Feb. 22, 1955 A. RAPPL 2,702,722

VEHICLE STRUCTURE

Filed Jan. 8, 1949

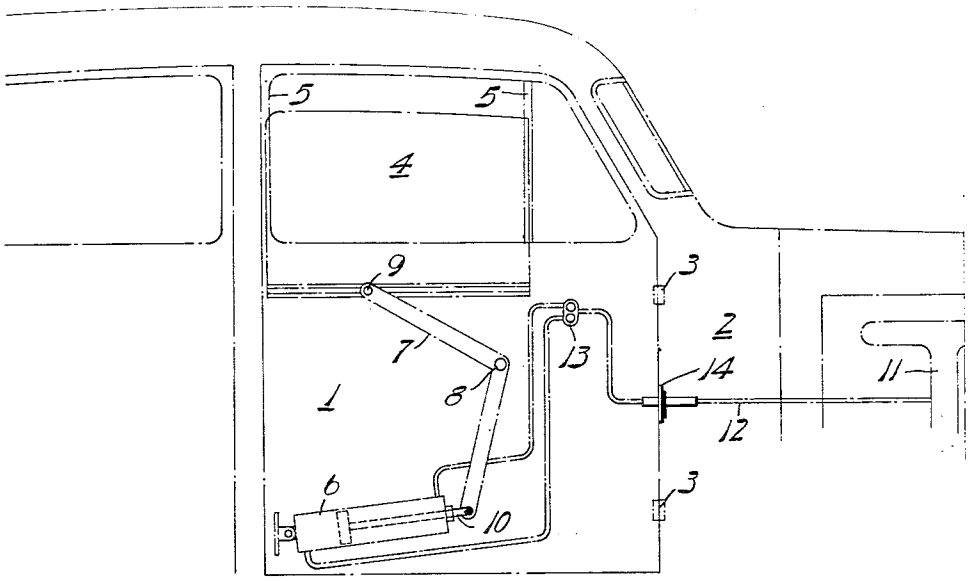


Fig. 1.

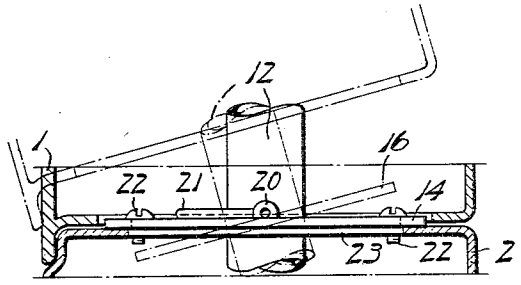


Fig. 2.

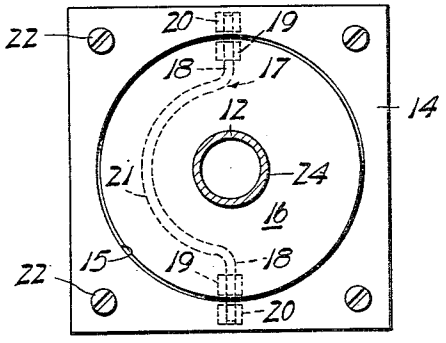


Fig. 3.

INVENTOR
Anton Rappl
BY
Bean, Brooks, Buckley & Bean
ATTORNEYS

United States Patent Office 2,702,722 Patented Feb. 22, 1955

2,702,722

VEHICLE STRUCTURE

Anton Rappl, Eggertsville, N. Y., assignor to Trico Products Corporation, Buffalo, N. Y.

Application January 8, 1949, Serial No. 69,927

4 Claims. (Cl. 296—44)

This invention relates to the automotive accessory field and more particularly to the window regulating art, particular attention being given to the mode of conveying power across the hinge mounting of the door to the accessory motor on the latter.

The power lines, electrical as well as fluid pressure, have heretofore been arranged to slide into and out of the door or door frame whenever the door was closed or opened. In some arrangements the points of crossing have necessitated the power lines to be preshaped to accommodate the arcuate swing of the door while in others the power lines have yielded in distortion to the door movement.

The present invention has for its object to simplify the installation of the power line across the hinge line of the door as well as to preserve the power line against unnecessary wear and tear in use.

A further object is to provide a power line mount which will adjust itself in a manner to accommodate the swinging movement of the door in a most practical manner.

The foregoing and other objects will manifest themselves as this description progresses, reference being made to the accompanying drawing, wherein

Fig. 1 is a view showing the practical application of the invention to a window regulator;

Fig. 2 is a detailed sectional view through the power line support; and

Fig. 3 is a front elevation of the support.

Referring more particularly to the drawing, the numeral **1** designates a side door of a motor vehicle, **2** its supporting frame structure, and **3** its supporting hinges. The door window **4** is vertically slidable on guides **5** under the impetus given by a motor **6** to which it is mechanically connected by a bell crank **7**. This power transmitting member is pivoted at **8** and has one end slidably connected to the window panel at **9** while its opposite end is operatively connected to the power member **10** of the motor. The motor is connected to its source of power **11** by a power line **12** and through control means **13** by which the window may be power-adjusted. In the illustrated embodiment the motor is fluid actuated, as by the suction influence of the intake manifold.

According to the present invention the power line **12** is afforded support at the hinge line of the door which will accommodate the hinging motion of the door with a minimum degree of wear and tear on the same. To this end the illustrated embodiment of the invention comprises an anchor plate **14**, having a central opening **15**, and a line supporting plate **16** arranged within the opening **15** to pivot or swivel upon an axis substantially diametric of the central opening. This swivel support is given by a pintle member **17** having terminal trunnions or pintles **18** slidably and rotatably engaged in alined pairs of bearings **19** and **20** located at diametrically arranged points on the adjacent marginal portions of the two plates or body members. These bearings may be in the form of ears, as shown.

The pintle member is preferably formed of spring wire and has an intermediate portion **21** shaped to provide an open frame capable of being contracted against the spring urge either to withdraw the trunnions **18** inwardly from the bearings **20**, for demounting the pivot plate **16**, or to position them for engagement in such bearings to mount the pivot plate. The anchor plate **14** is suitably secured, as by fasteners **22**, over a hole **23** in either the door **1** or the door supporting frame **2**, or both, while the pivot plate is formed with a central aperture **24** in which

is fitted the power line or air hose **12** to swing or move as a unit therewith. This arrangement disposes the power line directly on the trunnion axis for easy swiveling motion when the door is opened or closed. The power line is thus fixed to the pivot plate against sliding in the aperture **24**. The power line support is economical of manufacture and practical in operation, with the two plates lying in the same plane for compactness, and while the foregoing description has been given in detail it is without thought of limitation since the inventive principles involved are capable of assuming other physical embodiments without departing from the spirit of the invention and the scope of the appended claims.

What is claimed is:

1. A support for a power line extending from the door frame part of a motor vehicle to the opposing door part thereof across the hinge axis, comprising an anchor plate for being fixedly carried by one part and having an open center, a pivot plate mounted within the anchor plate in the open center thereof to lie in the plane thereof and itself having a central opening for receiving a power line to swing therewith as a unit, each plate having ears on opposite sides of the central opening, the ears of one plate being associated with the ears of the companion plate to provide opposite pairs of mounting ears, and a spring member substantially C-shaped and having oppositely directed terminals constituting pintles passing through registering bearings in the ears to pivotally connect the ears of each pair.

2. A support for a power line extending from the door frame part of a motor vehicle to the opposing door part thereof across the hinge axis, comprising an anchor plate for being fixedly carried by one part and having an open center, a pivot plate mounted within the anchor plate in the open center thereof to lie in the plane thereof and itself having a central opening for receiving a power line to swing therewith as a unit, each plate having ears on opposite sides of the central opening, the ears of one plate being associated with the ears of the companion plate to provide opposite pairs of mounting ears, and a spring member substantially C-shaped and having oppositely directed terminals constituting pintles passing through registering bearings in the ears to pivotally connect the ears of each pair, the terminals extending radially of the pivot plate opening, the spring member being formed of spring wire and adapted to be compressed to disengage the terminals from the bearings of the anchor plate.

3. A pivotal support for a power line extending from the door frame part of a motor vehicle to the opposing door part thereof across the hinge axis, comprising an anchor plate for being mounted by one part and having an open center, a pivot plate mounted within the anchor plate in the open center thereof for swinging therein about an axis extending across the open center and itself having a central opening for receiving a power line to swing therewith as a unit, each plate having bearings on opposite sides of the central opening associated with the bearings of the companion plate to provide opposite pairs of mounting bearings, and a spring member having oppositely directed terminals constituting pintles passing through the bearings to pivotally connect the plates together, said spring member having a compressible medial portion joining the pintles together and compressible to withdraw the pintles for displacing and placing the pivot plate relative to the anchor plate.

4. In a motor vehicle, a door frame part and an opposing door part hingedly related thereto, and a support for a power line extending from the door frame part to the door part across the hinge axis, comprising an anchor plate fixed on one part and having an open center, a pivot plate mounted within the anchor plate in the open center thereof to lie in the plane thereof and itself having a central opening for receiving a power line to swing therewith as a unit, each plate having ears on opposite sides of the central opening, the ears of one plate being associated with the ears of the companion plate to provide opposite pairs of mounting ears, and a spring member substantially C-shaped and having oppositely directed terminals constituting pintles passing through registering

bearings in the ears to pivotally connect the ears of each pair.

References Cited in the file of this patent

UNITED STATES PATENTS

182,601	Reardon	Sept. 26, 1876
452,739	Warner	May 19, 1891
505,129	Roth	Sept. 19, 1893
522,521	Hermance	July 3, 1894
783,301	McMillan	Feb. 21, 1905
1,098,410	Rosenfeld	June 2, 1914
1,636,903	Dodge	July 26, 1927
1,691,844	Douglas	Nov. 13, 1928
1,749,498	Miller	Mar. 4, 1930
2,346,387	Parsons	Apr. 11, 1944
2,422,984	Rappl	June 24, 1947
2,436,728	Parsons	Feb. 24, 1948