

March 26, 1940.

L. R. RHEIN

2,194,673

WINDOW REGULATOR

Filed June 23, 1938

2 Sheets-Sheet 1

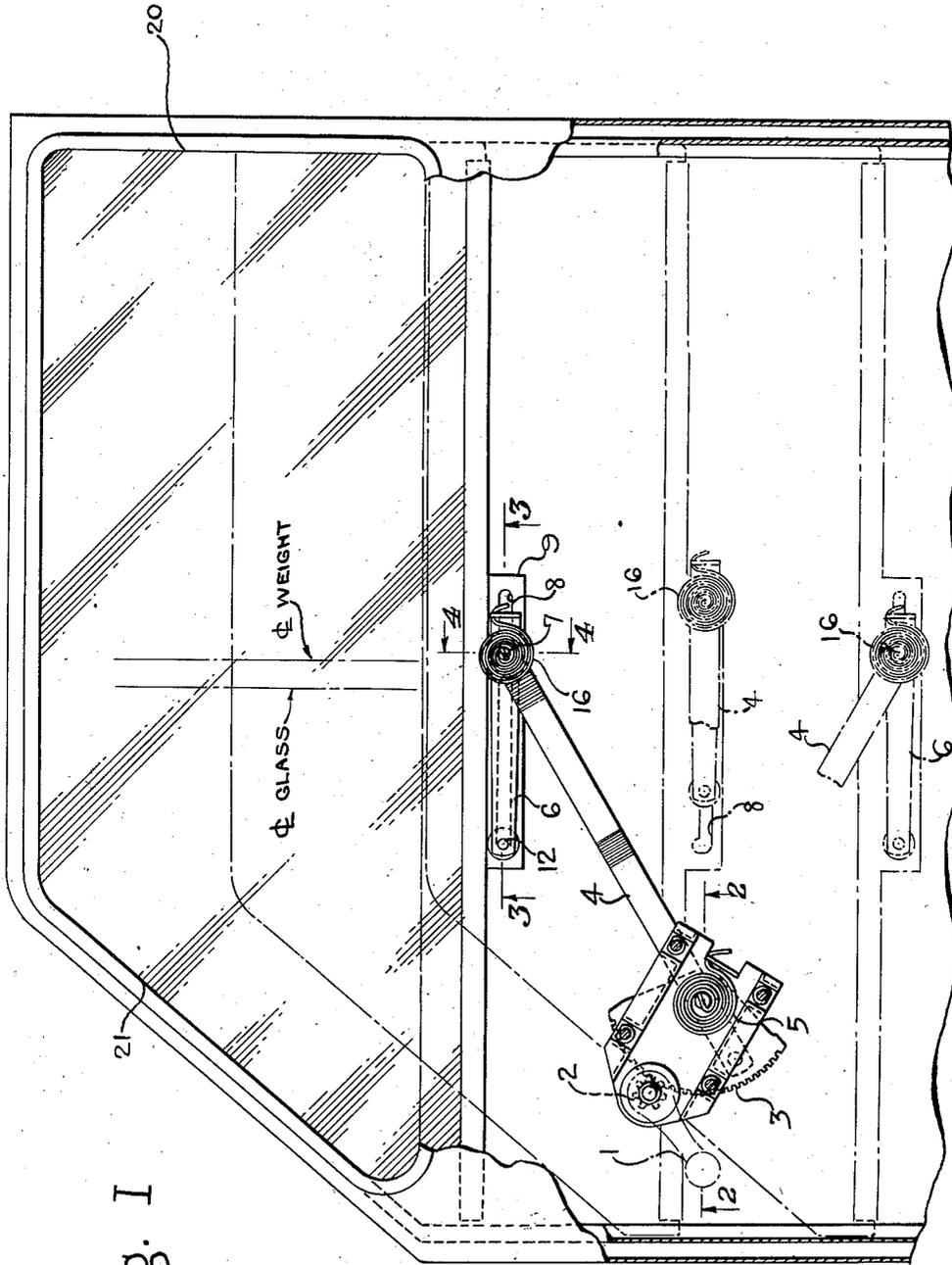


Fig. I

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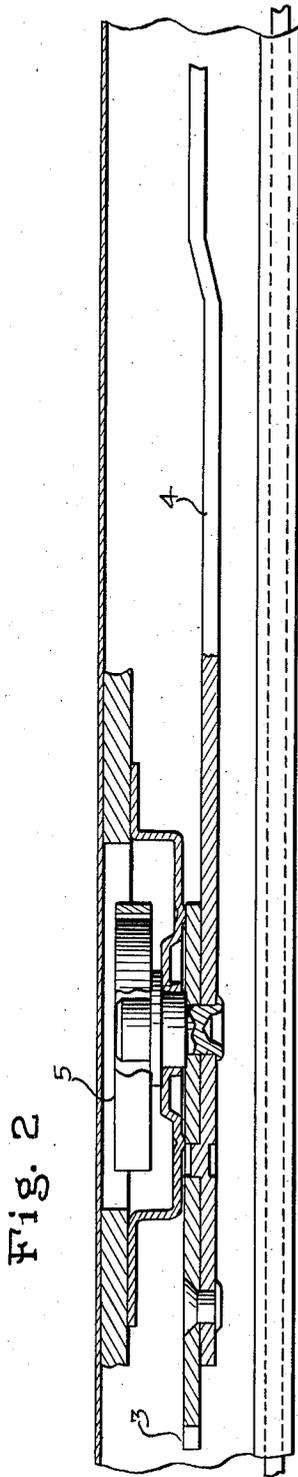


Fig. 2

Fig. 3

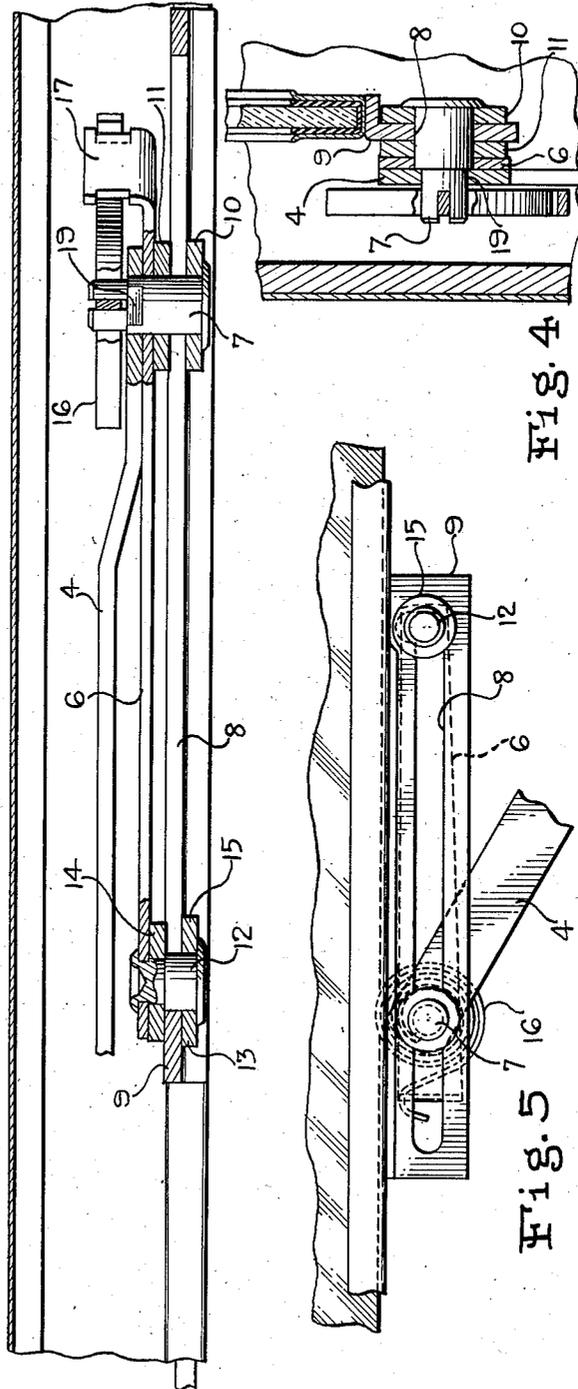


Fig. 4

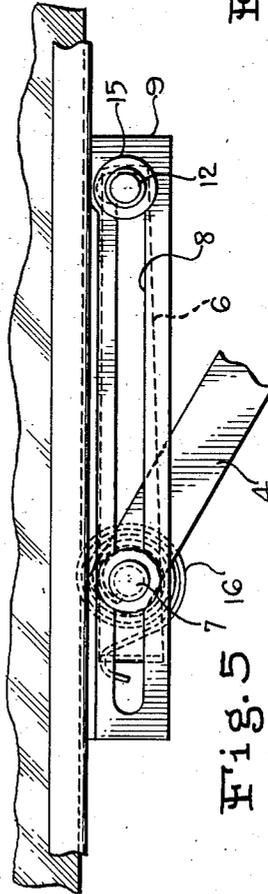


Fig. 5

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UNITED STATES PATENT OFFICE

2,194,673

WINDOW REGULATOR

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troit, Mich., a corporation of Michigan

Application June 23, 1938, Serial No. 215,342

4 Claims. (Cl. 268—126)

This invention relates to window regulators. It has to do particularly with a window regulator for use in connection with a trapezoidal panel. The front door windows of the modern car, unless they be provided with a "Fisher No Draft" ventilating system, have the problem of the glass drawing out of the front window channel as the window is lowered. This same problem also obtains in some of the rear windows with the new body styles by reason of the sloping door pillars or window stiles.

This pulling away from the window well of the glass has been more or less of a problem for years in body construction. Various ways of dealing with the problem have been proposed and some of them adopted. It does present, however, quite a serious question with the window regulator for, if the window regulator lets the window panel tip away from the vertical glass-run, then one has a window that is relatively loose and will rattle. For, if the window has no support above the belt line on one side and if it pulls away while partially out of the vertical window guide, it has little or no support on the other side.

It is the object of the present invention to solve this problem by providing a type of window lift with an overbalance arm. This overbalance arm is attached to the end of the ordinary lifting arm and, by means of spring pressure, is urged against the window panel at a point some distance from the centerline of the glass. This overbalances the window against the vertical window guide and makes sure that the window stays in the vertical guide notwithstanding it may pull away from the opposite guide.

In the drawings:

Fig. 1 is an elevation of a door with slanting pillar and cut away to show the regulator in elevation.

Fig. 2 is a section on the line 2—2 of Fig. 1.

Fig. 3 is a section on the line 3—3 of Fig. 1.

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

Fig. 5 is an elevation of the window bracket and the adjacent regulator parts.

1 is the usual operating handle provided at 2 with the usual clutch (not shown) and driving pinion. This is arranged to drive the usual gear segment 3 to which is attached the lifting arm 4. A clock type of counterbalancing spring 5 normally tends to raise the arm 4 and the window panel. This much of the construction is old and common. But on the free end of the arm 4 is located an arm 6. This rotates about the pin 7 which is fixed to the end of the arm 4. See flat 19, Fig. 3. This pin 7 passes through the slot 8 in the window bracket 9. A pair of fiber washers 10 and 11 tend to prevent rattling. This overbalance arm 6 likewise carries a pin

12 on its end which passes through the slot 8 and which has fiber washers 14 and 15 to prevent rattling. A clock spring 16 has one end fastened to the fixed rivet 7 and the other end bearing against the lug 17 projecting from the end of the overbalance arm 6 so that the clock spring is always tending to rotate the overbalance arm 6.

The thrust of the lifting pin 7 is fairly close to the centerline of the weight of the glass at the top of the throw of the arm. It is also fairly close to the centerline of the glass. But the overbalance arm 6 with its pin 12 engages the glass considerably to the side of the centerline and tends to throw the glass over into the vertical guide 20 and away from the slanting pillar 21. The counterbalancing spring 16 has to be strong enough to overbalance the window on the lifting pin 7.

This arrangement insures the glass remaining in the vertical window wave so as to give it stability at least at one edge of the glass.

I claim:

1. A window regulator having in combination, a lifting arm for contacting the sliding panel near the centerline to lift the sliding panel and an overbalance member pivotally supported by the lifting arm comprising a spring-pressed member contacting the said panel at a substantial distance from the center to overbalance the panel in one direction for the purpose described.

2. A window regulator having in combination, a lifting arm for contacting the panel near the center and for lifting the same, means for driving the same and an overbalance arm pivotally supported by the lifting arm and spring-pressed for contacting the window panel at some distance from the center to overbalance the window in one direction.

3. A window regulator having in combination, a lifting arm and means for operating the lifting arm, the said lifting arm arranged to contact with the window panel to lift the same and an overbalance arm pivoted to the lifting arm for contacting the window at a point a greater distance removed from the center than the lifting arm to overbalance the window in one direction.

4. A window regulator having in combination, a lifting arm and means for operating the lifting arm, the said lifting arm arranged to contact with the window panel to lift the same and an overbalance arm pivoted to the lifting arm for contacting the window at a point a greater distance from the center than the lifting arm to overbalance the window in one direction and a spring for pressing the overbalance arm against the bottom of said window panel.