March 25, 1952 J. B. PARSONS 2,590,450

MOUNTING CLIP FOR REGULATORS

Filed Feb. 20, 1948

FIG. 1.

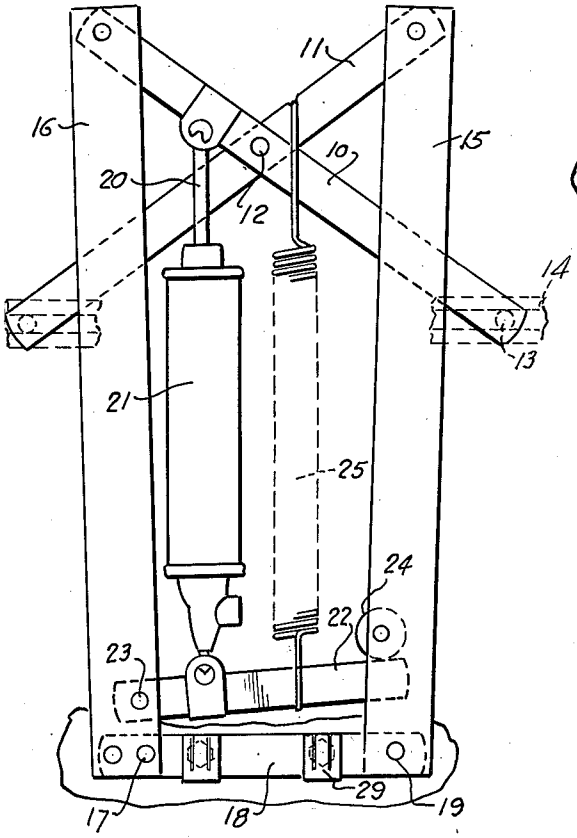


FIG. 2.

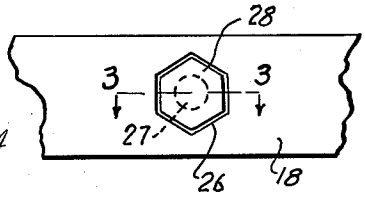


FIG. 3.

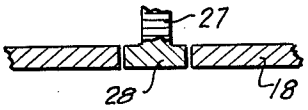


FIG. 4.

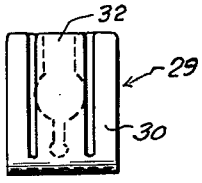


FIG. 5.

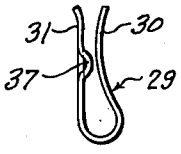


FIG. 6.

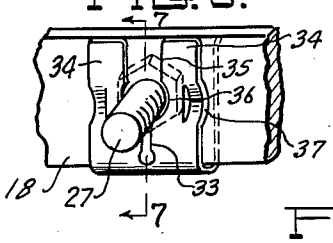
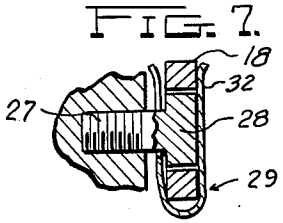


FIG. 7.



INVENTOR.
John B. Parsons

BY Malcolm W. Fraser

ATTORNEY

Patented Mar. 25, 1952

2,590,450

UNITED STATES PATENT OFFICE

2,590,450

MOUNTING CLIP FOR REGULATORS

John B. Parsons, Toledo, Ohio

Application February 20, 1948, Serial No. 9,883

2 Claims. (Cl. 189—36)

1

This invention relates to the mounting of regulators for vehicles, such as used, for example, in the operation of vehicle windows and the like by power means, and where it is desired that the regulator unit be capable of slight rocking movements in directions crosswise to the movement of the vehicle member. More particularly, the invention relates to the mounting of a regulator unit of the type shown and described in the United States patent to John B. Parsons No. 2,400,572, dated May 21, 1946, in which the regulator mechanism unit includes a frame, a portion of which is attached to a vehicle body part.

An object is to produce a new and improved mounting for a regulator mechanism unit of the above type which is easy to apply, is inexpensive to manufacture, and enables slight rocking movements of the frame relative to the support, the mounting having spring or resilient characteristics tending to return the frame to its normal position and to eliminate rattles or vibrations due to movement of the vehicle.

Another object is to produce a new and improved mounting clip which can be readily applied and which has the novel features of construction and operation hereinafter described.

For purposes of illustration but not of limitation, an embodiment of the invention is shown in the accompanying drawings, in which

Figure 1 is a side elevation of a regulator mechanism for vehicle windows or the like showing mounting clips on a frame part for securing it to a stud or bolt connected to a rigid support;

Figure 2 is an enlarged fragmentary elevation of the cross bar of the regulator frame showing the polygonal opening receiving the similarly shaped head of the bolt or stud which is connected to a rigid body or frame part;

Figure 3 is a sectional view substantially on the line 3—3 of Figure 2;

Figure 4 is a side elevation of a mounting clip;

Figure 5 is an edge elevation of the clip shown in Figure 4;

Figure 6 is an enlarged fragmentary view of the cross frame bar with the mounting clip applied thereto and showing the same assembled on a bolt; and

Figure 7 is a section substantially on the line 7—7 of Figure 6.

The illustrated embodiment of the invention comprises a regulator mechanism including a pair of crossed arms 10 and 11 which are pivoted together by a rivet 12. On the outer end of each of the arms 10 and 11 is a stud 13 which slides in a horizontally slotted retainer 14. The retainer 14 is fixed to and depends from the lower edge of a window panel (not shown) which, as will be readily understood by those skilled in the art, is guided for up and down sliding movement.

2

The inner end of each of the cross arms 10 and 11 is pivoted to the upper ends of upright frame arms 15 and 16 respectively. The lower end of the frame arm 16 is rigidly secured by a pair of rivets 17 to a cross bar 18 and the lower end of the frame arm 15 is connected by a single rivet 19 to the opposite end of the cross bar 18 to have swinging movement toward and away from the arm 16. Thus the arms 15 and 16 and the cross bar 18 constitute the frame for the regulator mechanism.

For imparting raising and lowering movements to the window panel, a piston rod 20 is connected to the arm 10 intermediate the rivet 12 and the upright frame arm 16. The piston rod 20 has connected to its lower end a piston (not shown) which reciprocates within the cylinder 21. The lower end of the cylinder 21 is suitably connected to a bracket arm 22, one end of which is pivoted by a rivet 23 to the frame arm 16 and the opposite or free end of the bracket arm is adapted to abut against a stop member 24 on the frame arm 15.

Movement of the window panel and cross arms in the opposite direction is effected by a helically coiled spring 25, the upper end of which is hooked over the cross arm 11 intermediate the rivet 12 and the frame arm 15, and the lower end is hooked onto the bracket arm 22. It will be apparent that by introducing liquid under pressure to the lower end of the cylinder 21, the piston rod 20 is forced upwardly thereby imparting upward swinging movement to the cross arms for imparting upward movement to the window panel. The liquid within the cylinder may be trapped in any suitable manner for holding the window in the desired position of adjustment. By allowing the liquid to flow from the cylinder 21, the coil spring 25 causes the cross arms to swing downwardly, thereby to lower the window panel. The above regulator mechanism is fully shown and described in the above identified patent, and further description and illustration is not considered necessary here since the particular structure of this mechanism constitutes no part of the present invention.

The regulator mechanism unit above described is so mounted that it can move or rock to a limited extent in directions crosswise or transverse to the direction of movement of the window panel or the swinging arms. This enables the regulator mechanism to accommodate itself to

any lateral movement in the window travel or inaccuracies in the arrangement of the parts. Thus the regulator mechanism unit may be mounted on the job more readily without militating against binding or clamping of the window during its operation.

As shown, the cross bar 18 is provided with a pair of laterally spaced polygonal apertures 26 through which extend bolts 27, the inner ends of which are suitably fixed or secured to a vehicle body member. Each of the bolts has a head 28 which is shaped to correspond to the hole 26 in the cross bar 18 except that the head 28 has a loose fit within the opening so that a limited amount of play exists between the bolt heads and the cross bar 18. As indicated in Figure 7, the thickness of the bolt head 28 is approximately the same as the thickness or transverse dimension of the cross bar 18.

Associated with each of the bolt heads 28 is a spring clip 29 which is of U-shape having a pair of arms 30 and 31. The arm 30 is slightly curved as indicated in Figure 5 and is formed with a centrally disposed integral tongue 32 which engages the outer face of the adjacent bolt head 28, thereby militating against relative movement of the cross bar 18 in an outward direction, yet at the same time enabling limited movement thereof due to the spring action of the tongue 32.

The arm 31 has a central slit 33 providing a pair of spring fingers 34. The inner edge portions of the fingers 34 are relieved as indicated at 35 and are formed with notches 36 through which the shank of the bolt 27 extends. The outer edge portion of each finger 34 is slotted and then pressed inwardly or in a direction toward the cross bar to provide curved portions 37 or nubbins to engage the cross bar 18 substantially centrally between the upper and lower edges thereof and thus permit a limited amount of rocking or tilting movement of the cross bar.

From the above description, it will be apparent that the two clips 29 can be slipped over the cross bar 18 and in so doing, the opposite arms are placed under tension. Due to the oversize of the holes 26 in the cross bar 18, the cross bar can rock to a limited extent relative to the heads 28 of the bolts 27, the clips 29 holding the parts in place and at the same time resiliently enabling such rocking movement or tilting movement of the regulator unit to be effected.

It should be pointed out that the mounting above described can be used in a variety of locations and the regulator mechanism may be used for purposes other than the actuation of vehicle windows. It is equally adaptable for the actuation of vehicle seats, for example. Therefore, it will be understood that the mounting lends itself to the supporting of a regulator mechanism unit in any desired position or environment.

It is to be understood that numerous changes in details of construction, arrangement and operation may be effected without departing from the spirit of the invention, especially as defined in the appended claims.

What I claim is:

1. A mounting for a regulator mechanism unit having a frame including a cross bar, said mounting comprising a pair of headed bolts adapted to be secured to a rigid support, said cross bar having apertures loosely fitting the heads of said bolts to afford limited rocking movement of the cross bar relative to the bolts, a pair of longitudinally spaced U-shaped sheet metal clips embracing said bar, an integral spring tongue forming a part of one arm of said clip abutting against the outer face of each bolt head, and the other arm of said clip comprising a pair of integral fingers, the inner edge portions of said fingers being relieved to accommodate said bolt.

2. A mounting for a regulator mechanism unit having a frame including a cross bar, said mounting comprising a headed bolt adapted to be secured to a rigid support, said cross bar having an aperture loosely fitting the head of said bolt to afford limited rocking movement of the cross bar relative to the bolt, said bolt head being of polygonal shape, a U-shaped sheet metal clip embracing said bar, an integral spring tongue forming a part of one arm of said clip abutting against the outer face of said bolt head, the other arm of said clip comprising a pair of integral fingers, the inner edge portions of said fingers being relieved to accommodate said bolt, and a nubbin projecting inwardly from each finger for engagement with said bar, the bar engaging surface of said nubbin being rounded thereby to afford limited transverse rocking movement of said bar.

JOHN B. PARSONS.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
823,303	Clauss	Aug. 14, 1906
1,008,145	Heeter	Nov. 7, 1911
1,392,561	Duffy	Oct. 4, 1921
2,236,850	Hansman	Apr. 1, 1941
2,284,222	Miller	May 26, 1942
2,400,572	Parsons	May 21, 1946