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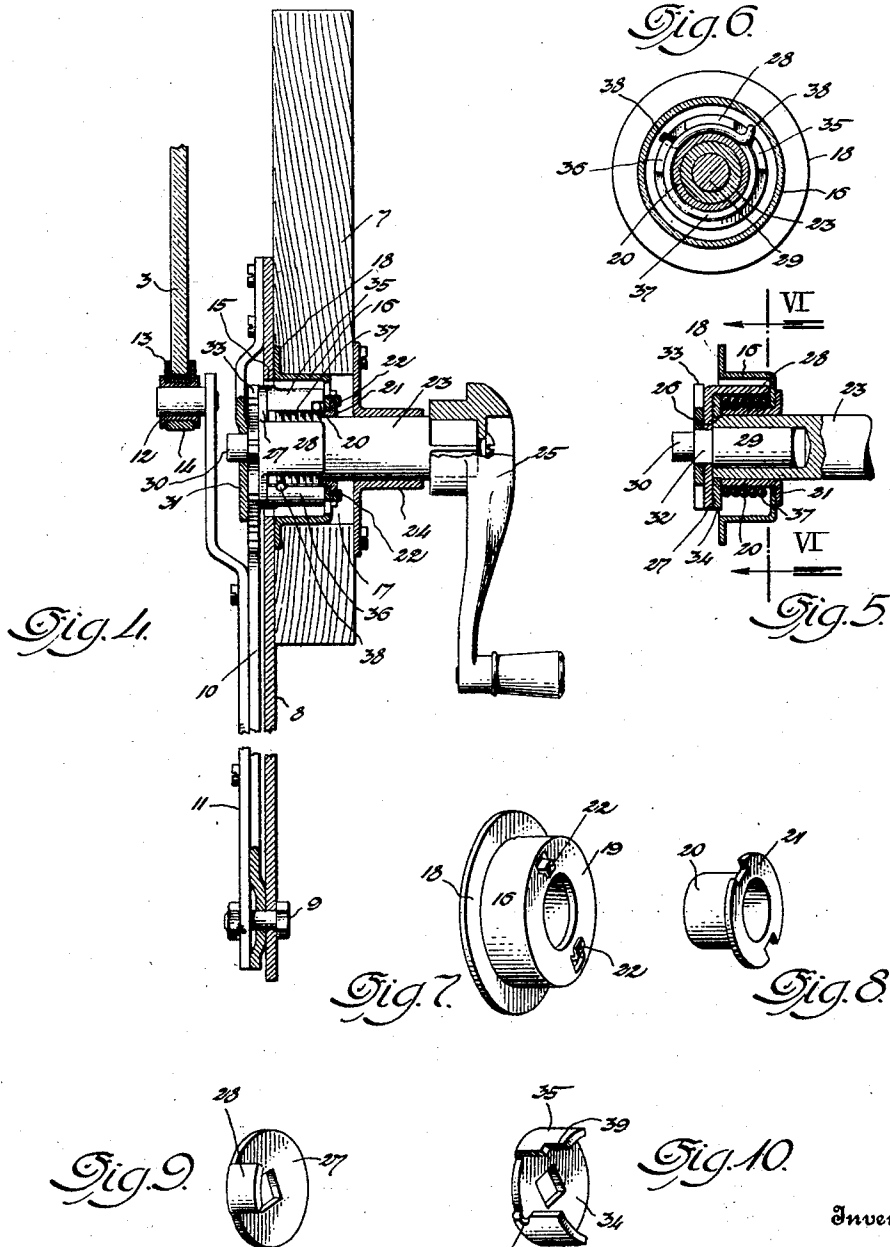
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LEVER SASH REGULATOR

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2 Sheets-Sheet 2



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LEVER SASH REGULATOR.

Application filed October 27, 1924. Serial No. 746,030.

This invention relates to sash regulating devices of that type disclosed in my Patent No. 1,537,004 dated May 5, 1925, and my application filed Feb. 8, 1924, Ser. No. 691,416, both being directed to closure apparatus that may be advantageously used in the wall or door of an automobile body for raising and lowering the sash relative to a window or door frame opening.

My present invention is characterized by a sector gear lever arranged in a sash well and articulated with a sash for raising or lowering it, the sector gear lever and its operating mechanism being of simple construction, light in weight, easy to assemble and operate, and highly efficient for the purposes for which it is intended.

The construction entering into my sash regulating device will be hereinafter specifically described and then claimed and reference will now be had to the drawing, wherein

Figure 1 is a front elevation of a frame having a sash adjustable therein by a device in accordance with this invention;

Fig. 2 is a vertical cross sectional view of the same;

Fig. 3 is a horizontal sectional view of the frame and sash;

Fig. 4 is an enlarged vertical sectional view of the device partly in elevation;

Fig. 5 is a longitudinal sectional view of a clutch associated with the device;

Fig. 6 is a cross sectional view taken on the line VI—VI of Fig. 5;

Fig. 7 is a perspective view of a detached casing;

Fig. 8 is a similar view of a detached bushing;

Fig. 9 is a perspective view of a follower, and

Fig. 10 is a similar view of a spring abutment member.

In Figs. 1 to 3 inclusive I show a frame or wall 1 having grooves or guides 2 for a sash or closure 3 adapted to be raised and lowered in the frame and automatically held in adjusted position. The frame 1 has inner and outer panels 5 and 6 respectively providing a well 4 to receive the sash 3 and transversely of the frame is a sill member or lock board 7 from which is supported a depending plate 8. Adjacent the lower edge of said plate is a pivot 9 for a sector gear 10 or driven member which obviates the necessity of using a complete gear wheel. Suitably attached to the sector gear 10 or formed

integral therewith is a lever 11 radially disposed relative to the pivot 9 and the outer end of said lever is offset and provided with a bearing for an anti frictional grooved roller 12 that extends between a bottom rail 13 of the sash 3 and a guide rail 14 attached to said sash. When the sector gear 10 is actuated to swing the lever 11 in an arc the roller 12 moves longitudinally of the rails 13 and 14 and causes the sash 3 to be raised and lowered.

The plate 8 has its upper end provided with an opening 15 and registering with said opening is a cylindrical casing 16 mounted in an opening 17 provided therefor in the member 7. The casing 16 may have a peripheral flange 18 suitably secured to the plate 8 and adapted to be countersunk in the member 7. The outer end of the casing 16 has an inturned flange or end wall 19 in which is attached a bushing 20 having a notched end flange 21 adapted to be held by outstruck lugs 22 of the casing end wall 19.

Journalled in the bushing 20 is an arbor 23 constituting a drive member which has its outer end journalled in an escutcheon plate 24 secured to the sill 7 or the panel or wall board 6, and on the outer end of the arbor is a conventional form of crank or handle 25.

The inner end 26 of the arbor 23 is rectangular to accommodate a spring abutment member 34 having abutments 35 and 36 and extending into the inner end of the arbor 23 is a spindle 29 which has a reduced end thereof journalled in a keeper 31 having its upper end secured to the plate 8 and its lower end extending downwardly at the side of the sector gear or rack 10 so as to form somewhat of a channel for the edge of the sector gear or rack. The spindle 29 has a rectangular portion or facets 32 for a pinion or gear wheel 33 which meshes with the sector gear or rack 10, and sandwiched between the pinion 33 and the member 34 is a follower 27 having a side lug 28 extending between the abutments 35 and 36 of the member 34.

Coiled about the bushing 20 is a coiled spring 37 which serves as a clutch or brake member, said spring frictionally gripping the bushing 20 with the ends of said spring outturned, as at 38, to extend between the lug 28 and the abutments 35 and 36. The abutment 35 has a recess 39 into which one end of the spring extends and the abutment 36 has a notch or recess 40 into which the opposite end of the spring extends, thus being

best shown in Figs. 4, 6 and 10. As a result of this resilient coiled clutch arrangement the inherent tendency of the spring gripping the stationary bushing 20, is to hold the abutment member 34 and the pinion 33 stationary, thereby preventing accidental movement of the sash 3 because of its weight or vibrations to which it may be subjected during the operation of an automobile. The clutch braking device does not, however, prevent rotation of the arbor 23 when the sash 3 is to be manually adjusted. When the arbor 23 is rotated in either direction the spring abutment member 34 is turned and one of its abutments will cause the spring to uncoil or expand sufficiently relative to the bushing 20 to permit of the follower 27, the spring abutment member 34 and the pinion 33 to rotate in synchronism and thereby actuate the sector gear 10 carrying the lever 11. When the arbor 23 is released by the operator the retractile force of the spring 37 causes it to grip the bushing 20 again and by virtue of the ends of the spring engaging the abutments 35 and 36 the member 34, the follower 27 and the pinions 33 will be stationary preventing actuation of the sector gear 10 by the weight of the sash 3.

I attach considerable importance to the fact that the plate 8 and the mechanism supported thereby is a bench assembled structure that can be easily and quickly installed in a sash well, and furthermore that the ma-

jority of the elements are stampings that may be easily and quickly assembled. It is for this reason that the lever 11 is made separate from the sector gear 10 and afterwards secured thereto along one of the edges of the sector gear so that there will be a leverage action when adjusting the sash 3.

Obviously such changes may be in the construction of my device as are permissible by the appended claim.

What I claim is:—

In a clutch, a cup-shaped casing, a bushing non-rotatably secured against the outer wall of said casing and extending therein, an arbor in said bushing, a spindle extending into said arbor, and means in said casing frictionally engaging said bushing adapted for holding said arbor and spindle against accidental rotation, said means including an abutment member, rotatable with said arbor and having abutments extending parallel to said bushing, a follower rotatable with said spindle and having a lug overlying said abutment member and extending parallel to the abutments of said member, and a spring frictionally encircling said bushing and having its ends extending between the abutments of said abutment member and the lug of said follower and adapted to be distended to permit rotation of said arbor and spindle.

In testimony whereof I affix my signature.
GUSTAVE A. CARLSON.