

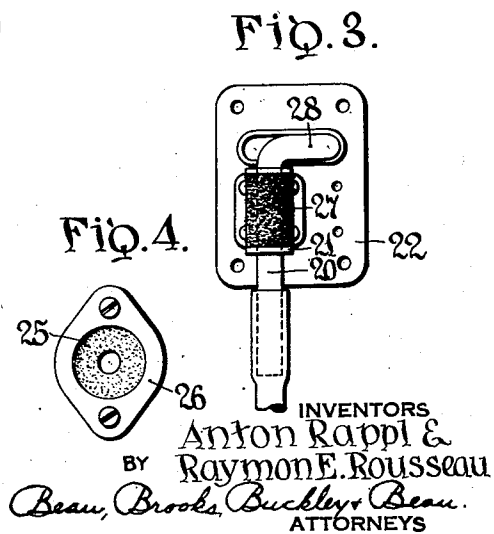
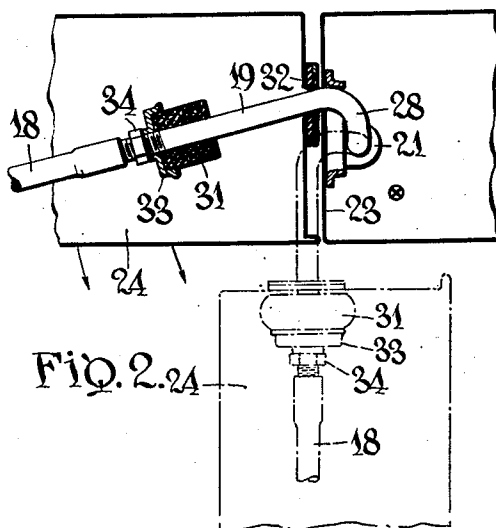
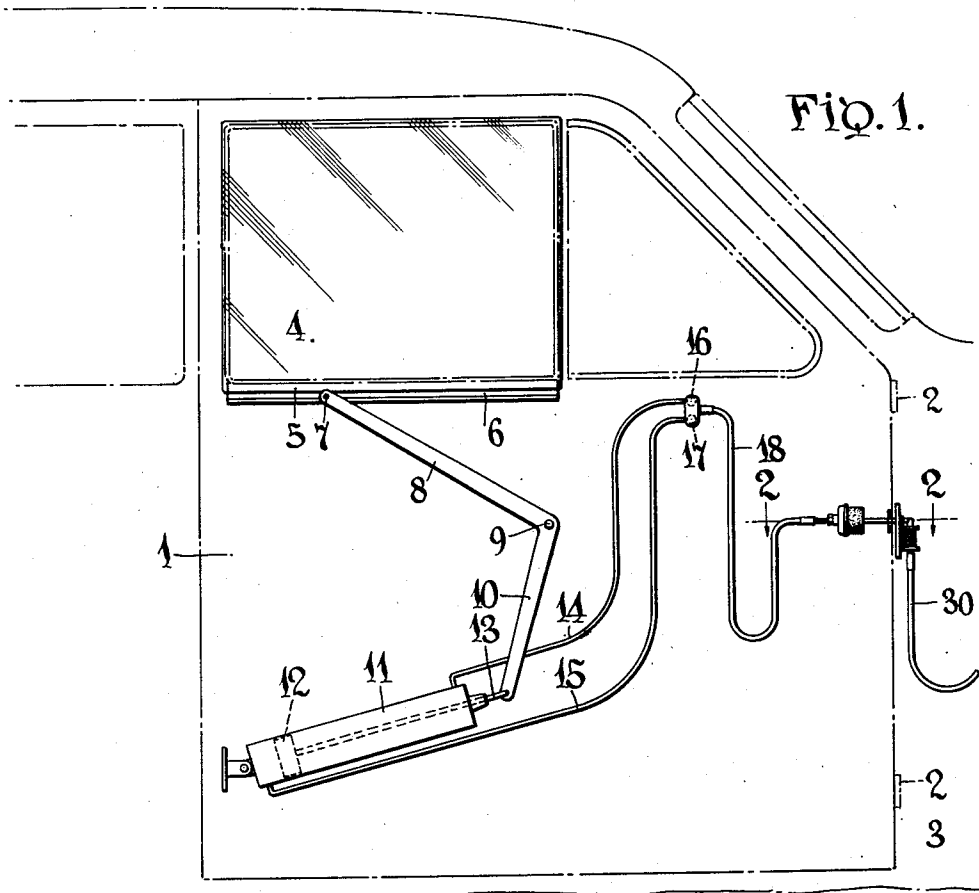
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WINDOW OPERATING MECHANISM AND DOOR STOP

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WINDOW OPERATING MECHANISM AND
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3 Claims. (Cl. 268—125)

This invention relates to operating mechanism for the windows of motor vehicles and especially to the power apparatus for installation in the windowed doors thereof.

Because of the fact that the operating mechanism is installed in the door body difficulty has been experienced in carrying the fluid line across the space between the door and its jamb in a manner to avoid interference with the hinging action of the door.

This invention has for its primary object to provide a novel construction which will accommodate the hinging movement of the door in a satisfactory and practical manner.

Further, the invention resides in a hinged conduit unit insertable in the line of communication at the hinged side of the door for maintaining a continuous and uninterrupted communication between the power mechanism and its source of power regardless of the door position.

Again, the invention resides in a cross-over connection of this character which will function additionally as a means for limiting the opening movement of the door.

In the drawing:

Fig. 1 is a diagrammatic view depicting the general lay out of the window operating mechanism embodying the present invention;

Fig. 2 is a horizontal sectional view taken about on line 2—2 of Fig. 1;

Fig. 3 is an elevation of the hinge mounting for the conduit connector; and

Fig. 4 is an elevation of the finishing plate unit.

Referring more particularly to the drawing, the numeral 1 designates a front door of an automobile hingedly mounted at 2 on the car body 3. A glass panel 4 is vertically slidable in the door to open and close the window opening thereof and carries on its lower edge a bracket 5 provided with a track 6 on which a shoe 7 operates. The shoe is carried by an arm 8 of a bell crank lever pivoted at 9, the companion arm 10 being connected to a fluid motor for being rocked thereby to raise and lower the window. The motor is concealed within the window well of the door and may comprise a chambered casing 11 and a piston 12, the latter being connected by a rod 13 to the power arm 14 of the bell crank lever. The motor chamber is connected by conduits 14 and 15 to control valves 16 and 17 on the door, and thence by a supply line 18 to a source of operating pressure elsewhere on the

vehicle, such as the intake manifold of the automobile engine.

According to the present invention, the supply line is connected across the hinged mounting of the door by means of a novel coupling which will operate in a practical manner without hindering the hinging movement of the door and without unnecessary wear and tear on the fluid line of communication. In the illustrated embodiment the coupling is in the form of a rigid pipe and comprises a horizontally disposed bridging section 19 and a depending pintle portion 20. The pintle portion is journaled in a vertically disposed bearing as provided by the spaced ears 21 on a mounting plate 22 which may be fixed on the door jamb portion 23. The bridging section 19 extends across the intervening space into the motor chamber 24 of the door where it is joined to the supply conduit 18 after first piercing an elastic web 25 which gives it yielding support. This yieldable wall section, which permits the pipe to slide and yield in accommodation of the door movements, is held in place by a plate 26 to close the opening in the door wall. A lubricant containing sleeve 27 of felt or the like is confined about the pintle section 20 between the spaced ears 21 to maintain proper lubrication for the pivoting action thereof. To accommodate the full hinging movement of the door the conduit section 19 may be offset from the pintle section 20 by a radial arm 28. The supply line 18 may consist of a piece of rubber hose, the flexibility of which will accommodate the hinging motion of the pipe 19 in a free and easy manner. The pintle 20 extends downwardly in a direction substantially paralleling the axis of the door hinge and terminates in a nipple or is otherwise formed to receive a flexible hose 30 by which communication is established with the intake manifold or other source of pressure. By reason of the fact that the pintle extends downwardly and the connecting hose 30 suspends therefrom, as shown in Fig. 1, in the form of a loop, any torque on the hose resulting from the opening and closing of the door will be comparatively slight. Consequently the line of communication across the hinge plane of the door will be free from unnecessary wear and tear, and by reason of its own pivotal formation there will be no hindrance to the opening and closing of the door.

As a means for arresting the opening movement of the door a cushioning block 31 is carried by the free end portion of the bridging section

19 to engage the inner wall 32 of the door as a stop or abutment. Being resilient, the cushioning block 31 will yieldingly resist abnormal opening movement of the door, as shown in the broken line position in Fig. 2, and relieve the door mounting of excessive strain. The cushioning block is backed by a cup 33 which is adjustable on the conduit section by means of a nut 34 for obtaining greatest efficiency. The hinged pipe coupling, being preferably formed of metal, will have sufficient strength to permit the same functioning additionally as the door stop or check.

The hinged coupling may readily be installed in a concealed position within the door and car body and will maintain constant fluid connection between the motor and its source of power without leakage, and while the foregoing description has been given in detail it is obvious that the inventive concept herein expressed may assume other physical embodiments without departing from the spirit or scope of the invention claimed.

What is claimed is:

1. A fluid coupling for insertion in a fluid line across the space between opposed walls of a door and its jamb at the hinge side of the door, comprising a plate for mounting at the inner side of one wall and having a slot and a pintle bearing to one side only of the slot, and a conduit in the form of a tube having a pintle section journaled in the bearing and an angularly extending bridging section operating through the slot, the slot extending transversely of the axis of the bearing, and the remote wall of the slot serving to retain the pintle section in the bearing.

2. A fluid coupling for insertion in a fluid line across the space between opposed walls of a door and its jamb at the hinge side of the door, comprising a plate for mounting at the inner side of one wall and having a slot and a pintle bearing at one side of the slot, the axis of the latter being substantially normal to the plane of the slot, a conduit slidable in the slot and having an angularly extending pintle forming section journaled in the bearing and retained therein by that portion of the conduit within the slot, the pintle section protruding beyond the opposite side of the pintle bearing to form a nipple for hose connection.

3. A fluid coupling for insertion in a fluid line across a space between the opposed walls of a door and its jamb at the hinged side of the door, comprising a mounting plate for being carried by one wall, said plate having spaced bearing ears formed with registering bearing openings, said plate also having a slot extending transversely of the axis of the bearing openings with both bearing ears being disposed to one side of the slot, a conduit having a pintle section journaled in the openings of the bearing ears, said conduit having an angularly extending bridging section passing through the slot, and a lubricating member disposed between the bearing ears for supplying lubricant to the journaled bearings of the pintle section.

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