safety is extremely important in the case of automobiles. Moreover since accidental opening of the latch can be made substantially impossible in mechanism embodying this invention, the spring that keeps the latch bolt in its normal position need not be made extremely stiff as is the case at present and an automobile door can be constructed which may be closed with a very light touch and without the vigorous slamming that is required with present day cars.

Features of this invention may be employed in connection with means for actuating the window pane comprising a rotatable shaft mounted in a suitable support and having a handle or arm by which the shaft can be rotated and comprising suitable mechanism for moving a window pane responsive to rotation of the shaft. According to one embodiment of this invention an actuating member for releasing the latch bolt of the door latch is also carried by the shaft and has an exposed portion adjacent the end of the shaft that is preferably in the form of a button mounted in a recess in the hub of the handle that is used to rotate the shaft. The actuating member for releasing the latch, e. g., a button, is movable relatively to the shaft and when such member is actuated the latch bolt may be moved sufficiently to release the latch of the door. Thus window pane actuating the door latch releasing means may be actuated whenever desired and

without interference with the other although combined in a single unit of hardware appearing on the inside of the door. In a device embodying this invention, the handle for regulating the window pane can be rotated in either direction as much as desired without in any way affecting the latch bolt. On the other hand, the latch bolt actuating mechanism can be operated to release the latch without in any way affecting the window regulating mechanism and when the handle for the window pane regulator is stationary and in any of a plurality of different positions. Various types of latches are known comprising parts cooperating between the door and door jam that are slidable, rotatable, pivoted and the like and comprising latch bolt means actuatable to release the latch so that the door may be opened.

Further purposes, features and advantages of this invention will be apparent from the following description thereof in connection with the accompanying drawings showing certain illustrated embodiments of this invention wherein,

Fig. 1 is a side view of combined latch opening and window pane actuating mechanism mounted in the door of an automobile, the mechanism being viewed from the inside of the door.

Fig. 2 is a view partly in section of the mechanism shown in Fig. 1 taken along line 2—2 of Fig. 1.

Fig. 3 is a perspective view of the actuating member or button which is manually operable to release the latch bolt.

Fig. 4 is a perspective view of the collar and pivoted yoke which are employed as part of the means for transmitting motion from the button to the latch bolt.

Fig. 5 is a view similar to Fig. 2 but with the parts in a different position, the button being shown depressed as when the latch bolt is being retracted to open the latch of the door.

Fig. 6 is a cross section of part of the apparatus shown in Fig. 2 taken along the line 6—6 of Fig. 2.

Fig. 7 is a view partly in section of the mechanism shown in Fig. 2 taken on the 7—7 of Fig. 2.

Fig. 8 is a top view of an alternate form of apparatus embodying this invention.

Fig. 9 is a side view partly in section of the apparatus shown in Fig. 8.

Fig. 10 is a plan view partly in section of an embodiment of this invention comprising a ventilation control mechanism.

In Fig. 1 a portion of an automobile door is shown and extending across the door is a support bar 11 which is sufficiently strong and rigid to carry the window pane actuating mechanism and the door latch mechanism. The door comprises a window frame 12 having the window pane 13 therein which is mounted in the frame so that it may be raised and lowered within the frame. Carried by the support bar 11 is suitable means for regulating the position of the window pane 13. Many devices for raising and lowering window panes have been devised and any suitable device to accomplish this purpose may be employed according to this invention. In the drawings, one type of window regulating mechanism is shown for the purpose of illustration. This device includes a support plate 14 which is secured to support bar 11 and to which a bushing member 15 is attached. A shaft 16 is journalled within the bushing member 15 so that it may be rotated. While the shaft is journalled in bushing 15 it may be regarded as rotatably mounted in a support member which includes the support bar 11 and/or the plate 14 together with such part or parts 15 as afford a bearing for the shaft 16. Secured to the end of shaft 16 is sprocket wheel 17 protected by guard 18, the teeth of which wheel are adapted to mesh with the teeth on rack member 19 that is pivotally mounted with respect to the support plate 14 as by the pivot pin 20. Extending from the rack 19 is an arm 21 having a supporting lug 22 at the end thereof which is adapted to support at one point the window pane rest 23. Pivotally mounted with respect to the arm 21 is a bar 24 which has a support lug 25 at one end thereof adapted to support the window pane rest 23 at another point. The other end of the bar 24 has a pin 26 projecting therefrom which is adapted to slide in a trough or slot 27 fixed to the support member 11.

Secured to the end of shaft 16 remote from sprocket wheel 17 is a handle or arm member 31 adapted to rotate the shaft 16. The end of the shaft 16 to which the arm is attached is provided with key teeth 28 which coact with the interior of the hub 29 of the arm member so as to prevent rotation of the member relatively to the shaft. The hub 29 has a recess in the face thereof as shown and at the bottom of the recess a screw 30 and lock washer 64 may be used to maintain the hub 29 attached to the end of the shaft 16. Any other suitable means may be used for securing the handle to the shaft so that the handle may be used to rotate the shaft. Extending laterally from the hub 29 is the arm 31 which serves as a handle which may be grasped for manually rotating the shaft 16. Projecting from the other side of the hub 29 is a second and shorter arm 32 which has a utility which will become more apparent in the following description.

The mechanism above described for regulating the raising and lowering of the window pane is conventional except for the peculiar construction of the hub 29 which has been referred to above. In operation the handle 31 may be grasped to manually turn the shaft 16. Upon rotating the shaft 16 the sprocket wheel 17 causes the rack 19 to be pivoted about its pivot 20, causing the arm 21 to be raised and lowered. Since the pin 26 is slidably mounted in the slot 27, the arm 21 and the bar 24 move with a scissor action and the supporting lugs 22 and 25 cause the window pane rest 23 to be raised and lowered. In a device such as the one herein described the pivot pin 20 preferably is secured to a spring 33 the other end of which is anchored to the support plate 14. The tension of the spring is such as to counterbalance the weight of the window pane and prevent the weight of the window pane from causing the window pane to fall by itself.

According to the present invention a window regulating device including a rotatable shaft and a handle may be used in combination with means for moving the latch bolt to release the latch of the door. To this end an actuating member is carried by the shaft in movable relation thereto. In the embodiment shown, the hub 29 is recessed as above mentioned and slidably mounted in the recess is an actuating member in the form of a push button 34. Extending from the button 34 are legs 35 which are slidably mounted in openings 36 in the hub member 29 and which pass through the hub member. While the button 34 is mounted on the inside of the recess in the face of hub 29, the ends of the leg

members 35 are on the outside of the hub on the other side thereof from said button and are adjacent the sides of a portion of the shaft 16.

Secured to the support plate 14 is a member such as bracket 37 which supports the yoke lever 38 by pivot pin 39 so that the yoke or rock lever 38 is pivotally carried by the support member in which the shaft 16 is rotatably mounted. The yoke lever 38 includes the yoke arms 40 which have slots 41 at the end thereof to accommodate pins 42 extending from either side of the collar 43. The collar 43 is of such diameter and width as to be held against the ends of the legs 35 and to be moved when the legs 35 are moved responsive to movement of the push button 34 into the recess in the hub 29. At the other end of the yoke lever 38 is a pin 44 which moves in slot 45 in the end of the pull member such as a rod 46. If desired, the rod 46 may be maintained in position by guide bushing 47 secured to the support bar 11 or a cable may be used instead of a rod.

The pull rod 46 extends to the latch bolt 48 and is attached thereto by any suitable means such as pin 49. The latch bolt protrudes from the margin of the door as shown and is normally maintained so as to protrude from the margin of the door by a spring 50. It may also be noted that the spring 50 in holding the latch bolt so as to protrude from the door at the same time operates through the pull rod 46 to maintain the collar 43 against the ends of legs 35 and to urge the push button 34 to move outwardly from the recess in hub 29. In order to prevent the push button 34 from coming out of the recess in hub 29, any suitable stop means may be used such as a ring 51 of suitable material such as spring steel which normally rests in an annular groove 52 in the interior of the hub 29 but protrudes from the groove 52 sufficiently to coact with a shoulder 53 on the push button to prevent the push button from coming out of the recess in hub 29.

While the operation of the device embodying this invention is believed to be apparent, it will be described briefly as follows.

In Figs. 1 and 2 the parts are shown in position with the latch bolt protruding from the door so as to keep the door latched. It is to be noted that whenever it is desired to regulate the position of the window pane the arm 31 may be grasped so as to rotate the shaft 16. In rotating the shaft 16 the push button 34 and the legs 35 which are carried by the shaft all rotate with the shaft as a unit. The rotation of the shaft does not affect the latch bolt in any way as the ends of the legs 35 merely slide along the surface of the collar 33 and do not move the collar 43 in any direction. When it is desired to move the latch bolt so as to retract it and open the latch, the push button 34 is depressed into the recess in the hub 29. This causes the ends of the legs 35 to push against and move the collar 43 to the position shown in Fig. 5. At the same time the yoke lever 38 is rocked about its pivot to the position which is also shown in Fig. 5. This movement, of course, causes the pull rod and the latch bolt 48 to be retracted so that the door latch can be released. It is significant to note that the movement of the latch bolt can be accomplished when the arm 31 attached to shaft 16 is in any of a plurality of different positions. Moreover the latch bolt can be moved without moving either the arm 31 or the shaft 16. When the pressure on push button 34 is relieved, the spring 50 causes the latch bolt to again protrude from the margin of the door and causes the push button at the same time to resume its original position which is the position shown in Figs. 1 and 2.

With mechanism embodying this invention the actuating member for moving the latch bolt may be mounted, as shown, in a recess of a hub member so that the actuating member, e. g., a button, protrudes only slightly or not at all from the hub member. Thus in order to move the latch bolt sufficiently to release the latch it is necessary in preferred construction to depress the push button so that the end thereof is substantially within the recess in the hub member. In this manner it is substantially impossible to accidently move the latch bolt so as to release the latch of the door in as much as it is necessary to put the thumb or finger on the push button and deliberately push it well within the recess in the hub member of the device. With this increased safety factor the spring which normally causes the latch bolt to protrude from the margin of the door can be made of substantially lesser tension than that which is common at the present time in ordinary devices having a handle which is so exposed as to be subject to accidental actuation. By decreasing the tension of the spring, the manipulation of the push butotn 34 is facilitated. As aforesaid, the decrease in strength of the spring 50 likewise enables automobile doors to be made which can be closed without slamming. According to this invention, a door can be manufactured having thereon a latch which permits smooth and easy closing of the door.

The push button 34 affords means on the inside of the car for retracting the latch bolt to open the door. A similar mechanism leading to the outside of the car door can be used if so desired. However, an ordinary handle on the outside of the door may be used which, for example, may be attached to the shaft 54, which shaft has keyed thereto a cam member 55 adapted upon rotation of the shaft 54 to move the lever 56 which is pivoted by pin 57 to retract the latch bolt 48, the pin 58 serving to retract the latch bolt upon movement of the lever 56.

Mechanism embodying this invention such as that above described can be embodied in automobile doors of conventional construction as the latch operating mechanism is of such character that it can be interposed between the support bar 11 and the lining board 59 on the interior of the car in a door of standard thickness. The lining board 59 may be made of any suitable material such as thin metal or fibre board. Overlying the lining board 59 is upholstery 60. The hub 29 passes through an opening in the lining board 59 and an opening in the upholstery 60. In order to prevent the upholstery 60 from being torn at the opening, an eyelet 61 may be provided which is attached to the upholstery and surrounds the hub member 29. In order to make an attractive finish between the edge of the upholstery and the hub member an annular ring 61' may be used which is hollow and has sponge rubber 62 within it adapted to keep the ring 61 pressed against the shoulder 63 on the exterior of the hub member.

It is seen from the foregoing that the appearance of the combined window pane actuating means and latch opening means in the interior of the car is not substantially different from that of an ordinary single handle which is used at the present time in connection with a window

regulator. The handle is just as convenient as the handles which have been used heretofore in connection with window regulation. When it is desired to move the latch bolt to release the latch of the door, the handle 31 and the auxiliary arm 32 afford convenient means for grasping the handle in depressing the push button 34.

While the mechanism described in connection with Figs. 1 to 7 is sufficiently compact to permit its being mounted between the inside and outside walls of the door, and more specifically between a support bar 11 and lining board 59 in a door of usual construction, an alternate form of device is shown in Figs. 8 and 9 which may be used if desired to reduce the distance between the support bar 11 and the lining board 59. In these figures the device as shown is essentially similar in most respects to the device shown in Figs. 1 to 7 and similar reference characters are used to indicate corresponding parts of the device. Thus, the handle or arm 31 projecting from the hub 29 is used to rotate the shaft 16 which is journalled in the bushing 15; and a sprocket wheel 17 is fixed to the shaft and may be connected to suitable means for actuating a window pane. Within the hub member 29 is the push button 34 having legs 35 extending therefrom and adapted to be pushed against the collar 43.

In the device shown in Figs. 8 and 9 a yoke lever is used which is somewhat different from that shown in Figs. 1 to 7. In Figs. 8 and 9 the yoke lever has arms of unequal length. The yoke arms 40 which are pivoted to the collar 43 are longer than the arm 65 which is on the other side of the pivot pin 39 carried by bracket 37. A pull member such as 66 is pivoted to the end of the arm 65 and is pivotally attached to a lever 67 at a point intermediate the ends of the lever. The lever is pivotally carried by the support member 11 by pin 68. At the other end of the lever 67 a pull member such as rod 69 is pivotally attached by a pin 70. The pull rod 69 extends to a latch bolt such as the latch bolt 43 shown in Fig. 1.

In connection with Figs. 8 and 9, it is to be noted that by having the yoke lever provided with a short arm 65 very little space is required between the support bar 11 and the lining board 59. While the relative proportions of the parts is such that movement of the push button 34 results in a substantially lesser movement at the end of arm 65, the movement at the end of arm 65 may be magnified again by the arrangement involving lever 67 so that the motion of the pull rod 69 may be the same as the movement of push button 34 or may have any other desired degree of movement in comparison to the movement of push button 34.

Hereinabove this invention has been described in connection with a device which acts as a combined latch opener and window pane regulator. While this combination is ordinarily regarded as desirable, other modifications of this invention are possible. Thus, in the automobiles which are manufactured extensively at the present time ventilating control devices are used as hereinabove mentioned. In Figs. 1 and 10 one such ventilating device is shown and consists of a window pane 70 which is secured to a rod 71 that is pivotally mounted in a window frame 72. The rod 71 has a worm wheel 73 secured thereto which is in operative relation with a worm 74 secured to shaft 75 that is rotatably mounted in a bushing 76 secured to support bar 11. A suitable handle or turning device 77 is attached to the end of the shaft so that the shaft may be manually rotated. Upon rotating the shaft 75, the rod 71 will be turned so as to move the window pane 70 within the frame for the purpose of controlling ventilation.

A ventilation control device such as that above described is conventional and many other types are also known. This invention may be embodied in any such device, e. g., as is illustrated in connection with Figs. 1 and 10. The mechanism here shown is similar to that which has been described in Figs. 8 or 9, although a device which is similar to that shown in Figs. 1–7 may also be used. The handle 77 projects laterally from the hub member 78 which has a recess therein for slidably receiving the push button 79. Legs 80 pass through the hub member 78 in slidable relation thereto and project from the other side of the hub member 78 and are attached to the push button 79 so that they may be moved responsive to the movement of the push button 79. As described in Figs. 8 and 9, the legs 80 rest against a collar 43 which in turn is adapted to actuate a yoke lever which has arms 40 and 65 and is pivoted to bracket 37 by pin 39. The yoke lever has the relatively short arm 65 to which the pull rod 66 is attached. The pull rod 66 serves to move the latch bolt as by uniting the same thereto through the interposition of a lever means 67 as shown in Fig. 9. It is thus seen that with apparatus embodying this invention latch opening means may be combined with window pane actuating means serving either as a regulator for elevating and lowering a window pane or for moving a ventilation control member.

While this invention has been described in connection with certain specific embodiments thereof, it is to be understood that this has been done merely for the purpose of illustration. While certain specific window regulating and ventilation control devices have been shown, it is of course to be recognized that other window regulators and ventilation control devices may be used in connection with this invention. Moreover, the parts used in my device may be made in various different ways. Thus the push button, instead of being made of a solid piece, may be stamped out of sheet metal in well known ways and in such case the legs secured to the push button could also be of sheet metal. The legs extending from the push button may be of substantially rectangular shape as shown or may be of any other shape such as round.

As far as the support for the rotatably mounted shaft is concerned, this may take the form of any suitable part or parts. For example, instead of using a support bar 11, the supporting plate 14 may be carried by the lining board 59. In such case the lining board could be sufficiently strong and heavy to carry the operating parts. Moreover, in designing the hardware for doors for different makes and styles of cars, it is obvious that the metal parts will take many different forms and that the present invention may be practiced in many different forms. Accordingly, the scope of this invention is to be limited only by the language of the following claims.

I claim:

1. In combination latch opening and window pane actuating mechanism, the combination comprising a shaft, a support member in which said shaft is rotatably mounted, a manually operable actuating member secured to said shaft adjacent an end of said shaft adapted for rotating said shaft, a hub member adjacent said end

of said shaft, a button member depressibly mounted in a recess in said hub member, a part pivotally carried by said support member, leg members passing through said hub member in slidable relation thereto and extending beyond said hub member exteriorly of said shaft, said leg members being interposed between said part and said button member and being adapted to move said part when said button member is depressed in said hub member, means responsive to rotation of said shaft for actuating a window pane, a latch bolt, and means responsive to movement of said part when said button is depressed for moving said latch bolt.

2. In apparatus of the character described, the combination comprising a shaft, a support member in which said shaft is rotatably mounted, a hub member adjacent an end of said shaft, a handle member extending laterally from said shaft and adapted to rotate said shaft, a button depressibly mounted in a recess in said hub member disposed longitudinally with respect to the axis of said shaft, legs extending from said button and through said hub member in longitudinally slidable relation thereto and adjacent the exterior of a portion of said shaft in longitudinal relation thereto, a collar about said shaft against which the ends of said legs are adapted to rest in relatively slidable relation when said legs are rotated with said shaft and which is adapted to be moved longitudinally of said shaft when said button is depressed in said recess in said hub, a latch bolt, and means responsive to movement of said collar longitudinally of said shaft when said button is depressed in said recess in said hub to move said latch bolt.

3. In combination latch opening and window pane actuating mechanism, the combination comprising a shaft, a support member in which said shaft is rotatably mounted, means responsive to rotation of said shaft for actuating a window pane, a hub member adjacent an end of said shaft, a handle member extending laterally from said hub member and adapted to rotate said hub member and shaft as a unit, a button mounted in a recess in said hub member and movable in said hub member longitudinally of the axis of said shaft, leg members extending from said button through said hub member parallel to the axis of said shaft and adjacent a portion of said shaft, a collar about said shaft against which the ends of said legs are adapted to rest in relatively slidable relation when said legs are rotated with said shaft and which is adapted to be moved longitudinally of said shaft when said button is depressed in said hub, a yoke pivotally carried by said support member and having pivotal connection with said collar, a latch bolt, and means responsive to movement of said yoke about its pivoted connection to said support member when said button is depressed for moving said latch bolt.

4. In combination latch opening and window pane actuating mechanism, the combination comprising a shaft, a support member in which said shaft is rotatably mounted, an arm member extending laterally from said shaft for rotating said shaft, means responsive to rotation of said shaft for actuating a window pane, a hub member secured to said shaft, a button mounted in a recess of said hub overlying the end of said shaft and movable in said recess longitudinally of the axis of said shaft, a collar surrounding said shaft, legs between said button and said collar passing through said hub member in longitudinally slidable relation thereto, a yoke lever pivotally carried by said support member and comprising an arm pivotally connected to said collar, a pull member connected to another arm of said yoke lever at a point in closer proximity to said pivot of said yoke lever than the connection of said first arm to said collar, a second lever connected to said pull member and pivotally carried by said support member, a latch bolt, and means interposed between said latch bolt and said second lever for moving said latch bolt through a greater distance than the distance of movement of said pull member responsive to movement of said actuating member.

5. In combination latch opening and window actuating mechanism, a shaft, a handle secured to an end of said shaft, said handle having a hub portion overlying the end of said shaft which hub portion has a recess in the face of said hub portion, a button member slidable in said recess longitudinally with respect to the axis of said shaft and adapted to be positioned entirely within said recess, a collar about said shaft and movable longitudinally of said shaft, leg members interposed between said collar and said button and passing through said hub portion in slidable relation thereto, a latch bolt, means responsive to movement of said collar when said button is depressed to move said latch bolt, means for resiliently urging said collar toward said hub to maintain said collar in contact with the ends of said leg members and to tend to push said button out of said recess in said hub member, and stop means adapted to retain said button at least partially within said recess in said hub.

6. In combination latch opening and window pane actuating mechanism, the combination comprising a shaft, a handle secured to one end of said shaft adapted to rotate said shaft, said handle having a hub portion of larger diameter than the portion of said shaft to which said handle is attached to said hub portion having a recess in the face thereof, a button member mounted in said recess so as to be slidable axially with respect to said shaft, leg members attached to said button and passing slidably through said hub portion alongside the outside of said shaft and substantially parallel thereto, a longitudinally slidable latch bolt constituting part of a latch, means responsive to longitudinal movement of said leg members relatively to said shaft for retracting said latch bolt when said button is pushed inwardly in said recess, spring means adapted to resiliently urge said latch bolt in the opposite direction and to normally urge said button outwardly in said recess, and stop means adapted to prevent said button from protruding from said hub by a distance as great as that required in moving said button to sufficiently retract the latch bolt to release the latch.

7. In combination latch opening and window pane actuating mechanism, the combination comprising a shaft, a support member in which said shaft is rotatably mounted, a handle attached to an end of said shaft adapted for rotating said shaft, said handle having a hub portion of substantially larger diameter than the diameter of the portion of said shaft to which said handle is attached, and said hub portion having an axially extending recess in the face thereof, means responsive to rotation of said shaft for actuating a window pane, a button member in said recess mounted so as to be slidable axially with respect to the axis of said shaft, leg members passing through said hub alongside said shaft and sub-

stantially parallel thereto and slidable in said hub member responsive to movement of said button inwardly in said recess, an annular collar member about said shaft against which the ends of said leg members remote from said button are adapted to rest, said collar member being carried by said support member for movement axially of said shaft and being adapted to slide relatively to the ends of said leg members when said leg members are rotated with said shaft, a latch bolt, means interposed between said collar and said latch bolt for retracting said latch bolt when said collar is moved axially of said shaft responsive to movement of said button inwardly in the recess in said hub portion, and spring means adapted to urge said latch bolt in the opposite direction and to urge said collar against the ends of said leg members to normally urge said button outwardly from said recess.

8. In combination latch opening and window pane actuating mechanism, the combination comprising a shaft, a support member in which said shaft is rotatably journalled, a handle attached to one end of said shaft for rotating said shaft, means responsive to rotation of said shaft for actuating a window pane, a hub member secured to said shaft and overlying the end of said shaft to which said handle is attached and of larger diameter than the portion of said shaft to which said handle is attached, said hub member having a recess in the face thereof, a button member slidably mounted in said recess for longitudinal movement with respect to the axis of said shaft, a collar member about said shaft on the side of said hub member remote from said button and movable longitudinally of said shaft, leg members slidably passing through said hub member and interposed between said collar member and said button, a rock lever pivotally carried by said support member, said rock lever having an arm pivotally connected to said collar and another arm pivotally connected to a pull member, and a latch bolt, said latch bolt being connected to said pull member, and said button upon being depressed in said recess being adapted through the interposed leg members, collar, rock lever, and pull member to retract said latch bolt.

9. In combination door latch opening and window pane actuating mechanism of the character described, the combination comprising a shaft, a support member in which said shaft is rotatably mounted, a manually operable actuating member secured to said shaft adjacent an end of said shaft adapted for rotating said shaft, a hub member mounted on said shaft adjacent said end of said shaft, a manually operable button member depressibly mounted in a recess in said hub member and having the outer end thereof exposed for contact actuation by the operator, a movable part carried by said support member, means responsive to rotation of said shaft for actuating a window pane, a door latch, means for moving said part when said button is depressed into said recess, and means responsive to movement of said part when said button is depressed for releasing said latch, said button being maintained in said recess so that the outer end thereof protrudes from said hub substantially less than the length of movement of said button required to release said latch and so that the outermost end of said button has to be depressed substantially within and substantially below the level of the mouth of said recess to release said latch.

10. In apparatus of the character described, the combination comprising a shaft, a support member in which said shaft is rotatably mounted, a hub member mounted on said shaft adjacent an end thereof, a handle member extending from said shaft and adapted to rotate said shaft, a manually operable button member depressibly mounted in a recess in said hub member and having the outer end thereof exposed for contact actuation by the operator, a door latch, and means for releasing said latch when said button is depressed into said recess, said button being maintained in said recess so that the outer end thereof protrudes from said hub member substantially less than the length of movement of said button required in order to release said latch so that the outermost end of said button has to be depressed substantially within and substantially below the level of the mouth of said recess in order to release the latch.

11. In combination door latch and window pane actuating mechanism, the combination comprising a shaft, a support member in which said shaft is rotatably mounted, a manually operable actuating member secured to said shaft for rotating said shaft, means responsive to rotation of said shaft for actuating a window pane, a manually operable button member depressibly mounted in a hub carried on said shaft adapted to be moved longitudinally of said shaft, a first part passing through said hub externally of said shaft in non-axial relation therewith adapted to be moved longitudinally of said shaft when said button member is depressed, a second part carried by said support member in movable relation thereto, a door latch, means responsive to movement of said second part for releasing said latch, and means for moving said second part to release said latch when said button is depressed and when said first part is in any one of a plurality of positions about the axis of said shaft.

12. In apparatus of the character described, the combination according to claim 10 wherein the latch releasing means is directly responsive to movement of the said button when the button is depressed by the operator.

LOUIS J. GOUIN.

CERTIFICATE OF CORRECTION.

Patent No. 2,222,659. November 26, 1940.

LOUIS J. GOUIN.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, first column, line 45, before "7—7" insert the word --line--; page 3, second column, line 30, for "otn" read --ton--; page 5, second column, line 42, claim 6, for "to" read --and--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 31st day of December, A. D. 1940.

Henry Van Arsdale,
Acting Commissioner of Patents.

(Seal)