March 7, 1939. LE GRAND S. WHEDON ET AL 2,149,945

MOUNTING FOR SEAT STRUCTURES

Filed Aug. 27, 1935

Fig. 1.

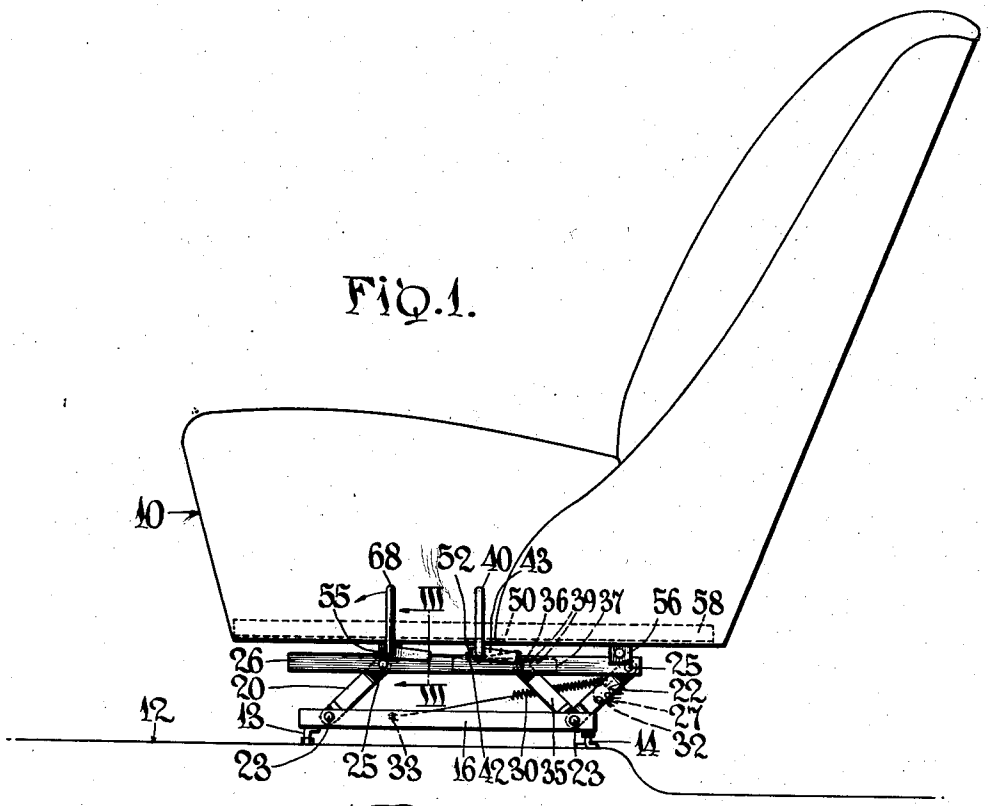


Fig. 2.

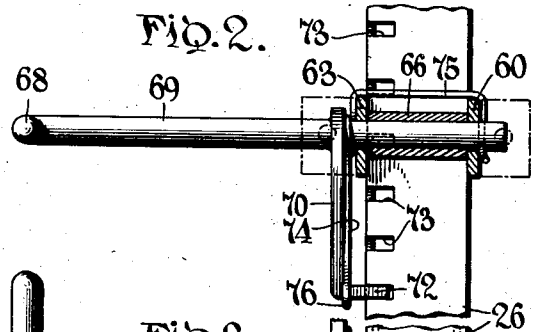


Fig. 3.

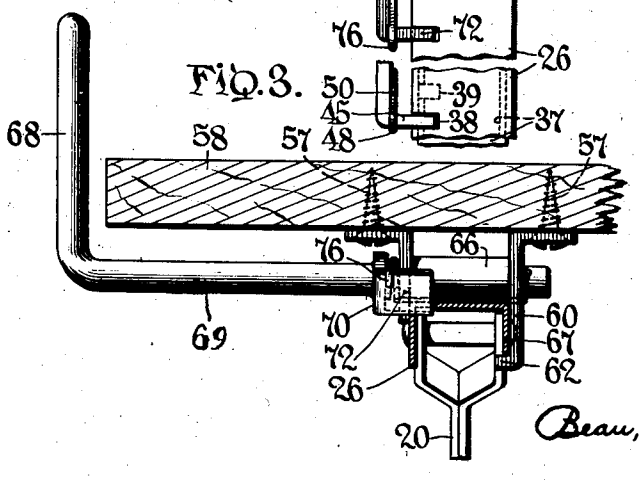


Fig. 4.

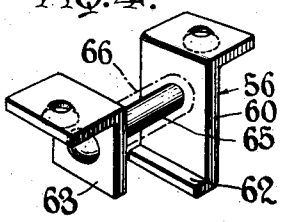
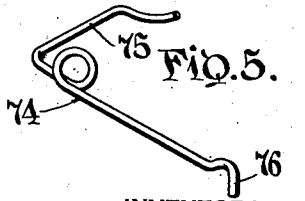


Fig. 5.



INVENTORS
LeGrand S. Whedon &
BY Albert A. Grinnell.
Beau, Brooks, Buckley & Beau.
ATTORNEYS

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MOUNTING FOR SEAT STRUCTURES

Le Grand S. Whedon and Albert A. Grinnell, Medina, N. Y., assignors, by mesne assignments, to Le Grand S. Whedon, Medina, N. Y.

Application August 27, 1935, Serial No. 38,107

5 Claims. (Cl. 155—14)

This invention relates to an adjustable seat installation for vehicles, or other structures, and it has particular relation to an improved supporting and operating mechanism for a seat installation wherein seat supporting members, including the seat bottom, can be relatively moved to conform readily to various positions desired by persons having various heights, weights, or other physical characteristics or preferences, that might require either average or special seating arrangements.

The improved adjusting and supporting mechanism to which the invention is directed involves an improvement over the type of seat installation wherein an occupant while seated can adjust the elements of the seat supporting structure to provide bodily movement of the seat in upward or downward swinging movements, and further the invention provides for substantially direct forward and rearward adjustment with respect to the changing of the horizontal positions of the seat.

One of the principal features of the invention is exemplified in an improved arrangement of guiding and adjusting mechanism for supporting the seat structure, and is further exemplified in means for preventing binding influences that might tend to interfere with uniform action of the mechanical parts of the installation.

Another feature of the invention is exemplified in construction and arrangement of brackets for guiding and connecting seat carrying rails or tracks to the seat structure.

In the drawing:

Fig. 1 is a side elevation of a seat installation constructed according to the invention;

Fig. 2 is a fragmentary plan, with portions shown in section, of locking mechanism and supporting channel for the seat installation;

Fig. 3 is a vertical section, on a larger scale, taken substantially along the line III—III of Fig. 1;

Fig. 4 is a perspective of bracket members for interconnecting portions of the structure; and

Fig. 5 is a perspective of a spring for incorporation with a locking device included in the invention.

In practicing the invention, a seat structure or installation 10 is carried upon a suitable support 12, which can be in the form of a vehicle floor, or the like, and adjacent each side is provided with an upright supporting rod 13 extending through the floor. This supporting rod is duplicated so as to provide one at each side of the seat structure adjacent the forward extremity thereof. Each side of the seat structure toward the rear thereof is also provided with a supporting rod 14 resting upon the floor. The forward end portion of each of a pair of identical channels 16 is pivotally connected to the front rod 13 and the rear end of each of these channels is rigidly secured to the rear rod 14. These rods 13 and 14 are constructed and arranged in the same manner as those similarly arranged and described in our co-pending application Serial No. 34,272, filed August 1, 1935.

Each channel 16 opens upwardly and receives adjacent opposite ends thereof front and rear links 20 and 22, which are composed of relatively thin sheet material stamped to proper shape. The lower ends of the links are secured in the channel 16 by means of bolts 23 passing through them and through the sides of the channel. Similar bolts 25 pivotally secure the upper ends of the links on each side of the seat structure between the sides of a downwardly opening upper channel 26 which is parallel to the lower channel 16.

The rear links 22 are connected rigidly by a rigid transverse brace 27 for the purpose of securing a unitary support for the rear portion of the seat structure without danger of sagging on either side thereof.

One end of a tension spring 30 is connected, as indicated at 32, to the transverse brace and the spring is wound about the brace in such relation as to extend forwardly for connection by means of a hooked end 33 to one of the lower channels 16. It is to be understood that one or more tension springs of this character can be employed in the manner specified in the copending application referred to above. The spring is normally under tension and constantly tends to pivot the links 20 and 22 upwardly and forwardly about the pivotal connections 23.

An adjusting link 35 is pivotally secured at its lower end by means of the pivotal connection 23 that supports the rear link 22 upon the lower supporting channel at one side of the seat structure, and the upper end of the adjusting link is secured by means of a pivot pin 36 in a downwardly opening channel slide 37 which is slidable longitudinally in the upper channel 26 between the pivotal connections 25.

One of the corners of the channel 26 receiving the slide 37 has a slot or notch 38 (Fig. 2) cut therethrough and the chanel slide has a series of slots or notches 39 in one corner thereof, any one of which can register with the slot 38, de-

pending upon the position of the slide as it is moved longitudinally in the channel.

A locking lever 40 is rotatably mounted in a bracket 42 provided rigidly on the upper channel 26 and an angular arm 43 carried as a rigid part of the lever is provided with an end finger 45 (Fig. 2) for engagement with registering slots 38 and 39 in various positions of adjustment of the slide in the channel 26. One end 48 of a spring 50 connected to the lever 40 rests upon the finger 45 and the other end 52 of the spring rests upon the bracket 42. Thus the spring constantly urges the finger 45 in the direction of its engagement with the slots 38 and 39.

Front and rear bearing brackets 55 and 56 that are rigidly secured, as indicated at 57, to the lower surface of a seat bottom frame 58 at each side thereof provide for forward and rearward adjustment of the seat bottom frame, together with a seat assembly incorporated therewith.

Each rear bracket 56 includes a downwardly extending bracket member 60 having a lower horizontal flange 62 formed thereon, and a cooperating downwardly extending bracket member 63 is parallel to the first member 60. A bolt 65 having a roller 66 mounted thereon between the members 60 and 63 is supported upon, and is rotatable along, the upper surface of the channel 26. The horizontal flange 62 engages underneath one of the side flanges 67 of the downwardly opening channel 26 to prevent upward displacement of the bracket from the channel.

Each front bracket 55 is constructed in substantially the same manner as the rear bracket 56 and hence, corresponding reference characters are employed to designate like parts. However, instead of the bolt 65, the front bracket 55 on one side of the seat is provided with an adjusting lever 68 a horizontal portion 69 of which is disposed in the same relation to the bracket as the bolt 65 and is provided with a roller 66 identical with the roller 66 carried by the bolt 65 and for the same purpose. The lever 68 is provided with an integral arm 70 extending at an angle thereto and a finger 72 formed on the end of the arm normally engages in notches 73 formed along an upper corner of the channel to lock the seat against forward or rearward movement relative to the channels.

One end 76 of a spring 74 wound about the horizontal portion of the lever 68 rests upon the finger 72 and the other end portion 75 of the spring is anchored behind the adjacent bracket members 60, 63. Thus the spring 74 constantly urges the finger 72 in the direction of engagement with one of the notches 73 to facilitate horizontal adjustment of the seat structure.

From the foregoing description it will be apparent that the seat can be adjusted horizontally upon the rollers 66 and guided forwardly and rearwardly by the bracket members 60 and 63, and that the parts can be locked in various relative positions by manipulating the lever 68 to adjust the finger 72 in the notches 73. This adjustment can be accomplished in addition to the upward and forward adjustment upon the links 20 and 22 which can be locked in various positions by the locking lever 43 in the manner previously described.

Although only one form of the invention has been shown and described in detail, it will be apparent to those skilled in the art that the invention is not so limited, but that various changes can be made therein without departing from the spirit of the invention or from the scope of the appended claims.

We claim:

1. In a seat structure, a seat bottom, bracket members secured to the forward and rearward portions of the seat bottom adjacent opposite sides of the latter, said bracket members having parallel substantially vertical walls adjacent forward and rearward portions of the seat bottom, parallel frame guide members arranged adjacent opposite sides of the seat bottom and extending forwardly and rearwardly underneath the latter, the parallel vertical walls of the brackets adjacent each side of the seat bottom slidably engaging opposite sides of one of the guide members both forwardly and rearwardly thereof, bracket portions both forwardly and rearwardly of the seat bottom being formed to engage underneath portions of the guide member adjacent each side of the seat bottom, roller bearings mounted in the bracket members and supporting the seat bottom upon the guide members for forward and rearward movement thereon, one of the roller bearings having an axial support extending into the form of a lever, a locking arm on the lever, one of the guide members and said arm having inter-engaging locking elements for releasably securing the seat bottom in various positions longitudinally of the guide members.

2. In a seat structure, a seat bottom, bracket members secured to the forward and rearward portions of the seat bottom adjacent opposite sides of the latter, said bracket members having parallel substantially vertical walls adjacent forward and rearward portions of the seat bottom, parallel frame guide members arranged adjacent opposite sides of the seat bottom and extending forwardly and rearwardly underneath the latter, the parallel vertical walls of the brackets adjacent each side of the seat bottom slidably engaging opposite sides of one of the guide members both forwardly and rearwardly thereof, bracket portions both forwardly and rearwardly of the seat bottom extending underneath portions of the guide member adjacent each side of the seat bottom, bearing members mounted in the bracket members and supporting the seat bottom upon the guide members for forward and rearward movement thereon, one of the bearing members having a lever extension and being pivotally carried in one of the guide members, a locking arm rigid with said lever extension, one of the guide members and said arm having interengaging locking elements for releasably securing the seat bottom in various positions longitudinally of the guide members.

3. In a seat structure, a pair of frame members, means for supporting the frame members, a front pair of upwardly extending links having their lower portions pivoted upon the frame members, a seat bottom having its front portion pivotally supported upon the upper portions of the front pair of links for movement therewith, a rear pair of upwardly extending links having their lower portions mounted upon said frame members and having their upper portions pivotally supporting a rear portion of the seat bottom and arranged in substantial parallelism with respect to the front pair of links, a bar rigidly connecting the rear links, a coil spring having one end connected to one of said frame members and having its other end portion wound around and connected to said connecting bar for imparting force to the rear links tending to pivot them

upwardly about their lower pivotal connections.

4. In a seat supporting unit, a channel member having forward and rearward extremities, a guide device including spaced legs interfitting in guided relation with the channel member and movable longitudinally along the latter, means for connecting the guide device to a seat bottom, a plurality of link arms having upper end portions pivotally carrying the end portions of the channel member, supporting means pivotally carrying the lower end portions of said arms, an adjusting device connected to the channel member and to said supporting means for selectively locking the arms and channel member in various relatively pivoted positions, and a locking mechanism connected to the channel member and to the guide device for selectively locking the guide member with reference to the channel member.

5. In a seat supporting unit, a downwardly opening upper channel members having forward and rearward extremities, a guide device including spaced legs interfitting in guided relation with said channel member and movable longitudinally along the latter, means for connecting said guide device to a seat bottom, a plurality of substantially parallel arms having upper end portions pivotally carrying the forward and rear end portions of the channel members, a lower channel member opening upwardly in opposed relation directly below said upper channel member, supporting means pivotally carrying the lower end portions of said arms in said lower channel member, an adjusting device connected to said upper channel member and to said lower channel member for selectively locking the arms and channel members in rigid relation, a locking mechanism connected to said upper channel member and to the guide device thereon for selectively locking the latter guide device with reference to the latter channel member, and supporting means pivotally carrying the forward ends of the lower channel member whereby all of said channel members, arms and guide members are tiltable as a unit.

LE GRAND S. WHEDON.
ALBERT A. GRINNELL.