April 12, 1927. 1,624,098

B. J. GOLDSMITH ET AL

WINDOW REGULATOR

Filed May 1, 1925 2 Sheets-Sheet 1

Fig. 1

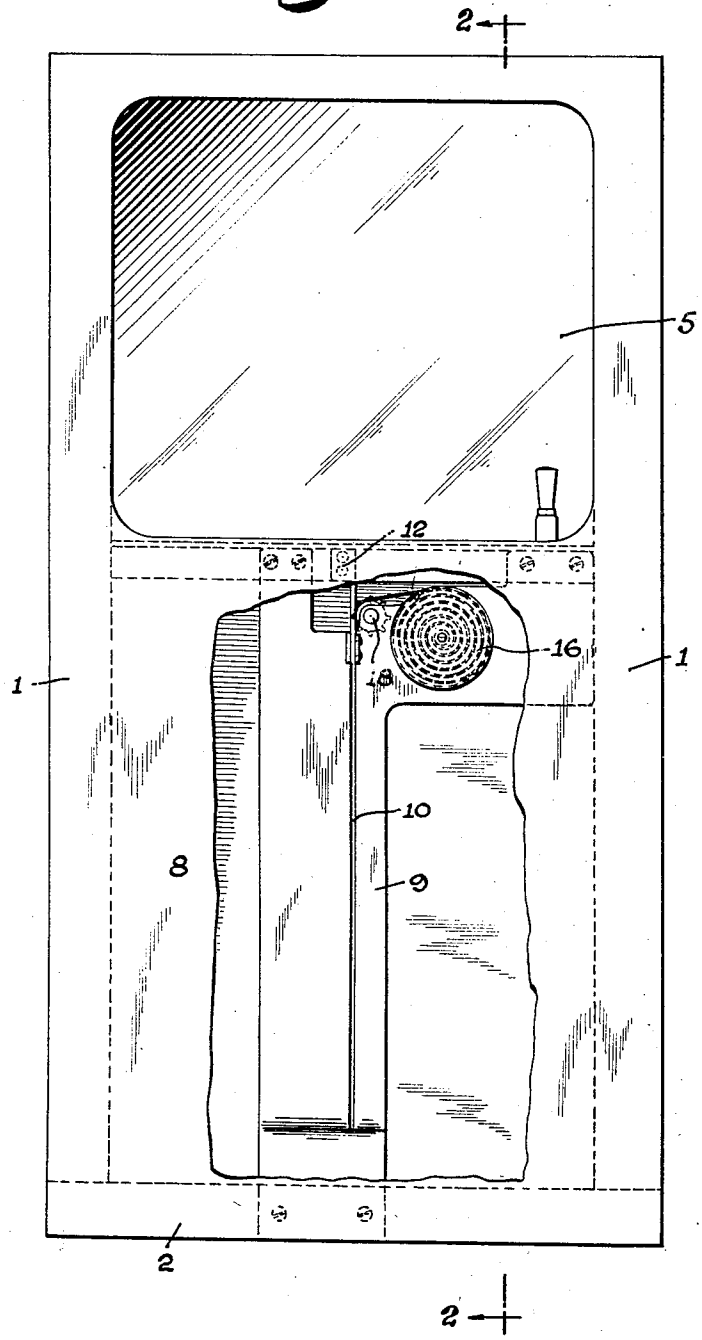
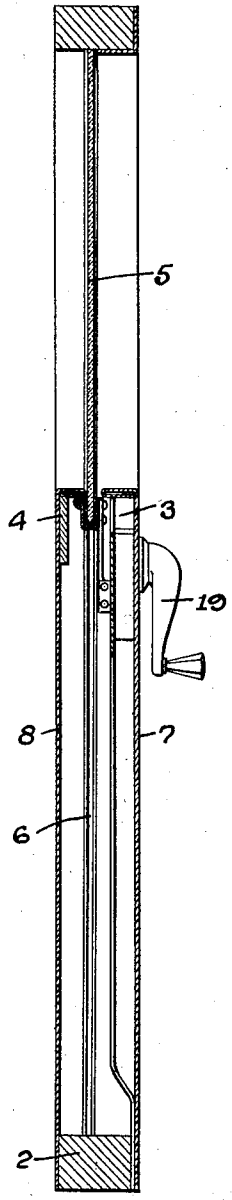


Fig. 2



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Fig. 3

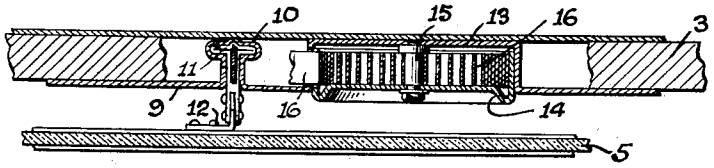


Fig. 4

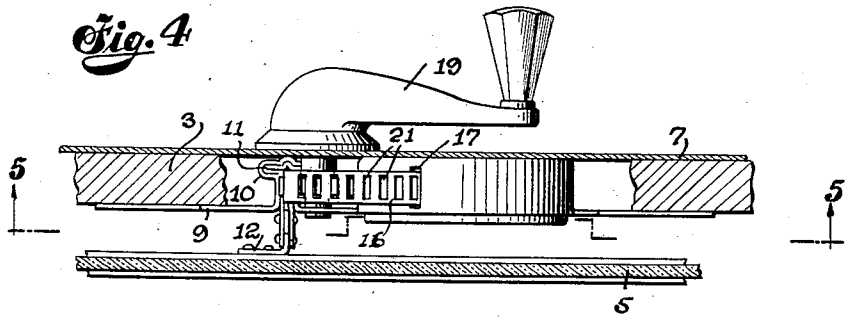
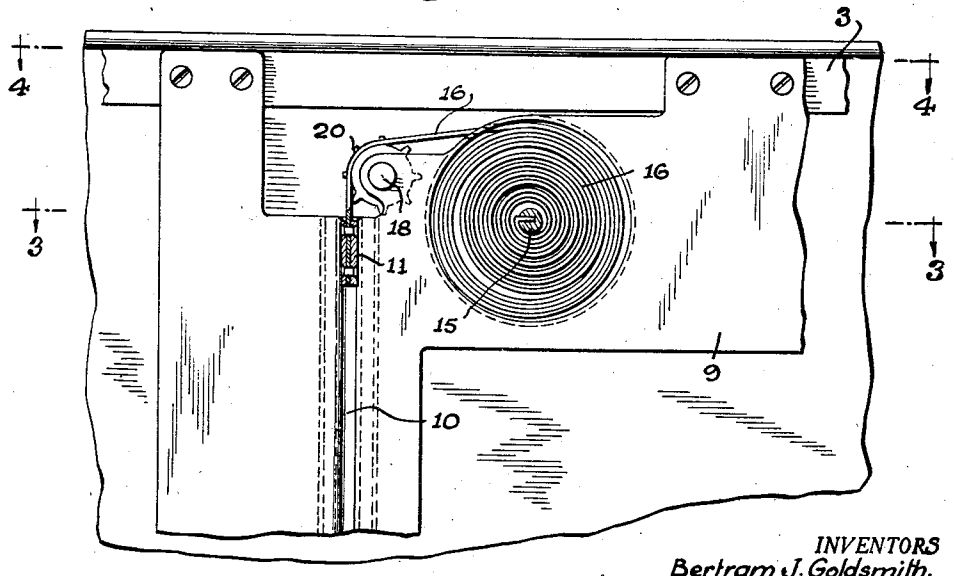


Fig. 5



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UNITED STATES PATENT OFFICE.

BERTRAM J. GOLDSMITH AND EMIL KOEB, OF NEW YORK, N. Y., ASSIGNORS TO PERFECT WINDOW REGULATOR CORPORATION, OF LONG ISLAND CITY, NEW YORK, A CORPORATION OF DELAWARE.

WINDOW REGULATOR.

Application filed May 1, 1925. Serial No. 27,211.

This invention relates to devices for opening and closing windows, it being particularly adapted in its application, although it is not to be so limited, to the windows of vehicles such as closed automobiles employing a window which is vertically slidable into and out of a window well.

The principal object of the invention is the production of a window regulator of the above type which shall be simple in construction and which shall employ a spring serving the double function of acting to counterbalance the weight of the window as well as forming a part of the window actuating mechanism per se.

Other and further objects and advantages of the invention will appear from the accompanying description, the invention consisting in the novel regulator hereinafter more particularly described and then specified in the claims.

Referring in detail to the several figures of the drawings:

Fig. 1 is a front elevation of a door (partially broken away) showing a slidable window therein and the window regulator of the invention.

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

Fig. 3 is a horizontal section on the line 3—3 of Fig. 5.

Fig. 4 is a horizontal section on the line 4—4 of Fig. 5.

Fig. 5 is a horizontal section on the line 5—5 of Fig. 4.

Referring to the several figures of the drawings:

1 indicates the side members of a rectangular frame and 2 the lower member thereof which frame may be the frame of a vehicle door provided with the inner and outer window sills 3 and 4 respectively connecting together said side members 1. 5 indicates a window which may be a framed or frameless glass as desired and which is slidable in suitable channels or guideways 6 in said side members 1 and into a window well below the window sills 3 and 4, the inner and outer walls of said window well being indicated at 7 and 8 respectively.

9 indicates a metallic supporting plate which is preferably fastened by suitable screws, as shown, to the inner window sill 3 and to the lower member 2 of the rectangular frame. Said supporting plate is provided with a T-shaped slot or groove 10 pressed out of the metal thereof preferably centrally of the window and adapted to receive a correspondingly-shaped carrier 11 which is bolted or otherwise secured in any desirable manner to the lower edge of the window 5 by the strap 12. The supporting plate is also annularly depressed as at 13, said depression being provided with a cover plate 14 fastened thereto by means of a hub or pin 15 to form a housing receiving a coiled or clock spring 16 the inner end of which is attached to the hub 15 while the outer end extends through a suitable slot 17 in said housing.

18 indicates a shaft suitably mounted in the supporting plate 9 and extending through the front wall 7 of the window well and carrying on one end the crank or handle 19 and on the other end a pinion 20. The spring 16 is provided with a series of slots 21 therein adapted to be received by the teeth of the pinion 20. The outer end of the spring 16 after it has been brought over the pinion 20 is securely fastened, as by the pins as shown in Fig. 5, to the carrier 11. The action of the spring 16 tends to wind itself up on the hub 15 and thereby to assist in the raising of the window in an obvious manner.

When it is desired to raise or lower the window in its channels or guideways 6 the crank or handle 19 is rotated in the proper direction, motion being transmitted through the shaft 18, pinion 20, spring 16 and carrier 11. Thus the spring not only acts to assist in the raising operation but is also a part of the window actuating mechanism per se. Slot 10 furthermore not only acts as a guide for the carrier 11 but also acts to prevent buckling or twisting of the spring when said spring enters said slot.

What we claim as our invention is:—

1. In a window regulator, a spring adapted to assist in the closing of the window and forming part of the mechanism for both opening and closing the window.

2. In a window regulator, a fixed member, a coiled spring connected thereto and to the window and adapted to assist in rais-

ing said window and means for actuating said coiled spring to either raise or lower said window.

3. In a window regulator, a spring provided with a series of openings therein, said spring being connected to the window, a pinion the teeth of which are adapted to be received by said openings and means for rotating said pinion to raise or lower the window.

4. In a window regulator, a spring connected to the window, a rotatable member engaging said spring, means for rotating said rotatable member to actuate said spring whereby the window may be raised or lowered.

5. In a window regulator, a support having a T-shaped slot therein, a correspondingly-shaped carrier slidable in said slot and connected to the window, a spring fastened to said carrier and means for driving said spring whereby the window may be raised or lowered.

6. In a window regulator, a support provided with a slot therein, a pinion mounted on said support, a carrier slidable in said slot and connected to the window, a coiled spring mounted on said support and engaging said pinion and fastened to said carrier and means for rotating said pinion to raise or lower the window.

7. In a window regulator, a support provided with a T-shaped slot therein, a T-shaped carrier slidable in said slot and fastened to the window, a shaft mounted on said support, a pinion carried by said shaft, a coiled spring provided with a series of openings adapted to be received by the teeth of said pinion and having one end thereof fastened to said support and the other end fastened to said carrier and a crank on said shaft for rotating the same whereby the window may be raised or lowered.

8. In a window regulator, a spring adapted to assist in the closing of the window, said spring being connected to the window and means for positively driving said spring to open or close said window.

Signed at New York in the county of New York and State of New York this 30th day of April A. D. 1925.

EMIL KOEB.

BERTRAM J. GOLDSMITH.