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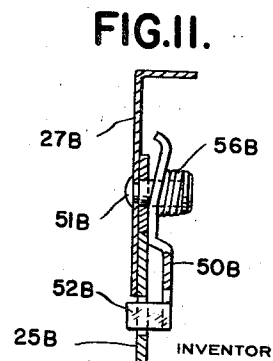
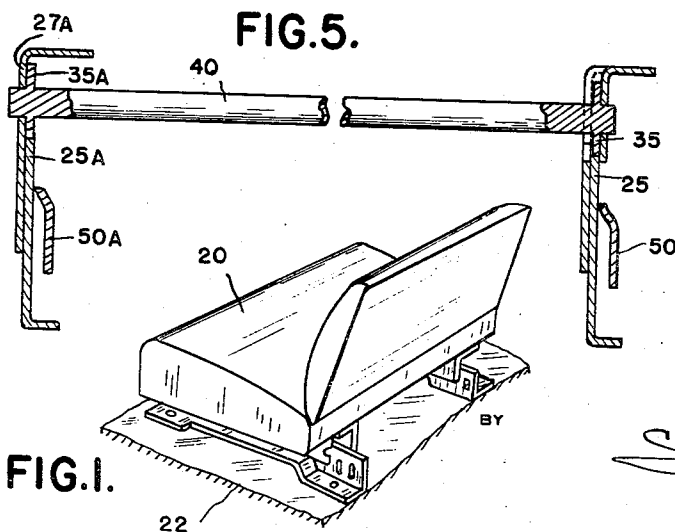
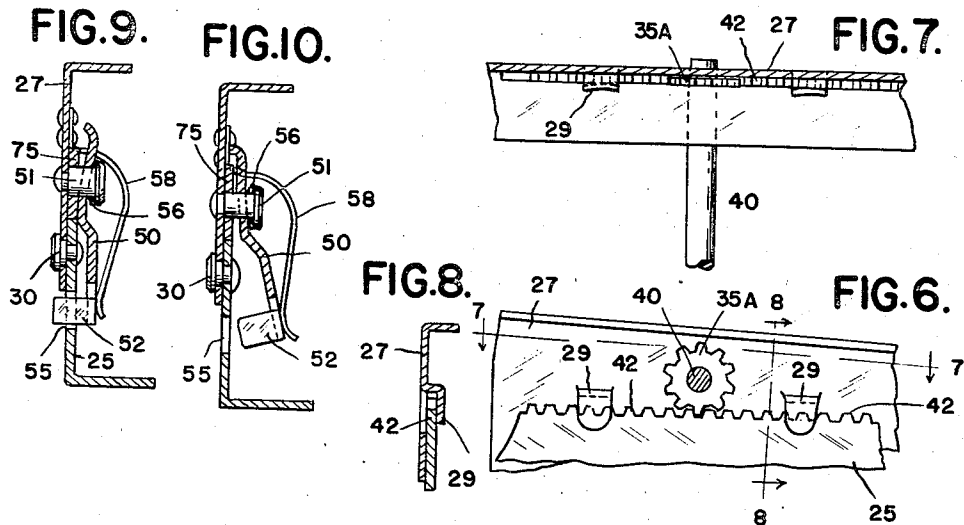
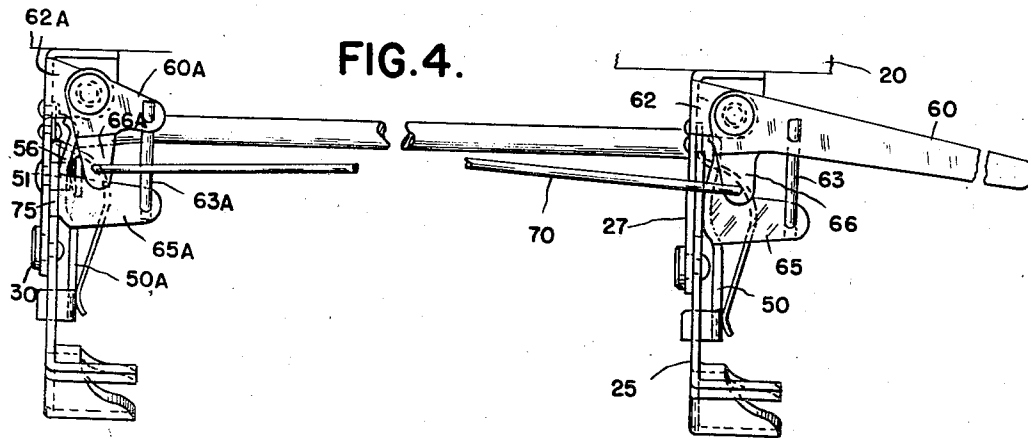
T. A. MCGREGOR

2,179,129

ADJUSTABLE SUPPORT

Filed May 16, 1938

2 Sheets-Sheet 1



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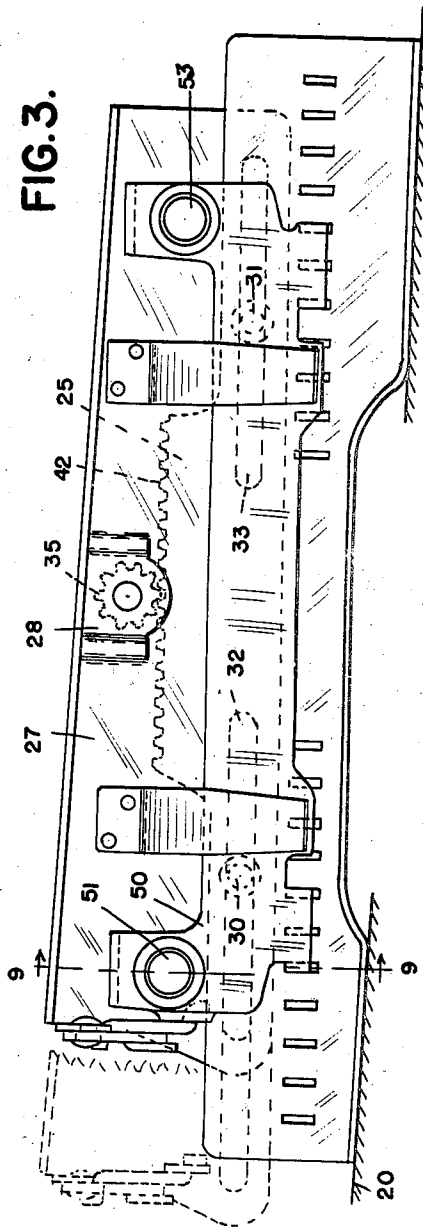
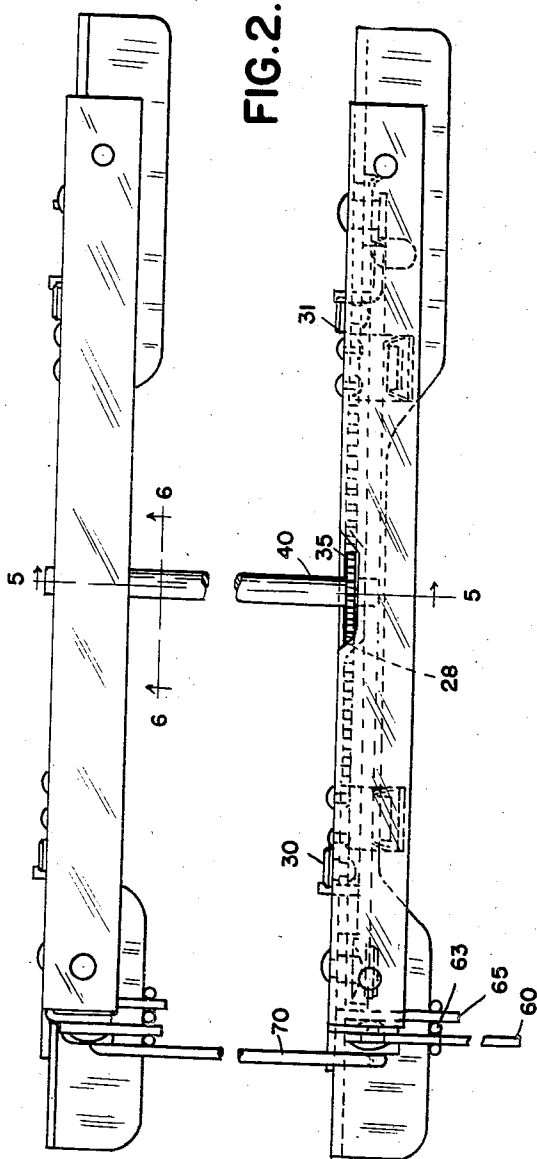
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2 Sheets-Sheet 2



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2,179,129

ADJUSTABLE SUPPORT

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Application May 16, 1938, Serial No. 208,118

7 Claims. (Cl. 155—14)

This invention relates to adjustable supporting mechanisms for vehicle seats and the like, and aims to provide an improved support of this character which although inexpensively formed, principally of sheet metal, is of great strength and adapted to hold the seat very rigidly, and prevent all possibility of unwanted weaving, lost motion or rattling, regardless of the nature or position of the load to which the seat is subjected. The problem incident to provision of satisfactory low-cost devices of this character are aggravated by the severe usage commonly imposed upon them. Sudden shocks and vibration are encountered, while the load is sometimes downward upon the seat, and sometimes applied upward, due to pressure exerted against the back. Strong side loads are also exerted, due to centrifugal force and other causes, and the weight or load upon the seat varies greatly, being sometimes entirely upon one side and sometimes entirely upon the other. With sheet metal supports great difficulty has been encountered in maintaining proper alignment of the parts and preventing unwanted motion of the seat when locked in place—which motion is apt to result from clearances and from weaving.

The present invention aims to provide a seat supporting device which overcomes all of the indicated obstacles and which functions easily and efficiently, even after long disuse, without being harmfully affected by dirt or rust.

Another object is to provide an adjustable seat supporting mechanism having combined locking and clamping means so constructed as to allow free movement of the seat when released, but to tightly clamp together all of the working parts when secured, to rigidly hold them against rattling, weaving and lost motion.

Other objects and advantages will be apparent from the following description, wherein reference is made to the accompanying drawings illustrating preferred embodiments of my invention and wherein similar reference numerals designate similar parts throughout the several views.

In the drawings:

Figure 1 is a perspective view of a vehicle seat carried by adjustable supporting mechanism constructed in accordance with the principles of this invention.

Figure 2 is a plan view of the seat supporting mechanism, with the cross-connecting shaft and link means centrally broken away.

Figure 3 is a side elevational view of the mechanism.

Figure 4 is a front elevational view.

Figure 5 is a cross sectional view taken substantially on the line 5—5 of Figure 2, and looking in the direction of the arrows.

Figure 6 is a sectional detail taken substantially on the line 6—6 of Figure 2 and looking in the direction of the arrows.

Figures 7 and 8 are sectional details taken substantially on the lines 7—7 and 8—8 respectively of Figure 6, and looking in the direction of the arrows.

Figure 9 is a sectional view taken substantially on the line 9—9 of Figure 3, and looking in the direction of the arrows.

Figure 10 is a view similar to Figure 9, showing the locking plate in released position; and

Figure 11 is a fragmentary sectional view of the locking plate and adjacent parts, viewed as in Figure 9, showing a somewhat modified spring arrangement.

Referring now to the drawings, Figure 1 shows, at 20, an automobile seat of a common form, which is adjustably supported, by the mechanism of the invention, upon a floor 22. One complete supporting assembly is arranged beneath each end of the seat, each such assembly consisting of a track, secured to the floor, and a carriage rollable thereover and carrying the seat. In view of the substantial identity of the two assemblies, one thereof will first be described, and the description of the other restricted to a recitation of the differences.

The assembly indicated as that supporting the left end of the seat carries the latch operating means, and comprises a track 25 having a horizontal flange secured to the floor and a vertical flange which slidably overlaps an adjacent downwardly projecting vertical flange of the carriage member 27. The track and carriage are of similar cross section, but the carriage is inverted in position, with its horizontal flange secured to the bottom of the seat 20, to support the latter.

The overlapping flanges of the track and carriage are slidably guided and held against separation by shouldered rivets 30—31 secured to the track and traveling in longitudinal slots 32—33 in the carriage. Such pin and slot do not take the vertical load, which is borne by rollers 75, journaled on pins 51, 53 and rolling on top of the track. Also journaled in the carriage and centrally located is a gear 35 fast upon a supporting shaft 40. The shaft extends across to the opposite or right hand assembly where it carries a similar gear 35A. The gear meshes with a rack portion 42 formed along the top edge of an upwardly extending central portion of the verti-

cal track flange. A portion 28 of the carriage is pressed inwardly to allow proper positioning of the gear 35 in alignment with the rack. The opposite gear 35A, however, needs no such recess 5 in the right hand carriage member 27A, since it lies inside the carriage and directly above the right hand track member 25A, which is located inside the carriage member. The cross connecting means provided by the gears and shaft will be seen to insure uniform movement of both ends 10 of the seat. Proper alignment between the track and carriage members is further insured by guide tongues 29, struck out of the vertical flange of the carriage member and overlying rack portion 15 42 of the track member.

A combined locking or dogging element and clamping plate 50 is attached to the track side of the vertical carriage flange, and overhangs the vertical track flange, the plate being supported in longitudinally extending position by means of the headed pins 51, 53 which may comprise shouldered rivets and are located at either end of the assembly. The shanks of these pins are sufficiently long to allow the plate to swing 25 bodily toward and from the track member, being normally urged toward the track by leaf springs 58. When the plate is so in-pressed, in-turned locking teeth 52 carried at the lower end thereof are projected into locking engagement with certain slots 55, a series of which is punched in the track flange. Such spring action may also be augmented by a spring washer as 56 arranged between the locking plate and the head of each of the supporting pins 51.

35 As best shown in Figures 9 and 10, the locking plate may also be curved about a longitudinal axis in such manner as to act as a clamping element when forced inwardly toward locked position. When in such position (Fig. 9) its upper end bears outwardly against the head of pin 51, 40 while an intermediate portion forces the track flange toward the carriage flange, also holding the rollers 75, and thus all of the working parts snugly together.

45 To enable swinging the locking plate outward to free the teeth 52 from the track and allow longitudinal sliding movement of the carriage, and so of the supported seat, an operating handle 60 is provided, pivoted in outwardly projecting position on an ear 62 pressed outwardly from the carriage, such handle being connected by means of a link 63 with an arm 65 also integrally 50 turned outwardly from the locking plate 50 and substantially parallel to the handle. A crank arm 66 is formed integrally with the handle and adapted to be connected by means of a link 70 with the analogous operating means of the right hand assembly.

One of the advantages of the disclosed construction is that the two supporting assemblies need not be symmetrically opposite in construction, as is frequently necessary (see Figure 4). They may be identical, except for the lock operating mechanism, which is of course best remotely 65 controlled by the single handle 60 mounted on one of the assemblies. The locking plate 50A of the right hand assembly, being of like construction and having a similar actuating arm 65A, is connected by means of a link 63A to the bellcrank 60A, pivoted on the ear 62A of the right-hand assembly. The downwardly extending arm 66A of the bellcrank is that to which the connecting link 70 is attached to enable actuation 70 of the right hand locking and clamping plate 75 by the handle 60.

Figure 11 shows a construction somewhat modified in that the locking plate is urged toward the track flange by compression spring means 56 trapped beneath heads of the pins 51B, which take the place of the spring washers 56, and may also eliminate the leaf springs 58. 5

What I claim is:

1. Means for adjustably supporting a seat or the like, comprising substantially parallel slidably overlapping track and carriage elements, means 10 for locking said elements against unwanted sliding movement and for clamping them together, comprising a combined clamping and dogging member carried by one of said elements and movable laterally of the line of sliding movement, a locking portion carried by said member projectable through a portion of and retractible from the other of said elements to prevent longitudinal sliding movement of one element with relation to the other, and a clamping portion 20 carried by said member and frictionally engageable with said other element to press said elements together.

2. Slidable supporting means for a seat or the like comprising plate-like slidably overlapping 25 track and carriage elements, means slidably interconnecting said elements and preventing separation thereof, and means for locking said elements against unwanted sliding movement and for frictionally clamping them together, comprising a combined clamping and dogging plate movably carried by one of said elements, a locking portion carried by said plate transversely projectable through the other of said elements to prevent longitudinal sliding movement of one element with relation to the other, and a clamping portion carried by said plate arranged to press said elements toward one another. 35

3. Means as set forth in claim 1 in which said elements comprise longitudinally extending 40 flange portions, and said combined clamping and dogging member comprises a plate attached to one element and overlapping the opposite side of the other element, the clamping portion of said plate having an angular section inclined 45 with respect to the plane of said element which it overlaps, the locking portion projecting perpendicularly toward said last mentioned element, said toothed portion and clamping portion being simultaneously engageable with and retractible 50 from said last mentioned element.

4. Means for adjustably supporting a seat or the like, comprising substantially parallel and vertical slidably overlapping track and carriage elements, means for securing one of said elements to a support and the other to a supported object, means for locking said elements against unwanted sliding movement and for clamping them together, comprising a combined clamping and dogging member carried by one of said elements and rockable about an axis substantially parallel thereto toward and from the other element, and overlapping said other element, said member having a dogging portion projectible into interlocking engagement with and retractible 65 from said other element to prevent and allow sliding movement of one element with relation to the other, and a clamping portion carried by said member and frictionally engageable with said other element simultaneously with engagement 70 of said dogging portion, to urge said elements together, said dogging portion being selectively engageable with any of a plurality of apertures in said element, roller means for reducing friction between said elements, said member also 75

holding said roller means against unwanted movement.

5 5. Means for adjustably supporting a seat or the like, comprising substantially parallel and vertical slidably overlapping track and carriage
10 elements, means for securing one of said elements to a support and the other to a supported object, means for locking said elements against
15 unwanted sliding movement and for clamping them together, comprising a combined clamping and dogging member carried by one of said elements and rockable about an axis substantially
20 parallel thereto toward and from the other element, and overlapping said other element, said member having a dogging portion projectible into
25 interlocking engagement with and retractible from said other element to prevent and allow sliding movement of one element with relation to the other, and a clamping portion carried by said
30 member and frictionally engageable with said other element simultaneously with engagement of said dogging portion, to urge said elements together, said dogging portion comprising a longitudinally disposed bodily swingable plate, pin means fixed to one of said elements and supporting said plate, roller means rotatably carried by said same pin means and engageable with the other element to reduce friction between the elements, and a clamping portion carried by said
35 plate and engageable with the roller means to hold the same when the plate is in locking position.

6. Means for adjustably supporting a seat or the like, comprising substantially parallel and vertical slidably overlapping track and carriage
40 elements, means for securing one of said elements to a support and the other to a supported object, means for locking said elements against unwanted sliding movement and for clamping
45 them together, comprising a combined clamping and dogging member carried by one of said elements and rockable about an axis substantially parallel thereto toward and from the other element, and overlapping said other element, said member having a dogging portion projectible into interlocking engagement with and retractible from said other element to prevent and allow sliding movement of one element with relation to

the other, and a clamping portion carried by said member and frictionally engageable with said other element simultaneously with engagement of said dogging portion, to urge said elements together, said dogging portion comprising a longitudinally disposed bodily swingable plate depending from said carriage element and overhanging the track element, pin means located at either end of said carriage element and supporting said plate for movement to and from engagement with the track element, roller means rotatably carried by said pin means and rollably engageable with the track element to reduce friction, a series of abutment portions formed in said track element and selectively engageable by said dogging portion, said plate also having a clamping portion urging said pin and thereby the carriage element in a desired direction with respect to the track element to prevent relative movement between such elements.

7. Means for adjustably supporting a seat or the like, comprising substantially parallel and vertical slidably overlapping track and carriage elements, means for securing one of said elements to a support and the other to a supported object, means for locking said elements against unwanted sliding movement and for clamping them together, comprising a combined clamping and dogging member carried by one of said elements and rockable about an axis substantially parallel thereto toward and from the other element, and overlapping said other element, said member having a dogging portion projectible into interlocking engagement with and retractible from said other element to prevent and allow sliding movement of one element with relation to the other, and a clamping portion carried by said member and frictionally engageable with said other element simultaneously with engagement of said dogging portion, to urge said elements together, a roller freely journaled on one of said elements and rollable upon the other to reduce friction between said elements, said clamping cam portion carried by said clamping and dogging member being engageable with the roller to prevent unwanted lateral movement thereof.

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