

April 3, 1951

W. B. DEAN
ADJUSTABLE SEAT

2,547,446

Filed March 17, 1945

2 Sheets-Sheet 1

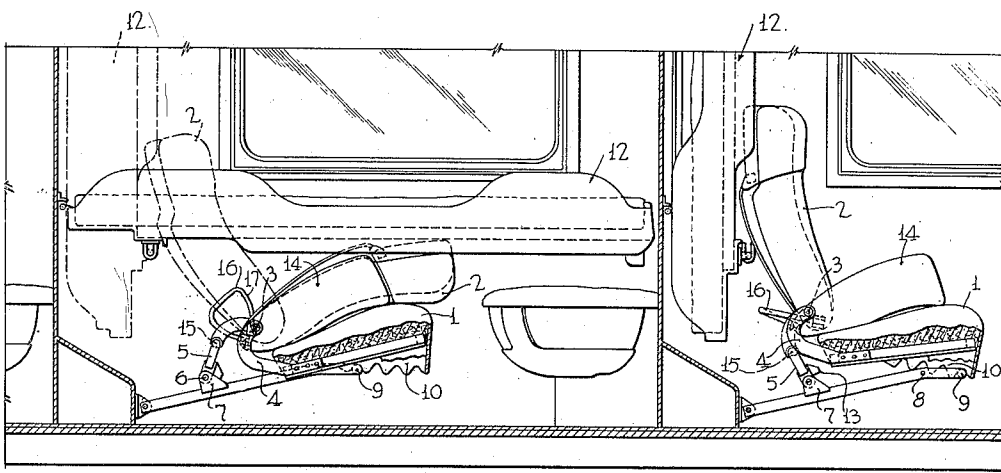


FIG. 1

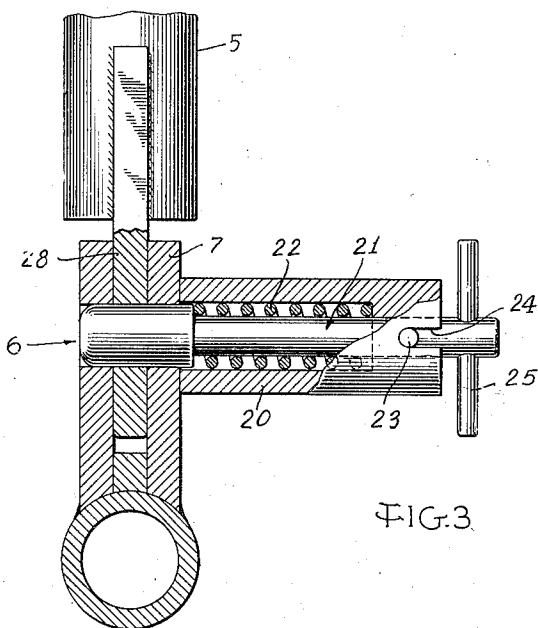


FIG.3.

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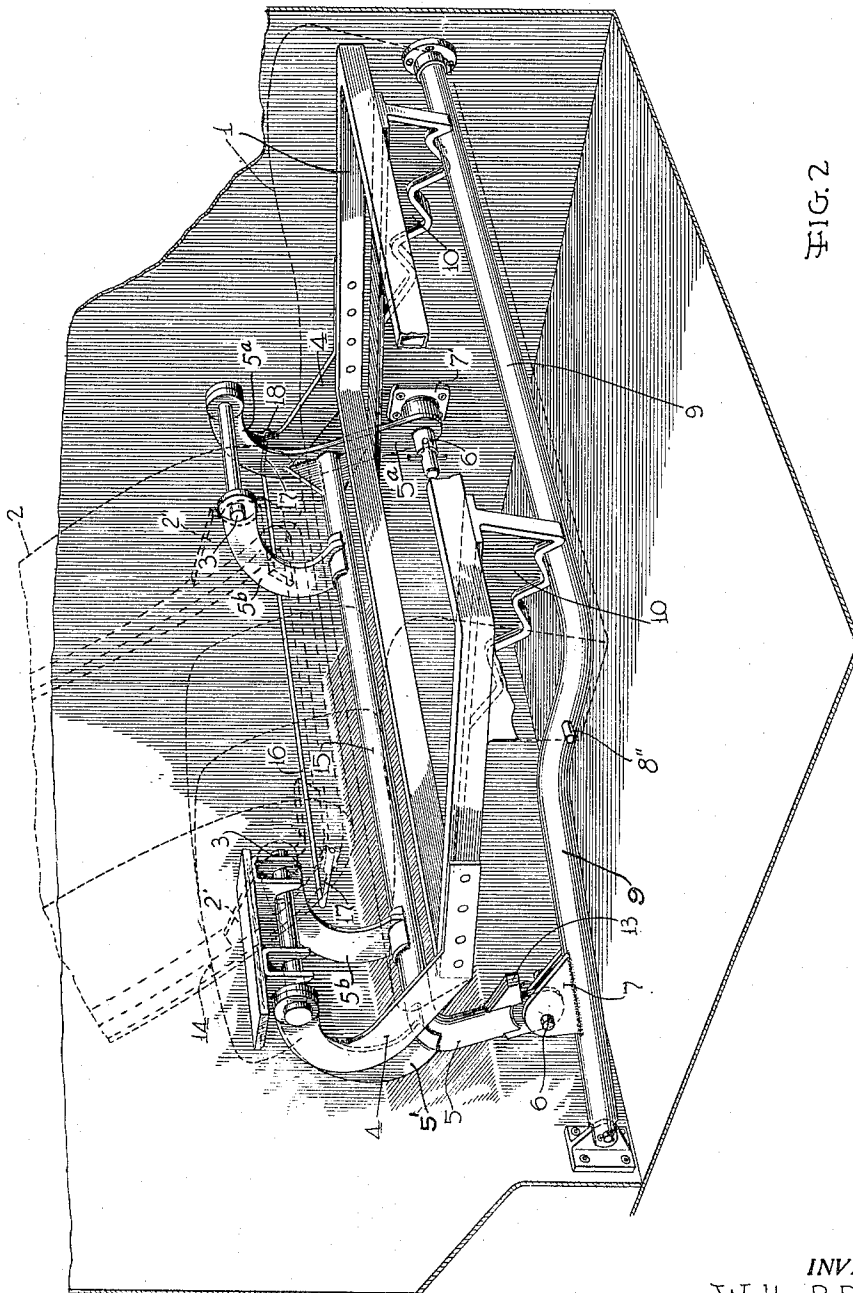


FIG. 2

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ADJUSTABLE SEAT

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2 Claims. (Cl. 155—116)

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This invention relates to adjustable seats, particularly to seats adapted to be used in railway cars, and has for an object the provision of improvements in this art. The adjustable seats to which the invention relates are often also called reclining seats or chairs.

One of the particular objects of the invention is to provide a seat having an adjustable cushion and back capable of assuming a number of comfortable positions.

Another object is to provide simple, easily operated mechanism for adjusting the seat.

Another object is to provide a cushion which can be readily raised to provide access to the space therebelow.

Another object is to provide seat adjusting means which maintains the front edge of the seat at approximately constant height in all adjusted positions.

Another object is to provide anchorage means which permits quick replacement of the entire seat.

Another object is to provide support for the seat from the side walls, leaving the floor space clear.

The above and other objects of the invention will be apparent from the following description of an exemplary embodiment, reference being made to the accompanying drawings, wherein:

Figure 1 is a vertical longitudinal section through several adjacent compartments, showing the accessories in different positions in different compartments;

Figure 2 is a perspective view of the seat supporting framework with the seat shown in phantom lines; and

Figure 3 is a perspective view of a frame joint connection.

The chair, as particularly shown in Fig. 1 of the drawings, comprises a seat 1 and back 2, the upper portion of the back being unsecured. As shown in the right hand portion of Fig. 1, the back 2 is adapted to rest upon a fixed support, such as the underside of the bed 12, when in its upright position. The seat 1 has, under its forward portion, a pair of webs 10 having suitable notches formed therein, for slidable engagement with the rod 9, the latter being fixed to supporting elements such as the walls of a railway compartment by means of suitable brackets 8'.

The rear portion of the seat and lower portion of the back are pivotally connected together and are supported by a linkage frame which is likewise pivotally mounted, and is adapted both to carry the lower end of the back downward and forward as the seat is pulled forward, and to

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maintain a substantially constant relationship between the seat and the back regardless of the angle of adjustment. This linkage assembly comprises a horizontally positioned bar 15 which has, at one end thereof, a portion 5 bent downward at right angles so as to extend vertically downwardly and is pivotally connected to a bifurcated bracket 7, the latter being welded or otherwise being permanently secured to the rod base 9 by means of a pivot pin 6. An upwardly and forwardly curved arm 5' is rigidly secured to the vertical extension 5 of rod 15 by means of welding or the like. An arm 5a is rigidly secured to the other end of rod 15 in any suitable manner, the lower portion of arm 5a being pivotally connected to a wall bracket 7' by means of a pivot pin 6. Arm 5a is also curved upwardly and forwardly as indicated in the drawings. A pair of inner arms 5b are welded or otherwise secured to the rod 15 and are curved in a manner similar to the upper portion of arms 5' and 5a. A pair of horizontally extending pivot pins 3 are positioned between the end portions of the arms 5a and 5b, and arms 5' and 5b respectively. Arm rests 14 are mounted on said pivot pins 3.

The seat 1 is slidably mounted on the base rod 9 as previously indicated, and the rear portion is secured to the linkage assembly by means of arms 4 which are rigidly connected to the lower rear portion of seat 1. The arms 4 extend at first rearwardly and upwardly from the seat and then are curved forwardly as illustrated, their upper ends being secured to the aforementioned pivot pins 3.

The reason for curving arms 4 and arms 5, 5', 5a and 5b as described is principally to provide depth of cushioning in the area of adjacency between the seat 1 and back 2 while at the same time providing transverse rigidity for the linkage assembly. If the links did not curve to the rear, bar 15 would have to pass through an important cushion support area.

The upper end of the back 2 leans back against a fixed support and is slidable therewith as previously indicated and its lower portion is mounted on the inner ends of pins 3 by means of suitable sockets (not shown) in the frame of the said back 2. The back is urged rearwardly at all times by a torsion spring rod 16 which is secured to the compartment wall at 18 and to the lower end of the back 2 at 17.

It is to be noted that the pivot axis of pins 3 is above the lower end of the back 2 and as a result, when the linkage assembly is pivoted forward to carry the back 2 into a more reclined position, the lower end of the back does not open

away from the rear end of the seat but rather maintains a firm supporting position.

When the bed 12 is in use, as shown in the left hand view of Fig. 1, the back 2 is folded downwardly in contact with the seat 1 about the pivot pins 3, thereby providing ample space to position the bed 12 in a suitable horizontal plane. When the bed 12 is not in use, it may be raised to a vertical position as shown in the right hand side of Fig. 1, and the back 2 will rise accordingly by the spring action of rod spring 16. In the position shown in the right hand side of Fig. 1, the chair is in its normal upright position. When it is desired to position the seat or chair in a reclining position, the forward edge of the seat 1 may be raised to disengage the notches of the webs 10 from the base rod 9 and thereafter the seat 1 may be pulled forwardly in slidable relation with the rod 9 so as to assume the position shown in the left hand portion of Fig. 1.

The seat 1, back 2 and linkage assembly may be removed from the compartment as a single unit and are only connected to the supporting structure by pivot pins 6. A suitable adaptation for such pivoted supporting structure is shown in Fig. 3 and includes a bifurcated bracket 7, perforated to receive pin 6 which also passes through a perforation in lower extension 28 of arm 5. The pin 6 is mounted on the end of a plunger 21 which is slidable within a tubular spring housing 20 mounted on one side of bifurcated bracket 7. A coiled compression spring 22 is located within housing 20 and bears against the inner end of pin 6, urging it outwardly. A stop pin 23, is mounted on plunger 21, when seated in slot 24, serves to limit plunger 21 at the point where pin 6 is fully engaged. A cross pin 25 is mounted on the end of plunger 21 to provide a handle for disengaging the same.

The forward movement of the linkage assembly is limited by a stop 13 mounted on arm 5, and the rearward motion of the seat 1 is limited by a pin 8'' mounted on bar 9. The pin 8'' engages the lower portion of the seat 1 when in its rearmost position as shown by dotted lines in Fig. 2.

Having thus described and disclosed a preferred embodiment of my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A vehicle recliner chair comprising a rigid base, a seat mounted on said base in sliding re-

lationship therewith, a back, a stationary support for the upper portion of said back, said back being slidable relative to said support, and means for supporting the lower portion of said back adjacent to the rear portion of said seat and the rear portion of said seat on said base so that, when said seat is moved forwardly relative to said base, the lower portion of said back will move downwardly and forwardly without creating a gap between said seat and back, said means including an arm rigidly secured to said seat and extending upwardly from the rear portion thereof, the upper portion of said arm being pivotally connected to said back at a point above the bottom portion thereof so as to suspend the rear portion of said seat under the lower portion of said back, and a link structure having a lower end connected to said base about a fixed pivot and its upper end pivotally connected to said back at the pivot axis of said arm and back connection, whereby said back will move downwardly and the lower portion thereof will move forwardly when said seat is moved forwardly relative to said base.

2. A vehicle recliner chair as defined in claim 1 wherein said arm and said link are curved forwardly adjacent their upper ends.

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