G. M. OGLE.

CAR SEAT.

APPLICATION FILED SEPT. 28, 1915.

1,240,244.

Patented Sept. 18, 1917.

3 SHEETS—SHEET 1.

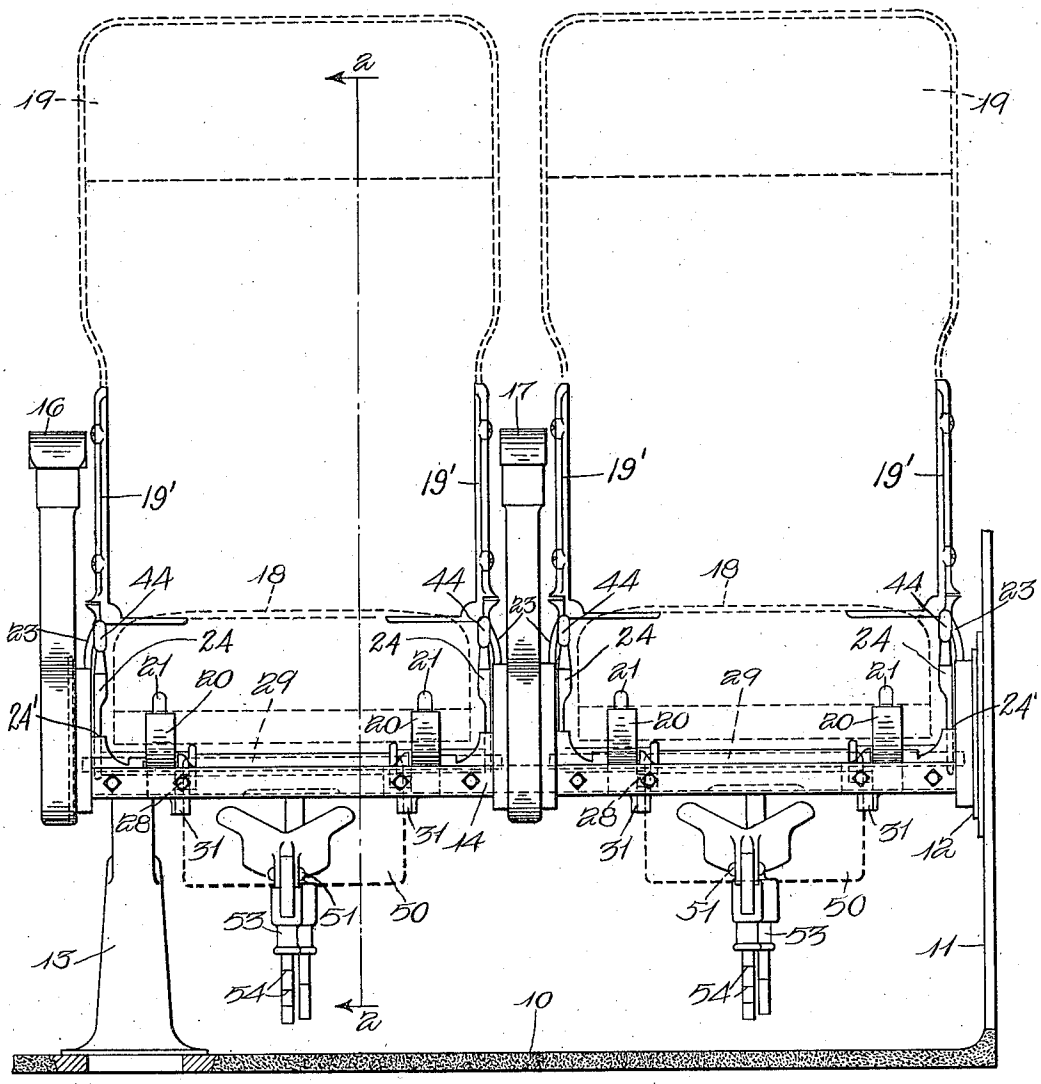


FIG. 1.

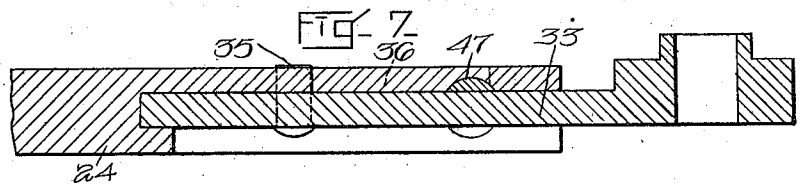


FIG. 7.

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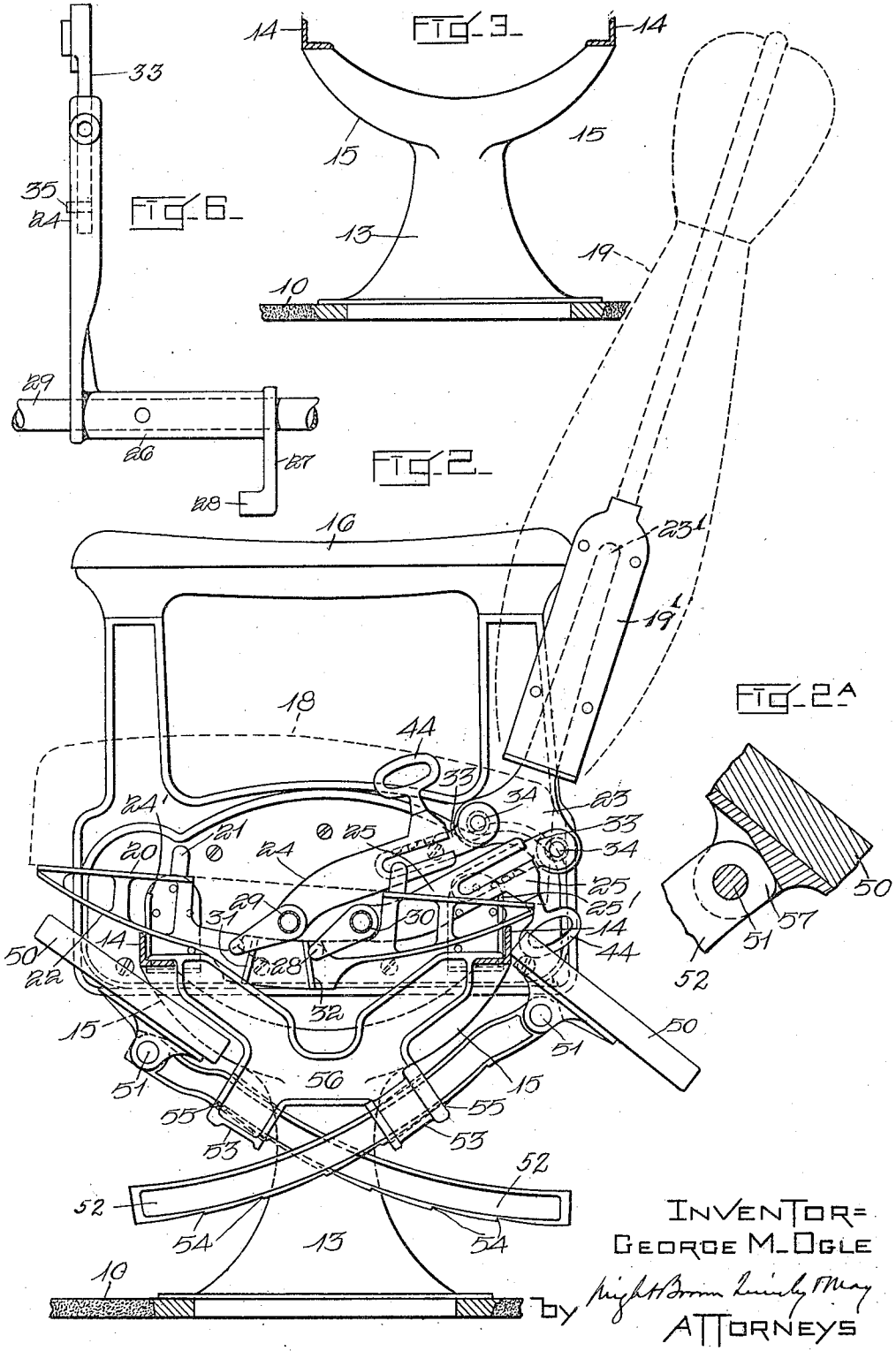
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3 SHEETS—SHEET 2.



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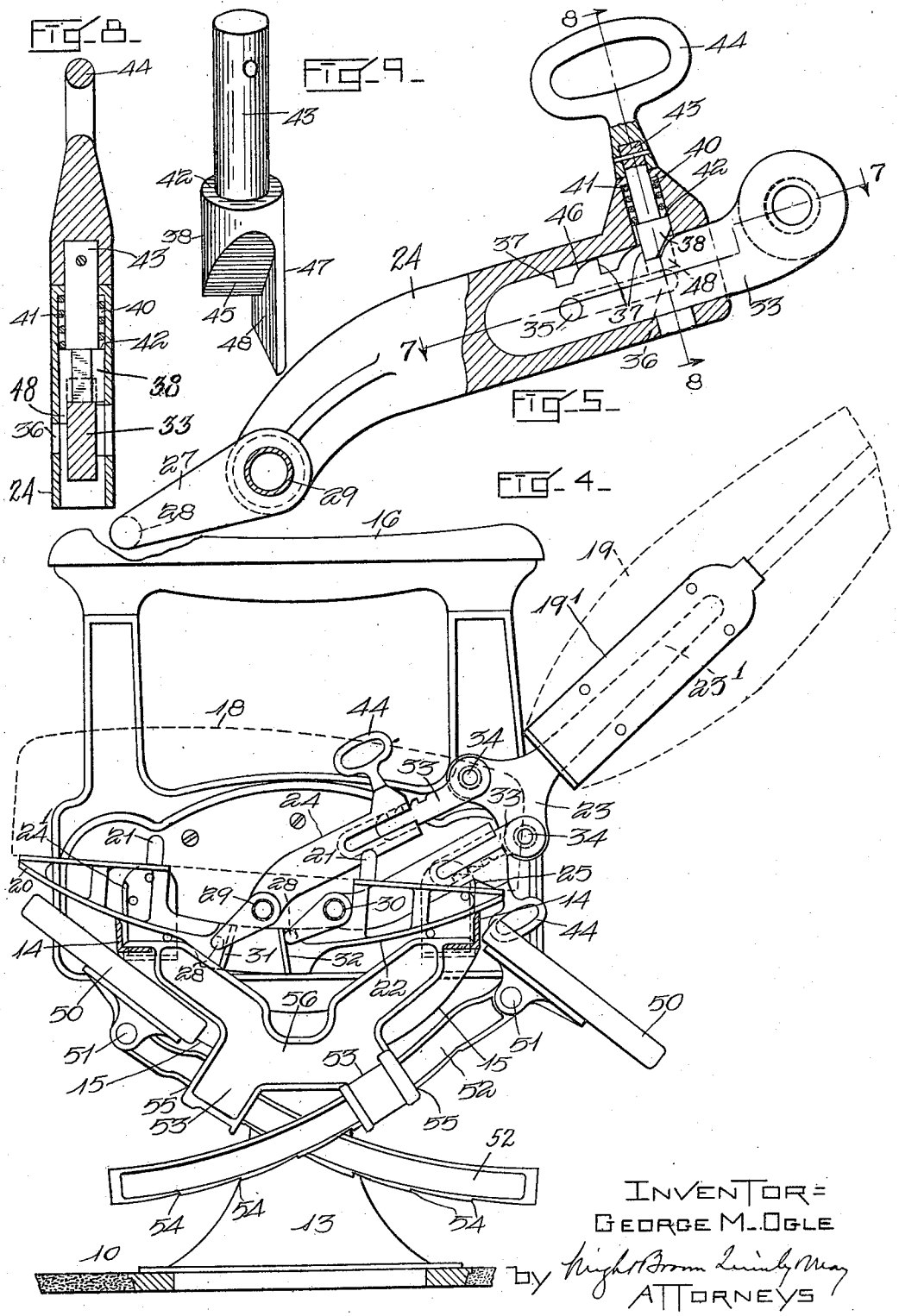
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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CAR-SEAT.

1,240,244. Specification of Letters Patent. Patented Sept. 18, 1917.

Application filed September 28, 1915. Serial No. 53,045.

To all whom it may concern:

Be it known that I, GEORGE M. OGLE, a citizen of the United States, and resident of Wakefield, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Car-Seats, of which the following is a specification.

This invention relates to car seats of the type shown by U. S. Letters Patent to Frederick, 971,983, October 4, 1910, and the object of the present invention is to provide a seat of the character stated with means for sustaining the back-rest at any one of a plurality of inclinations.

For the sake of convenience of description, the term "car seat" is hereinafter used to designate the entire structure, the term "seat portion" is used to designate the portion on which the occupant sits, and the term "back" is used to designate the back-rest. In a car seat of the type to which this invention relates, the back is movable from front to rear to enable the occupant to face toward the front or rear of the car, and the seat portion is so mounted that it will tip toward the back in whichever position of use the back is disposed. The back, upon being moved to reverse the facing direction of the seat, assumes in every case a predetermined position or inclination which for convenience is hereinafter designated the "normal" position or inclination, but the back can be adjusted in every case from the said normal position or inclination to a reclining position or inclination, regardless of the direction in which the seat faces. The structure which sustains the back in "normal" position or "reclining" position is such that if, while the back is in a reclining position it be moved to reverse the facing position of the seat, it will automatically resume its normal relation. Consequently, upon the completion of every reversing operation, the back will automatically take its normal position or inclination.

Of the accompanying drawings, which illustrate the present invention as applied to a duplex car-seat of the character stated:

Figure 1 represents a front elevation of the frame structure,—the backs, seat portions, and foot-rests being indicated by dotted lines.

Fig. 2 represents a vertical section as indicated by line 2—2 of Fig. 1, the back and seat portion being here also indicated by dotted lines, and the back being shown in one of its two normal positions.

Fig. 2ª represents a sectional view, on a larger scale, of the pivotal connection between one of the combined foot and leg rests and its supporting member.

Fig. 3 represents an elevation of the aisle standard of the frame structure.

Fig. 4 is a view similar to Fig. 2, excepting that the back is in a reclining position.

Fig. 5 represents an elevation, partly in section, of one of the operating levers which connect the back and the rockers of the seat portion. This figure includes one of the coöperative devices by which the back is adjusted to different angular positions.

Fig. 6 represents an elevation of one of said operating levers.

Fig. 7 represents a section through the structure intersected by line 7—7 of Fig. 5.

Fig. 8 represents a section through the structure intersected by line 8—8 of Fig. 5.

Fig. 9 represents a perspective view of one of the retaining pawls of the back-adjusting means.

The same reference characters indicate the same parts wherever they occur.

Before describing the improvements and details which constitute the present invention, I will describe the features of the car-seat structure which are well known.

Referring first to Fig. 1,—the floor of the car is indicated at 10. According to this view, the aisle end of the seat is at the left and the wall end is at the right. The wall at the right is indicated at 11. In the present instance, the car seat embodies a duplex construction, by which I mean that it includes two separate and distinct seat portions and two separate and distinct backs. The seat portions and backs are, however, mounted upon a single supporting structure, and they are capable of being reversed and otherwise adjusted independently of each other. It will be understood, however, that

the scope of the invention is not limited to the duplex arrangement, but that it is applicable to a single seat and back capable of accommodating two or more persons.

The main supporting structure includes a wall fixture 12, an aisle standard 13, and two parallel rails 14, 14. These rails, as shown by Figs. 2 and 3, are L-shaped in cross section. One end of each rail is supported by the wall fixture 12, and the other end is supported by the aisle standard 13, the latter having two branches 15, 15 for this purpose. An arm-rest is indicated at 16 at the aisle end, and an arm-rest indicated at 17 is arranged substantially midway between the wall 11 and the aisle end. The two seat portions are indicated at 18, 18, and the two backs are indicated at 19, 19. The two seat units are alike in the matter of structure and arrangement, and a description of the details of one will be sufficient.

Each seat portion is arranged upon a pair of rockers 20, 20, the latter having upwardly projecting dowel pins 21, and the seat portion having suitable sockets (not shown) to receive them, whereby the seat portion is kept in the desired relation to the rockers. The under surface 22 of each rocker is convex, for the purpose of causing the seat portion to tip toward the rear with reference to the facing direction. Each rocker 20 rests upon the two rails 14, 14 and is movable longitudinally thereon to cause the tipping movement hereinafter described.

Each back 19 is arranged between and supported by two holders 23, 23. It is desirable to have the backs readily detachable from their holders 23 for cleaning and repairing purposes, and for this reason each back is provided with a pair of socket members 19′ adapted to slip onto a pair of holders, the latter being provided with elongated portions 23′ which fit in said sockets. Each back may be detached by simply lifting it from the portions 23′. This does not affect in any way the adjusting means, hereinafter described, by which the inclination of the seat is varied, such means being separate or remote from the back. Each holder is carried by a pair of arms 24, 25. The construction of one of these arms is shown by Figs. 5 and 6. The arm includes a sleeve portion 26 and a lower portion 27 at the outer end of which is a boss 28. The two arms 24 are arranged upon and pinned or otherwise affixed to a rockshaft 29, and the two arms 25 are likewise arranged upon and affixed to a rockshaft 30. There are, therefore, two rockshafts and two pairs of arms 24 and 25 for each back 19. The rockshafts for one back are movable independently of those of the other back.

Each rocker 20 has a flange 31 and a flange 32 which coact respectively with the bosses 28 on the lever portions 27 in such manner that as the back is moved to the left from the position shown by Fig. 2 the lever portions of arms 24 will move the rockers 20 to the right, and as the back is moved to the right the lever portions of arms 25 will move the rockers to the left.

For the purposes of the present invention the arms 24 and 25 are provided with slidable extension members 33 so that the aggregate effective length of the arms may be varied. The two extension members at one side of the back are connected to the holder 23 by pivot members 34, 34, and those at the other side of the back are likewise connected by pivot members to the other holder 23. The extensions are movable longitudinally in their respective arms, the latter being provided with suitable sockets therefor as shown by Figs. 5 and 7. Each extension carries a pin 35, and the latter is arranged in a slot 36 formed in the arm. The purpose of this pin-and-slot connection is to prevent the extension from being withdrawn from its socket, while permitting a limited relative movement of the extension member in its socket. Each member 33 is provided with a series of shoulders 37 as the result of forming ratchet teeth thereon. A bolt or stop 38 (Fig. 9) is arranged in a socket 40 in the arm and is adapted to coact with any one of the shoulders 37 according to the relative position occupied by the extension members 33. The shoulders and stop member are arranged to hold the extension member against outward movement, and a helical compression spring 41 is arranged in the socket and bears against a shoulder 42 of the stop member to keep the latter in coactive engagement with the extension member as shown by Figs. 5 and 8. The shank 43 of the stop member projects beyond the lever and is provided with a handle 44 by which it may be retracted to release the extension member. It is preferable to have the extension member 33 capable of being moved inwardly without a special operation for retracting the stop member, and for this reason the stop member is formed with an inclined surface 45 and the extension member is formed with inclined surfaces 46, the latter being adapted to displace the stop member as the extension member moves inwardly. For the purpose of preventing rotative movement of the stop member about the axis of its shank it is formed with an ear 47 which has a flat surface 48. This ear laps the member 33 as shown by Figs. 7 and 8, the flat surface 48 being in contact with the extension member.

The back as shown by Fig. 2 is in its "normal" position, that is, the position of inclination which it would normally assume in consequence of being shifted to reverse the facing direction of the seat. The arms 25 are resting upon stops 25′. The several ex-

tension members 33 are in their respective arms as far as they will go and are locked by their respective bolts or stop members. Assuming now that it should be desired to place the back in a "reclining" position, as shown by Fig. 4, the two handles 44 carried by the arms 24 may be pulled upwardly to release the extension members 33 of the arms 24. The back is thus released so that it may swing about the pivots 34 of the arms 25, which pivots, it will be observed, are at the rear of the seat. The back may therefore tilt toward the rear without any appreciable lowering of that portion which sustains the back of the occupant. If it is desired to have the maximum degree of inclination, the extension members 33 may be permitted to have the maximum degree of extension movement permitted by the pins 35 and slots 36. On the other hand, if it should be desired to sustain the back at an intermediate angle, the extensions 33 may be caught at an intermediate position by the stop members 38 coacting with the intermediate shoulders 37. It will be observed that the handles 44 are arranged in a position where they may be easily pulled up by the occupant of the seat.

Assuming now that the back is in a reclining position as shown by Fig. 4 and it is desired to reverse the facing direction of the seat,—the change is effected by moving the back to the left. The first stage of such movement will be simple oscillatory movement about the pivots 34 of the arms 25 in consequence of which the extension members of the arms 24 will be restored to their normal positions. It thus follows that the back will take its normal position whenever the facing direction of the seat is reversed, regardless of whether the starting position of the back is "normal" or "reclining." Continued movement of the back to the left will cause the arms 24 and 25 to swing to the left until the arms 24 engage stops 24'. When the back has been shifted to the left the handles 44 of the arms 25 take the same position relatively to the occupant as the handles of the levers 24 have when the back is at the right; and if the back, while at the left, is released by drawing the handles of the levers 25, the back may tilt about the pivots 34 of the arms 24. Thus when the back is set to face the seat in one direction one pair of pivots 34 provide the axis of reclining movement, and when the back is set to face the seat in the opposite direction the other pair of pivots 34 provide the axis of reclining movement.

Another feature of the present car seat is an improved rest capable of being used either as a foot-rest or as a leg-rest. Each seat unit is provided, in the present instance, with two rests 50, 50. These are alike in all respects and a description of one will be sufficient. The rest is connected by a pivot member 51 to a curved bar 52. This bar extends loosely through a guide or bearing 53 and is capable of moving longitudinally therein. The lower side of the bar 52 is provided with a series of shoulders 54, the surface running from each of said shoulders to the next being inclined with relation to the longitude of the bar after the fashion of ratchet teeth. Any one of the shoulders 54 may be engaged with the guide 53 at the edge indicated at 55. The two guides 53 for the two rests of one seat unit are, in the present instance, formed upon a single hanger 56, and the latter is supported by the two rails 14, 14.

In each of Figs. 2 and 4 the rest 50 at the left is folded so as to be out of the way and not in position for use. That at the right is in position to serve as a foot-rest for the occupant of the next seat. In order to move the rest from its position of disuse to its position of use, it is first drawn forwardly and upwardly a sufficient distance to carry its rear lower edge beyond the adjacent rail 14. The rest may then be tilted about its pivot 51 to lower its forward edge and raise its rear edge, such tilting movement being limited by the corner 57 (Fig. 2[a]) of the bar 52.

The rest at the rear of each seat is usable as a foot-rest by the occupant of the seat behind, and at the same time the rest at the front of each seat is capable of being used as a leg rest by the occupant of such seat. The bars 52, being inclined and being capable of considerable longitudinal upward movement, are capable of supporting the rests at any height which would be required of a leg-rest, and the bars 52 are so curved that the supporting surfaces of the rests approach a horizontal position as the rests are raised.

Having thus explained the nature of my said invention and described a way of constructing and using the same, although without attempting to set forth all the forms in which it may be made or all the modes of its use, what I claim is:

1. A car seat structure comprising a seat-supporting frame, a pair of back-supporting members, a pair of oscillatory arms at each side of said frame for carrying said back-supporting members forward and back to reverse the facing direction of the seat, and means forming double connection between each of said back-supporting members and the adjacent pair of said oscillatory arms, to sustain the back-supporting members, said means including double pivotal connection with the back-supporting member and including adjustable elements arranged to vary the angle or inclination of the back-supporting member.

2. A car seat comprising a seat portion, a

back, and back-supporting means arranged to carry said back across said seat portion to reverse the facing direction of the seat, said means including oscillatory arms, adjustable extension members carried thereby, and latching devices arranged to latch said extension members automatically to said arms, said back being pivotally connected to and supported by said extension members.

3. A car seat structure comprising a seat-supporting frame, and back-supporting means pivotally connected to said frame and arranged to carry a back across the latter to reverse the facing direction of the seat, said means including two pairs of oscillatory arms, slidable members each carried by one of said arms, a pair of back-holders each carried by and pivotally connected to a pair of said slidable members, and connections arranged to hold said slidable members in various positions of adjustment relatively to said arms, to afford angular adjustment of the back.

4. A car seat comprising a seat portion, two pairs of oscillatory arms arranged respectively at the sides of said seat portion, two pairs of sliding members each carried by one of said arms, a pair of coöperating holders each pivotally connected at separate points to a pair of said sliding members, a back mounted upon said holders, and two pairs of latching members each arranged to coöperate with one of said arms and with one of said sliding members to sustain said holders at various angular positions relatively to said arms.

In testimony whereof I have affixed my signature.

GEORGE M. OGLE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."