April 27, 1937. L. SEGAR 2,078,815

HINGE

Filed April 23, 1935

Fig. 1.

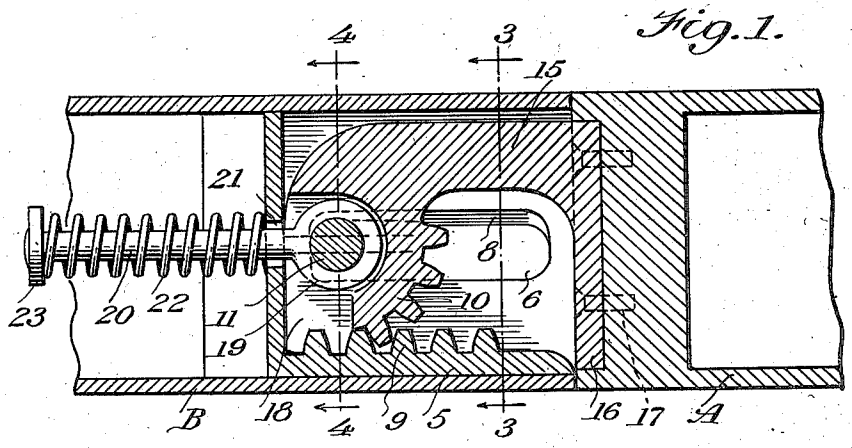


Fig. 2.

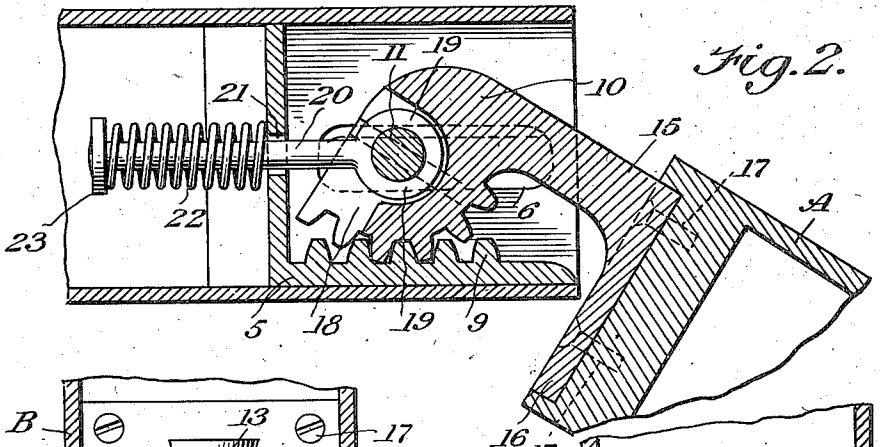


Fig. 3.

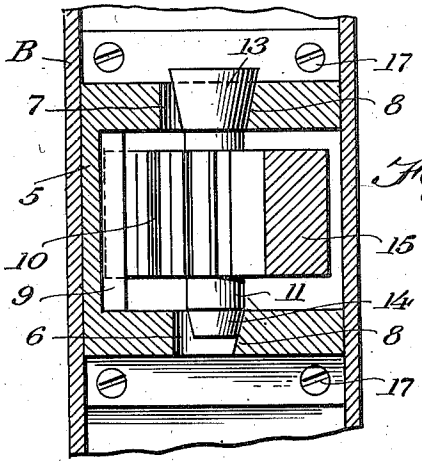
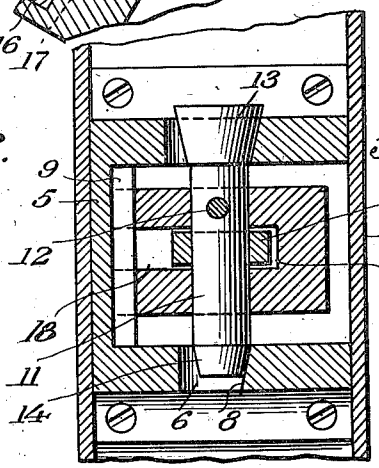


Fig. 4.



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HINGE

Lee Segar, Troy, Pa.

Application April 23, 1935, Serial No. 17,886

1 Claim. (Cl. 16—180)

The invention relates to a hinge and more especially to a concealed or hidden rack hinge.

The primary object of the invention is the provision of a hinge of this character, wherein through a rack and gear the stationary and movable parts cooperate so that the movable part carrying the door, window, blind or other swinging part will be caused to move smoothly and the weight of such moving part will be directed onto a guide and such swinging part will be prevented from sagging and the rack and gear of the hinge will have close and uniform fit for a smooth and easy operation of the hinge.

Another object of the invention is the provision of a hinge of this character, which is simple in construction, thoroughly reliable and efficient in operation, concealed or hidden from view, strong, durable, and inexpensive to manufacture.

With these and other objects in view, the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawing, which discloses the preferred embodiment of the invention and pointed out in the claim hereunto appended.

In the accompanying drawing:

Figure 1 is a fragmentary horizontal sectional view through a door and casement showing the hinge constructed in accordance with the invention applied, the door being in closed position.

Figure 2 is a view similar to Figure 1 showing the door open.

Figure 3 is a sectional view on the line 3—3 of Figure 1.

Figure 4 is a sectional view on the line 4—4 of Figure 1.

Similar reference characters indicate corresponding parts throughout the several views in the drawing.

Referring to the drawing in detail, A designates generally a portion of a swinging door and B the casement or framing for the door, these being of conventional kind and have applied thereto the hinge constituting the present invention and hereinafter fully described.

The hinge comprises a housing or casing 5 open at one side and one end while in the bottom and top of this housing or casing are elongated guide slots 6 and 7, respectively, each having a beveled side wall or edge 8, the slot 6 being aligned with the slot 7 and the slot 7 is of greater width than the slot 6. Upon the closed side of the housing or casing 5 is a toothed rack 9 meshing with a toothed sector gear 10, it having fitted therein a removable guide pin or follower 11 which extends into the slots 6 and 7 for cooperation therewith, the pin or member 11 being made fast with the gear 10 through the medium of a fastener 12. The pin or member 11 is formed with a downwardly tapered head 13 at its upper end for traction upon the beveled edge 8 of the slot 7 while the opposite lower end of this pin or member 11 has the tapered terminal 14 cooperating with the beveled edge of the slot 6.

The sector gear 10 is formed with a hanger arm 15 having an attaching plate 16 for fasteners 17 to secure it to the door A at the hinge side thereof, the plate 16 being counterseated in the edge of the door confronting the same. Thus it will be seen from Figures 1 and 2 of the drawing that the door is free to swing horizontally for the opening and closing thereof.

Within a cut away portion or clearance 18 provided in the sector gear 10 is the eye terminal 19 of a rod 20, the eye terminal being loosely engaged about the pin or member 11. The rod 20 is extended through a guide opening 21 in the end wall of the housing or casing 5 and has fitted therewith a coiled expansion spring 22 seated against said wall and against a head 23 fixed to the rod 20 at the end remote from the eye terminal 19. This spring exerts a tension on the member 11 and tends to swing the door to closed position as well as to retain the said door in such closed position.

It should be apparent from Figures 3 and 4 of the drawing that the weight of the door will be transferred upon the pin or member 11 which has a seating against the edges 8 of the slots 6 and 7 and the tapered head 13 maintains constant contact with the beveled edge 8 of the slot 7 while the terminal 14 has constant contact with the edge 8 of the slot 6 so that the gear 10 is at all times held in positive meshing engagement with the rack 9 for the smooth action of the hinge in the swinging of the door A.

This guide pin or member 11 functions in the operation of the hinge as a thrust or guide medium.

What is claimed is:

A hinge of the character described, comprising a stationary member having a recess, a movable member fitting said recess and concealed by said stationary member, a toothed rack formed on one wall of the recess, a segmental gear formed at one side of the movable member and meshing with the toothed rack, a guide pin fixed in the segmental gear and tracking the stationary member above and below the said movable member, the said stationary member having beveled elongated slots above and below the movable member, and beveled ends on the pin corresponding to the beveled slots and engaged in the latter.

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