March 24, 1931. H. C. FIELD 1,797,336

WINDOW REGULATOR

Filed Dec. 21, 1928

Fig. 1

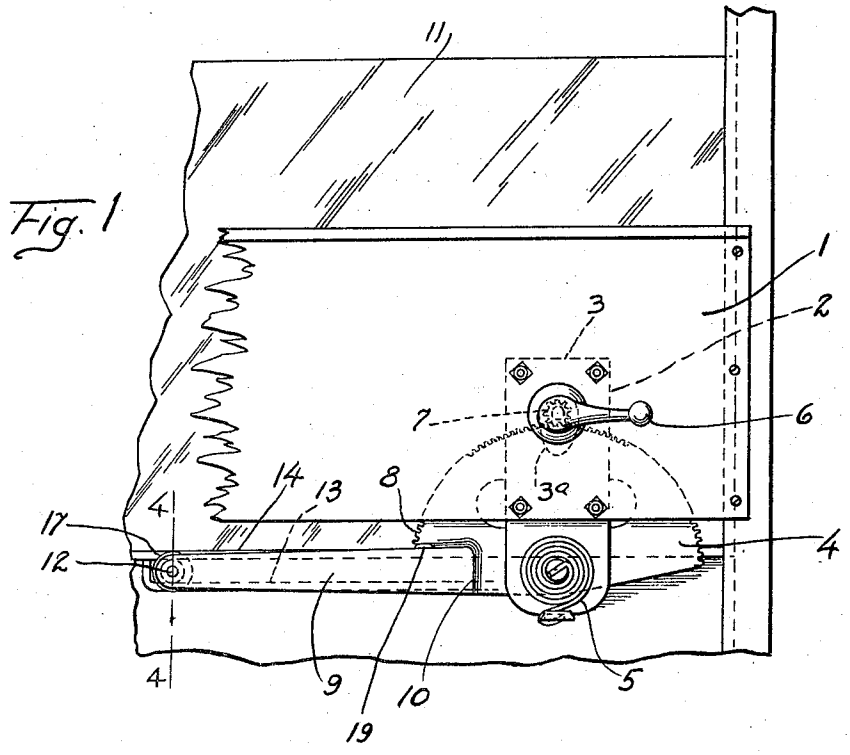




Fig. 3

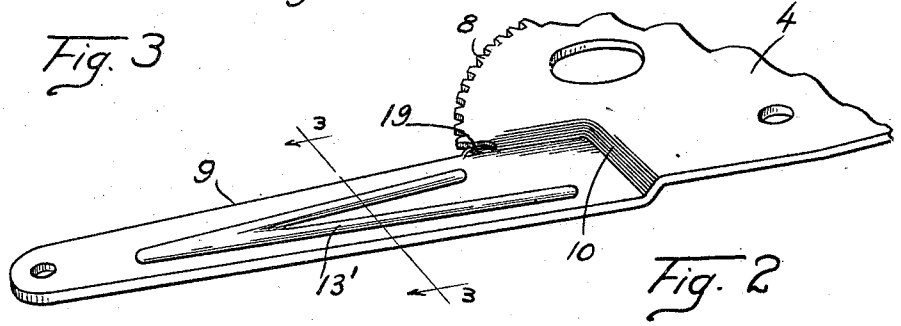


Fig. 2

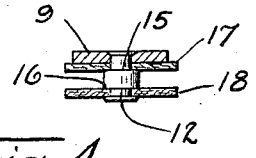


Fig. 4

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UNITED STATES PATENT OFFICE

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WINDOW REGULATOR

Application filed December 21, 1928. Serial No. 327,526.

This invention relates to a window regulator.

In window regulators whether the gear segment and segment arm be one or two pieces of metal, the twisting and torsion strains on the segment arm have often resulted in a deformation of the parts. It is the object of this invention to obviate this defect in the construction of window regulators and this has been accomplished by so constructing the arm that it is off-set from the plane of the segment gear and arranged to present an angle section to resist twisting and torsion strains.

In the drawings:

Fig. 1 is a side elevation showing the window regulator attached to the automobile body.

Fig. 2 is a fragmentary perspective of the segment gear and off-set arm.

Fig. 3 is a section on the line 3—3 of Fig. 2.

Fig. 4 is a section on the line 4—4 of Fig. 1.

Referring more particularly to the drawings, the lock board may be generally designated by the numeral 1, and attached to which is the window regulator which generally may be designated by the Figure 2. The window regulator includes a regulator plate 3 which has the offset tongue 3*a*. Pivotally mounted upon this plate 3 is the gear segment 4 which, when the window is to be lowered is adapted to be rotated against the action of the spring 5 by means of a crank 6 and pinion 7 which meshes with the teeth 8 of the gear segment. Stamped out with the gear segment is the arm 9. The arm 9 as shown in Figs. 1 and 2 is off-set as at 10 so that it is not in the plane of the segment gear and consequently presents an angle section of metal to any twisting strains tending to rupture its connection with the segment. The stamping out of the gear segment 4 and arm 9 so that the segment is offset from the arm 9 as at 10 creates an angle section of metal as at 10 extending between the offset segment 4 and the arm 9 and joining the same which is substantially L-shaped. The angle section is L-shaped in that it has one portion of the L extending substantially parallel to the edge of the arm 9 and the other portion of the L extending transversely of the arm 9.

As shown in Fig. 4, the regulator arm 9 is operatively attached to the window by means of the lift pin 12 which is adapted to slidably engage the loop 13 attached to the lower sash 14 of the window. The lift pin 12 has two spaced circumferential grooves 15 and 16 which are adapted to receive the washers 17 and 18. The washers slidably engage the sides of the loop 13 and serve as anti-rattlers since they may be made of leather, fabric, or any other suitable material. The washers are preferably of a resilient or distortable material such as leather or fabric which may be distorted during use but which will return substantially to its original size or shape.

As shown in Fig. 3, the regulator arm has the longitudinal reinforcement depressions 13′, but it is understood that the invention is not limited to this type of regulator arms but may be equally well used with an arm not having the reinforcement depressions. The regulator arm also has the lug 19 which is adapted to abut against the offset tongue 3*a*, and serve as a stop against further upward movement of the regulator arm.

In operation, when the window is raised the twisting strain on the arm 9 will be resisted by the angle portion connecting the regulator arm 9 and the gear segment 4.

What I claim is:

1. In a window regulator, a segment and arm, arranged to be pivotally mounted, stamped from one piece of metal with the arm off-set to give an L section of metal at the junction of said arm and segment.

2. In a window regulator, a regulator plate having an offset tongue, a gear segment, and a segment arm, adapted for movement relative to said plate, said segment arm having a lug adapted to abut against said tongue to stop further upward movement of said arm.

3. In a window regulator, an integral member arranged to be pivotally mounted and comprising an arm portion and a gear segment portion, the said arm portion being offset from, and extending within the periphery of, the said segment portion.

4. In a window regulator, an integrally stamped metal member arranged to be pivotally mounted, comprising a gear segment portion, an arm portion, and an angle portion between the arm and the segment.

In testimony whereof I have affixed my signature.

HERBERT C. FIELD.