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3,159,392

WINDOW REGULATOR MECHANISM

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2 Sheets-Sheet 1

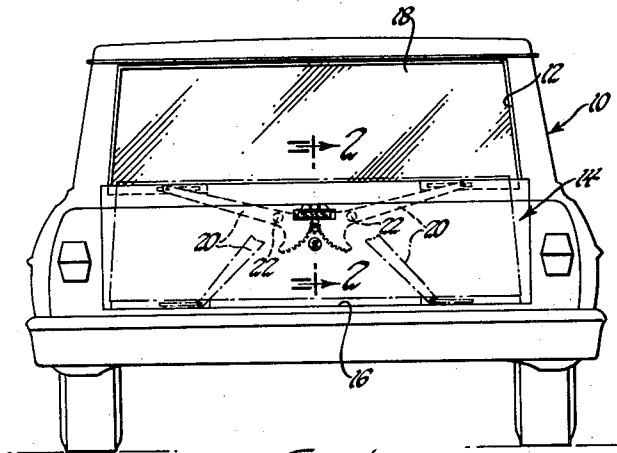


Fig. 1

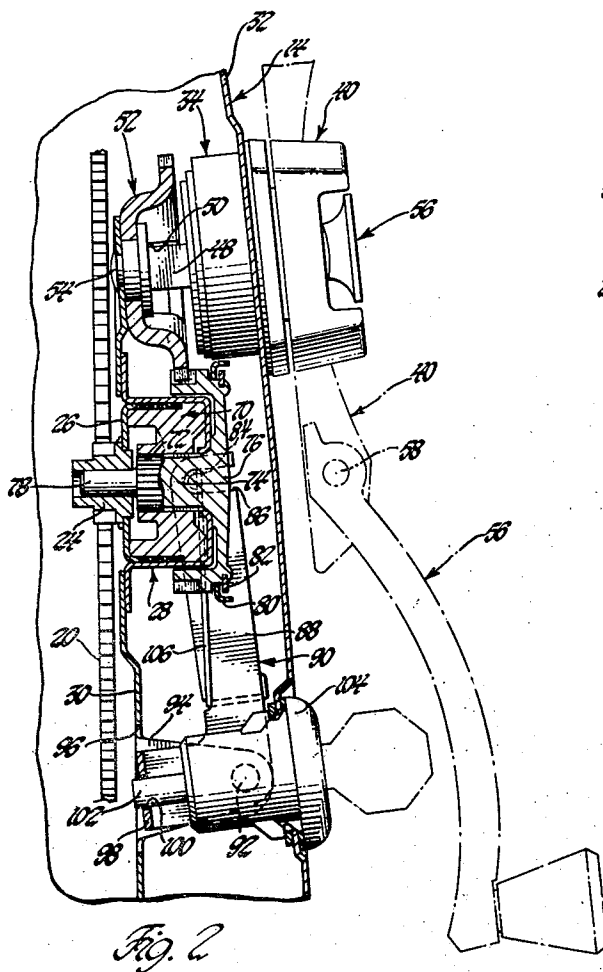


Fig. 2

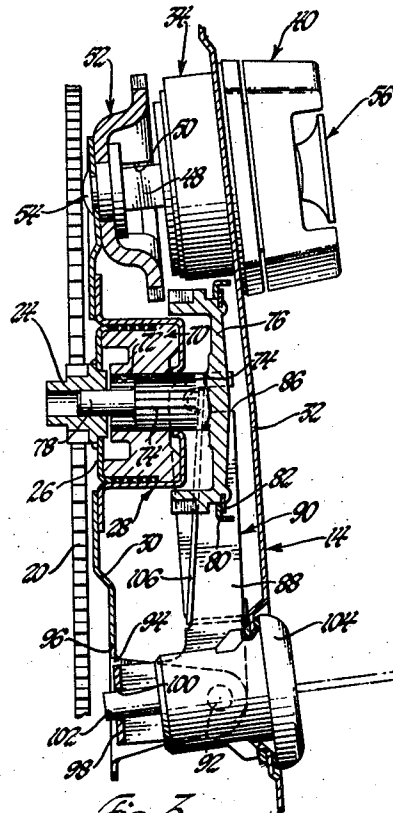


Fig. 3

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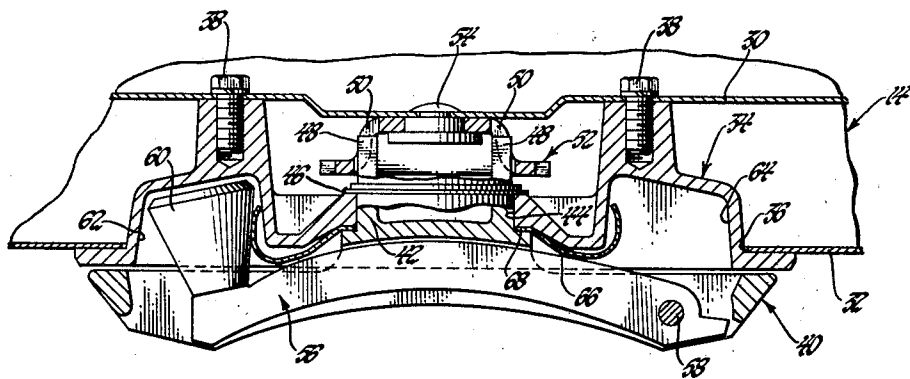
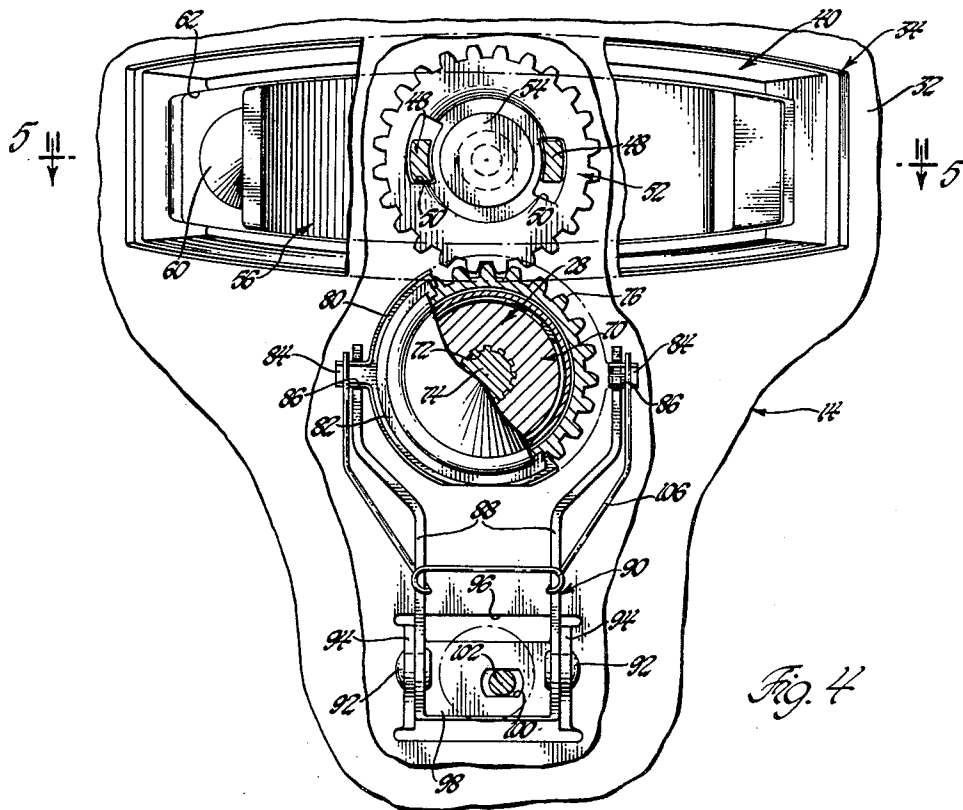
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WINDOW REGULATOR MECHANISM

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2 Sheets-Sheet 2



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WINDOW REGULATOR MECHANISM

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This invention relates to window regulator mechanisms and more particularly to operating means for vehicle window regulator mechanisms.

The operating means of this invention is of the type which is operable from the exterior of the body for moving a vehicle window between open and closed positions and is particularly adaptable for use with station wagon tailgate windows. It is desirable that the operating means may be selectively and alternately placed in either locked or unlocked conditions to either allow the operator to operate the mechanism from the exterior of the body or to prevent unauthorized operation of the mechanism and entry into the body.

One of the features of this invention is that it provides an improved operating means for a vehicle window regulator mechanism. Another feature of this invention is that it provides an improved operating means for a vehicle window regulator mechanism which may be selectively and alternately placed in either locked or unlocked conditions. A further feature of this invention is that it provides an improved operating means for a vehicle window regulator mechanism which includes an exterior operator and means for selectively coupling and uncoupling the operator and the window regulator mechanism. Yet, another feature of this invention is that it provides an improved operating means for a vehicle window regulator mechanism which includes an exterior operator for driving a drive gear, a driven gear slidably and nonrotatably coupled to a window regulator mechanism, and key cylinder controlled means for moving the driven gear into and out of meshing engagement with the drive gear to selectively couple and uncouple the operator and the window regulator mechanism.

These and other features and advantages of the invention will be readily apparent from the following specification and drawings wherein:

FIGURE 1 is a rear elevational view of a station wagon body having a tailgate window mounted thereon for movement between open and closed positions and including an operating means for the tailgate window regulator mechanism according to this invention;

FIGURE 2 is an enlarged sectional view taken generally along the plane indicated by line 2—2 of FIGURE 1 and showing the operating means in unlocked condition;

FIGURE 3 is a view similar to FIGURE 2 showing the operating means in locked condition;

FIGURE 4 is an enlarged partially broken away view of a portion of FIGURE 1, and

FIGURE 5 is a sectional view taken generally along the plane indicated by line 5—5 of FIGURE 4.

Referring now to FIGURE 1 of the drawings, a station wagon type vehicle body 10 includes a rear opening 12, the lower half of which is opened and closed by a tailgate 14 swingably mounted on the body 10 by suitable hinge means adjacent its lower edge 16. The tailgate 14 mounts a vertically movable tailgate window 18 for opening and closing the upper portion of the opening 12. The window 18 is mounted on the tail-

gate for movement relative thereto by a known type of window regulator mechanism which generally includes a pair of oppositely swingable sector arms 20 pivoted at 22 on the back plate and mounting rollers at their free swinging ends which are pivotally and slidably received within cam channels secured to the lower edge portion of the window 18. The sector arms 20 are driven by a pinion 24, FIGURE 2, which is secured to the output member or drive key 26 of a known type of window regulator clutch mechanism 28. For details of a suitable clutch mechanism, reference may be had to the copending application of Meyer et al., Serial No. 43,407, filed July 18, 1960, now Patent No. 3,110,380 and assigned to the assignee of this invention. Clutch mechanism 28 is secured to the back plate 30 of the window regulator mechanism which is secured to the inner panel, not shown, of the tailgate 14 and also mounts the sector arms 20 of the mechanism.

As best shown in FIGURE 5, an escutcheon 34 fits within an opening 36 in the outer panel 32 of tailgate 14 and is secured in place by bolts 38 which extend through openings in the back plate 30 and into tapped openings in lugs provided in the escutcheon. A handle mounting escutcheon 40 includes a hollow hub portion 42 journaled within an opening 44 of escutcheon 34, with escutcheon 40 being rotatably located by a split ring 46 fitting within an annular groove in the hub portion 42. A pair of legs 48 extend from hub portion 42 and are received within openings 50 in a generally cup-shaped drive gear 52, pivoted at 54 to the back plate 30, to thereby couple the escutcheon 40 and the drive gear 52. An operating handle 56 is pivoted at 58 to escutcheon 40 and is movable between a stored position, as shown in FIGURE 5, wherein the handle is received within the opening of escutcheon 40 and the knob 60 of the handle is received within a recess 62 of escutcheon 34, and an open position, as indicated in dot-dash lines in FIGURE 2, wherein the handle 56 extends from the escutcheon 40. The escutcheon 34 includes another recess 64 located generally diametrically opposite from the recess 62 to also receive the knob 60, with the knob being selectively and alternately retained in either of the recesses by engagement with the bowed legs of a leaf spring member 66 having its central annular apertured portion 68 journaled on the hub portion 42.

The hub or input member 70 of clutch mechanism 28 includes a central splined bore 72 which slidably and nonrotatably receives a splined extension 74 of a generally cup-shaped driven gear 76 to couple the driven gear and the clutch mechanism. A pilot 78 of extension 74 is slidably and rotatably received within a bore of pinion 24 to support the pinion and drive key on the clutch mechanism. Gear 76 is movable between a first position, as shown in FIGURE 2, wherein it couples the clutch mechanism 28 and drive gear 52 and a second position, as shown in FIGURE 3, wherein it is out of meshing engagement with the drive gear to uncouple the drive gear and the clutch mechanism 28. As best shown in FIGURE 4, a ring member 80 is slidably received on the gear 76 and retained in place thereon by a split ring 82 received within an annular groove in the gear. Ring member 80 includes a pair of laterally extending ears or lugs 84 which are received within outwardly opening slots 86 in the legs 88 of a lever or yoke member 90. Member 90 is swingably mounted on the

back plate 30 by having the legs 88 thereof pivoted at 92 to lateral ears 94 which are lanced out of the back plate to provide an opening 96 therein. The legs 88 are interconnected by a web 98 which includes an elongated closed slot 100 receiving a pin 102 of a key cylinder assembly 104 mounted on the outer panel 32. A spring wire member 106 is hooked over the legs 88 and includes a pair of upwardly extending legs which engage the lugs 84 of ring 80 to retain these lugs within the slots 86 of legs 88 and to also bias the driven gear 76 inwardly of the tailgate or to the left, as viewed in FIGURES 2 and 3, and into meshing engagement with the drive gear 52.

Normally, the driven gear 76 is located in engagement with the drive gear 52 so as to couple the escutcheon 40 and the handle 56 to the window regulator mechanism as shown in FIGURE 2. Thus, by moving the handle 56 from its position of FIGURE 5 to its position as shown in dot-dash lines in FIGURE 2 and thereafter rotating the escutcheon 40, the window can be moved between its open and closed positions.

If it is desired to uncouple the gear 52 from the driven gear 76, a suitable key is inserted into the key cylinder assembly 104, as shown in FIGURE 2, and thereafter the cylinder is rotated approximately 90° in a counterclockwise direction, as viewed in FIGURE 4, to swing the yoke member 90 clockwise about the pivots 92, as viewed in FIGURE 2, and shift the driven gear 76 to the right and out of meshing engagement with the drive gear 52.

Thus, this invention provides a new and improved operating means for a vehicle window regulator mechanism.

I claim:

1. In a vehicle body having a window mounted thereon for movement between open and closed positions and a window regulator mechanism for so moving said window, operating means for said mechanism comprising, in combination, an operating member, drive gear means, means operatively connecting said drive gear means to said member to be driven by said member, driven gear means, means slidably and nonrotatably coupling said driven gear means to said mechanism, and means for selectively sliding said driven gear means relative to said mechanism into and out of engagement with said drive gear means to couple and uncouple said operating member and said mechanism.

2. In a vehicle body having a window mounted thereon for movement between open and closed positions and a window regulator mechanism for so moving said window, operating means for said mechanism comprising, in combination, an operating member, drive gear means, means operatively connecting said drive gear means to said member to be driven by said member, driven gear means, means slidably and nonrotatably coupling said driven gear means to said mechanism, and key cylinder controlled means for selectively sliding said driven gear means relative to said mechanism into and out of engagement with said drive gear means to couple and uncouple said operating means and said mechanism.

3. In a vehicle body having a window mounted thereon for movement between open and closed positions and a window regulator mechanism for so moving said window, operating means for said mechanism comprising, in combination, an operating member, drive gear means, means operatively connecting said drive gear means to said member to be driven by said member, driven gear means, means slidably and nonrotatably coupling said driven gear means to said mechanism, a member swingably mounted on said body, means coupling said swingable member to said driven gear means for selectively sliding said driven gear means relative to said mechanism and into and out of engagement with said drive gear means upon swinging movement of said swingable member to couple and uncouple said operating means and said mechanism,

and key controlled means for swinging said swingable member.

4. In a vehicle body having a window mounted thereon for movement between open and closed positions and a window regulator mechanism for so moving said window, operating means for said mechanism comprising, in combination, an operating member, drive gear means, means operatively connecting said drive gear means to said member to be driven by said member, driven gear means, means slidably and nonrotatably coupling said driven gear means to said mechanism, lever means swingably mounted on said body, means coupling one leg of said lever means to said driven gear means for selectively sliding said driven gear means relative to said mechanism and into and out of engagement with said drive gear means upon swinging movement of said lever means to couple and uncouple said operating means and said mechanism, and key controlled means operatively connected to the other leg of said lever means for swinging said lever means.

5. In a vehicle body having a window mounted thereon for movement between open and closed positions and a window regulator mechanism for so moving said window, operating means for said mechanism comprising, in combination, an operating member, drive gear means, means operatively connecting said drive gear means to said member to be driven by said member, driven gear means, means slidably and nonrotatably coupling said driven gear means to said mechanism, lever means swingably mounted on said body, means coupling one leg of said lever means to said driven gear means for selectively sliding said driven gear means relative to said mechanism and into and out of engagement with said drive gear means upon swinging movement of said lever means to couple and uncouple said operating means and said mechanism, resilient means biasing said driven gear means into engagement with said drive gear means, and key controlled means operatively connected to the other leg of said lever means for swinging said lever means against the action of said resilient means.

6. In a vehicle body having a window mounted thereon for movement between open and closed positions and a window regulator mechanism for so moving said window, operating means for said mechanism comprising, in combination, an operating member, drive gear means, means operatively connecting said drive gear means to said member to be driven by said member, an annular driven gear, means slidably and nonrotatably coupling said driven gear to said mechanism, lever means swingably mounted on said body and including a spaced pair of legs straddling said driven gear, means coupling said one pair of legs to said driven gear for selectively sliding said driven gear relative to said mechanism and into and out of engagement with said drive gear means upon swinging movement of said lever means to couple and uncouple said operating means and said mechanism, resilient means mounted on said lever means and biasing said driven gear into engagement with said drive gear means, and key controlled means operatively connected to the other leg of said lever means for swinging said lever means against the action of said resilient means.

7. In a vehicle body having a window mounted thereon for movement between open and closed positions and a window regulator mechanism for so moving said window and including an annular housing portion, operating means for said mechanism comprising, in combination, an operating member, drive gear means, means operatively connecting said drive gear means to said member to be driven by said member, an annular driven gear surrounding said housing portion, means slidably and nonrotatably coupling said driven gear to said mechanism, lever means swingably mounted on said body and including spaced pairs of legs, one pair of straddling said driven gear and the other pair being interconnected by web means, means coupling said one pair of

legs of said lever means to said driven gear for selectively sliding said driven gear relative to said housing portion and into and out of engagement with said drive gear means upon swinging movement of said lever means to couple and uncouple said operating member and said mechanism, resilient means biasing said driven gear into engagement with said drive gear means, and key controlled means operatively connected to said web means

of said lever means for swinging said lever means against the action of said resilient means.

References Cited in the file of this patent

UNITED STATES PATENTS

2,900,183	Leslie et al. -----	Aug. 18, 1959
3,004,448	Wanlass -----	Oct. 17, 1961