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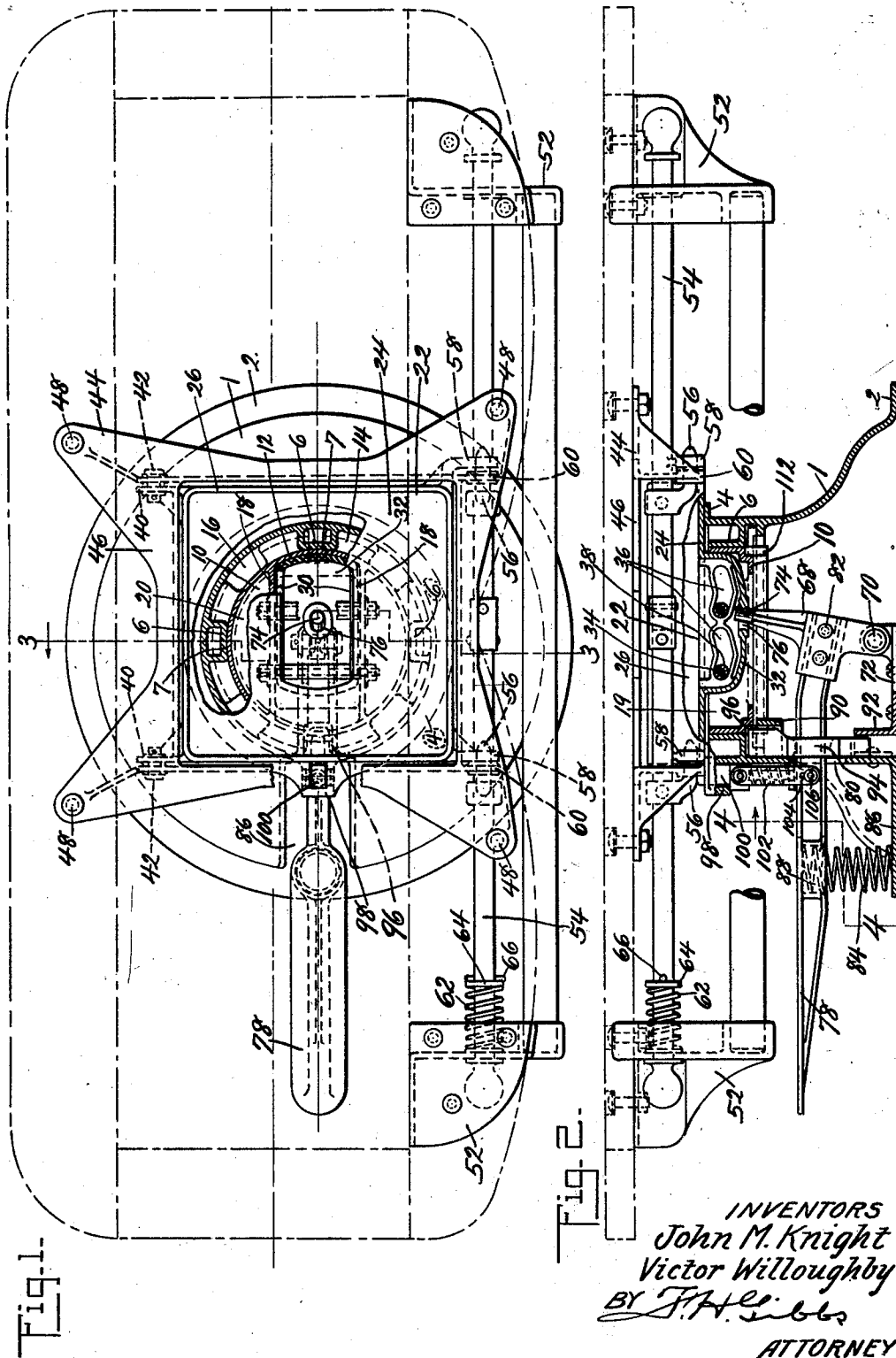
J. M. KNIGHT ET AL

1,784,527

CAR SEAT

Filed Aug. 18, 1928

3 Sheets Sheet 1



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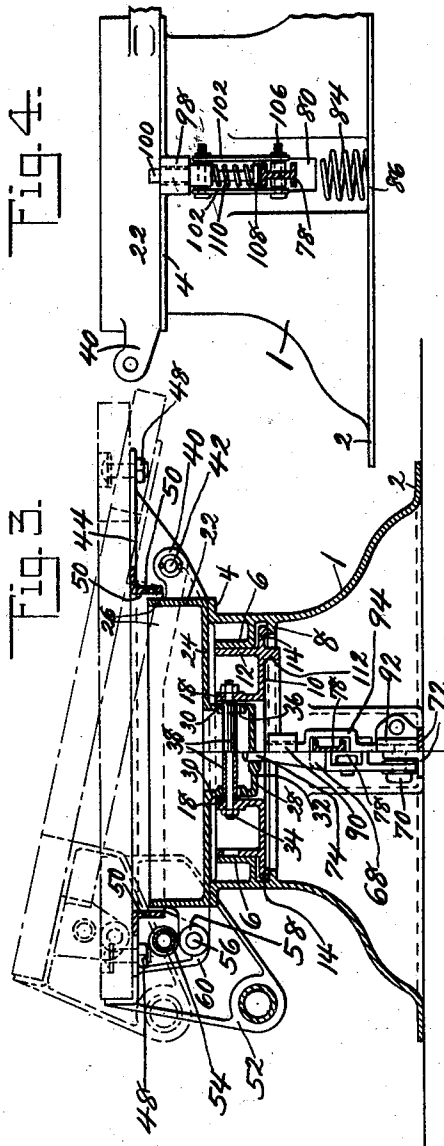
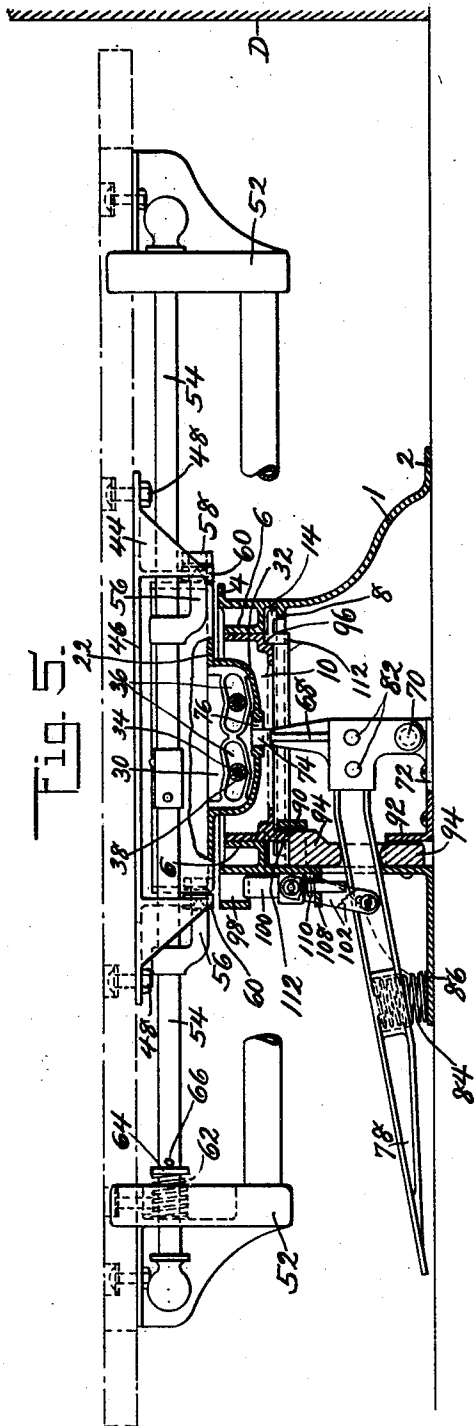
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CAR SEAT

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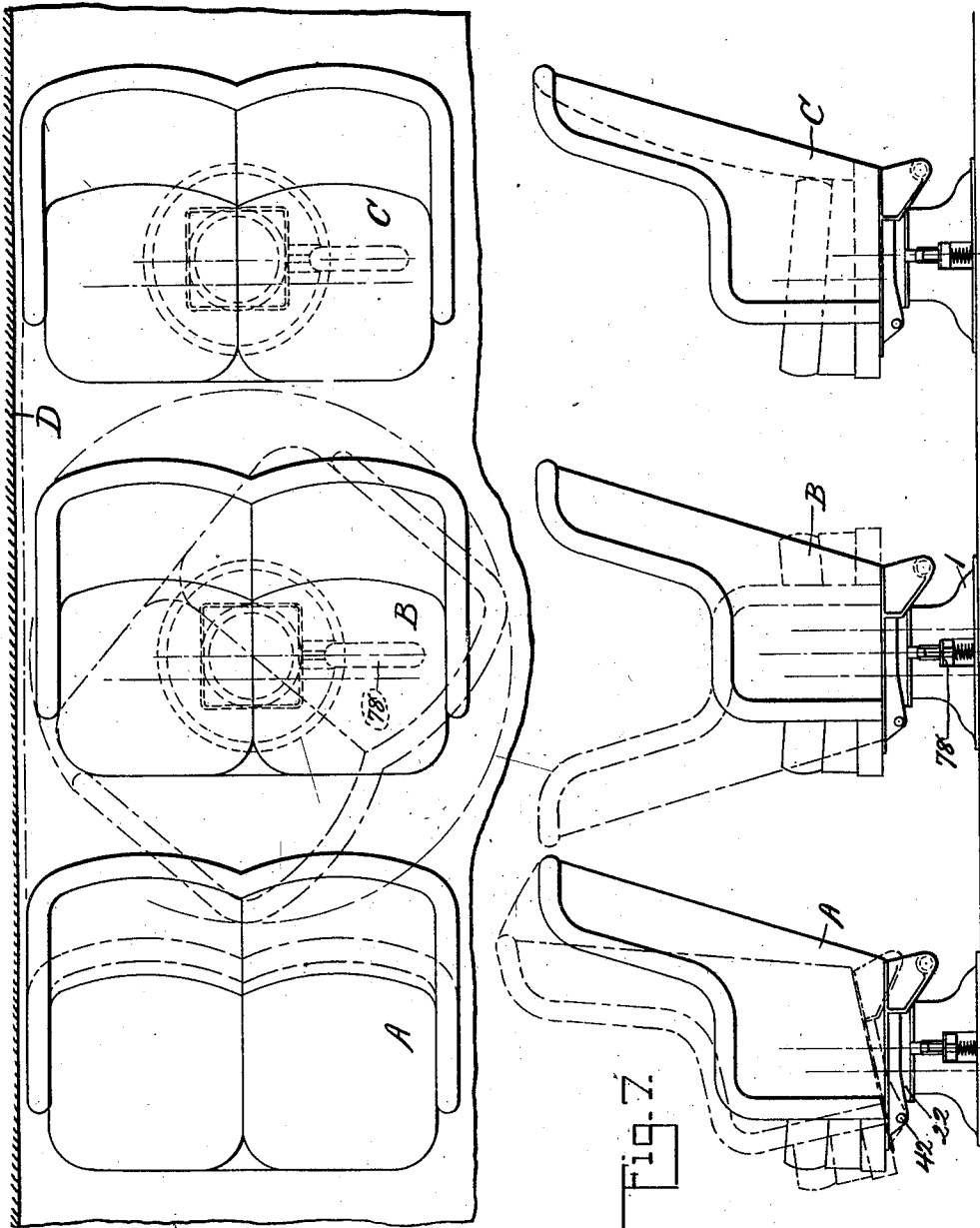


Fig. 6.

Fig. 7.

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# UNITED STATES PATENT OFFICE

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## CAR SEAT

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It is to be understood that the drawings herein are for illustrative purposes only and that various changes in the form and proportions of the device may be made within the scope of the appended claims without departing from the spirit of the invention.

In the drawings:

Figure 1 is a top plan view of a seat constructed in accordance with this invention, the cushion being indicated by broken lines and some parts being broken away in order to show other parts more clearly;

Fig. 2 is an elevation of the structure shown in Fig. 1, some parts being broken away to show other parts more clearly and the parts being shown in their normal positions;

Fig. 3 is a vertical transverse section taken on the line 3—3 of Fig. 1;

Fig. 4 is a vertical section taken on the line 4—4 of Fig. 2;

Fig. 5 is a view similar to Fig. 2, the operating mechanism being shown operated to the release position in which the seat is free to rotate; and

Figs. 6 and 7 are top plan view and side elevation, respectively, of a plurality of the seats shown in Fig. 1 arranged in a car and showing in broken lines the relative positions of adjacent seats whereby one seat may be rotated without rotating the other seats of the row.

This invention relates to seats and more particularly to double revolving seats for use in railway cars and it is an object of this invention to provide an improved seat of the type described which may be rotated without necessitating the rotation of the other seats of the row, which will provide a steady and secure seat which may be readily rotated and which may be economically produced and installed in cars now in use as well as in cars hereafter constructed.

With these and other objects in view, a seat constructed in accordance with this invention comprises a substantially cylindrical pedestal 1 flared at its base and provided with a flange 2 by which it may be secured to the car floor and with an outwardly projecting flange 4 at its upper edge. Adjacent its upper edge, the pedestal is provided with a plurality of

inwardly extending lugs or projections 6 spaced 90° apart and having curved inner faces 7 and with an inwardly projecting flange 8 extending around the pedestal below the projections 6. In the drawings, the pedestal 1 is shown as a casting with the flanges 2, 4 and 8 and the projections 6 formed integral therewith, but it is to be understood that the various parts may be formed separately in any desired manner and joined together by welding, riveting or otherwise, as desired.

Mounted in the upper end of the pedestal 1 is a spider 10 having a cylindrical wall 12 which is guided by the faces 7 of the projections 6 and an outwardly projecting flange 14 which rests upon the flange 8 of the pedestal. The flange 14 is provided with a plurality of openings 16 spaced to correspond with the projections 6 to permit of the insertion of the spider 10 in the upper end of the pedestal; the flange 14 engaging beneath the projections 6 and resting on the flange 8 and serving to retain the spider 10 in the pedestal. Connecting opposite portions of the wall 12 are spaced parallel walls or flanges 18 which define an elongated opening 19 extending the full width of the spider 10 and which have their bottom edges united to the bottom edges of the adjacent portions of the wall 12 by segmental web portions 20.

Mounted on the flange 4 of the pedestal is a rotating hinge member 22 comprising a substantially rectangular plate 24 having at its edge a continuous upwardly projecting flange 26 and formed at its center with a downwardly extending projection 28 having parallel sides 30 which fit closely within the flanges 18 of the spider 10 and have their lower edges joined by a web portion 32. The hinge member 22 is secured to the spider 10 by bolts 34 which extend through openings 36 in the sides 30. The bolts 34 are provided with tubular sleeves 38 so as to permit the hinge member 22 to move readily upon the bolts 34. At the corners of the flange 26 the hinge member 22 is provided with projecting perforated lugs, the lugs 40 at one end receiving pins 42 by which the hinge member

44 is pivotally connected thereto. The hinge member 44 comprises an irregular shaped plate 46 which is secured to the seat cushion frame by bolts 48 and is provided with a continuous downwardly projecting flange 50 which defines a rectangular opening and fits about the flange 26 of the member 22. To the seat frame at one edge are attached brackets 52 in which is mounted an operating rod 54 carrying curved locking pins 56 which engage in openings formed in lugs 58 attached to the member 22 and lugs 60 formed on the hinge member 44. The locking pins 56 are normally held in engagement in the openings in the lugs 58 and 60 by means of a spring 62 which bears against a bracket 52 and against a washer 64 secured in position on rod 54 by a pin 66.

An operating arm 68 is pivotally mounted at 70 upon a plate 72 which is secured to the car floor and to the pedestal 1. The operating arm 68 is provided at its upper end with a cylindrical portion 74 which is engaged in an elongated opening 76 in the web portion 32 and the arm 68 is operated by means of a foot lever 78 which projects through an opening 80 in the pedestal 1 and is secured to the operating arm 68 by bolts 82. A spring 84 confined between an extension 86 on the base of the pedestal and a spring socket 88 formed on the lever 78 normally tends to raise the lever 78 to the position shown in Fig. 2. Mounted for reciprocation in guides 90 attached to the pedestal 1 and in guides 92 attached to the plate 72 is a latch 94 which is engaged by the lever 78 and operated thereby. The latch 94 engages in one or the other of diametrically opposed sockets 96 formed in the spider 10. Operating in guides 98 attached to the pedestal 1, is a latch 100 which is pivotally connected by links 102 to the lever 78. The links 102 are formed with slots 104 to receive a pin 106 by which they are connected to the lever 78 so as to form a lost motion connection between the links 102 and the lever 78. Confined between the latch 100 and a bracket 108 attached to the pedestal 1 is a spring 110 which normally holds the latch 100 in its raised position in which it engages the member 22 and prevents movement of the member 22 on the pedestal 1.

In order to rotate the seat, the lever 78 is operated by compressing the spring 84, moving the cylindrical portion 74 of the arm 68 in the slot 76 and withdrawing the latch 94 from the spider 10 and the latch 100 from the hinge member 22. The parts are so proportioned that the latch 94 will be withdrawn from the spider 10 and the latch 100 will be withdrawn from the hinge member 22 at the time the arm 68 engages the end of the slot 76. Further movement of the lever 78 causes the arm 68 to move the hinge member 22 on the bolts 34; the inclination of the slots 36 causing the hinge member 22 and the hinge

member 44 and the seat carried thereby to be raised, elevating the hinge member 22 from the upper flange 4 of the pedestal 1. The full movement of the lever 78 brings the bolts 34 to the lowermost points in the slots 36 and the arm 68 to a vertical position as shown in Fig. 5 in which position the cylindrical portion 74 of the arm 68 serves as a center about which the seat can be rotated. The seat upon rotation carries with it the hinge member 44, the hinge member 22 and the spider 10. Movement of the spider 10 from the position in which the latch 94 engages in a socket 96 causes the downwardly projecting rib 112 on spider 10 to engage the latch 94 restraining the latch 94 and lever 78 from upward movement and retaining the arm 68 in its vertical position until the seat has been rotated through 180 degrees. When the seat has been rotated through 180 degrees the latch 94 is engaged in the other socket 96 by the action of the spring 84 upon the lever 78 and the upper portion 74 of the arm 68 moved in the slot 76. Engagement of the upper portion 74 of the arm 68 with the other end of the slot 76 and the action of gravity causes the hinge member 22 to travel on the bolts 34 and moves the seat downwardly and to one side until the hinge member 22 engages with the flange 4 of the pedestal 1 whereupon the hinge member 22 will have been moved to one side sufficiently far to permit of the latch 100 engaging in back thereof and the spring 110 will elevate the latch 100 and lock the hinge member 22 against displacement on the pedestal 1.

As shown in Figs. 6 and 7, the seats when installed in a car are placed so closely together that in order to rotate any intermediate seat B in a row it is necessary to release the seat A in advance of the seat B by operating the rod 54 to release the locking pins 56 whereby the seat back and cushions of seat A may be tilted forward on pins 42 in the hinge member 22. With the seat A tilted forward, the lever 78 of seat B is operated as previously described and the seat B rotated upon its pedestal 1; the seats being installed so that the movement of the seat on the bolts 34 causes the seat to be moved toward the aisle and away from the side wall of the car, thus providing sufficient clearance between the seat to be rotated and the side wall D of the car to permit a free rotation of the seat between the seats A and C as shown in broken lines in Figs. 6 and 7.

When it is desired to turn all the seats in a row, the seats are rotated as above described beginning with the front seat of the row and it is then unnecessary to tilt any of the seats in order to secure the necessary clearance for rotating the seats.

While the preferred form of the invention has been shown and described, it is to be understood that the invention is not limited to the exact details of construction shown

and described, as it is obvious that various modifications thereof within the scope of the claims will occur to persons skilled in the art.

What is claimed is:

- 5 1. In a car seat, a pedestal, a spider rotatably mounted on said pedestal, a member slidably mounted on said spider, a seat hinged to said member, locking means for said spider, locking means for preventing sliding of said member and means for operating said locking means and shifting said member on said spider.
- 10 2. In a car seat, a pedestal, a spider rotatably mounted on said pedestal, a member slidably connected to said spider and normally bearing on said pedestal, a seat hinged to said member and operating means pivotally connected to said member to shift said member relatively to said spider and raise said member from said pedestal.
- 15 3. In a car seat, a pedestal, a spider rotatably mounted on said pedestal, a member slidably connected to said spider and normally bearing on said pedestal, a seat hinged to said member and operating means extending within said pedestal and engaging said member to shift said member relatively to said spider, said member being moved from and to said pedestal upon movement relatively to said spider.
- 20 4. In a car seat, a pedestal, a spider rotatably mounted on said pedestal, a member slidably mounted on said spider, a seat hinged to said member, operating means extending within said pedestal for shifting said member on said spider and a lock for said spider operated by said means.
- 25 5. In a car seat, a pedestal, a spider rotatably mounted on said pedestal, a member slidably mounted on said spider, a seat hinged to said member, means for shifting said member on said spider and a lock for preventing sliding of said member operated by said means.
- 30 6. In a car seat, a pedestal, a spider rotatably mounted on said pedestal, a hinge member slidably mounted on said spider, a seat carried by said hinge member, means for shifting said hinge member on said spider and locks for said hinge member and spider operated by said means.
- 35 7. In a car seat, a pedestal, a spider rotatably mounted on said pedestal, a hinge member slidably mounted on said spider, a seat carried by said hinge member, means for shifting said hinge member on said spider and locks for said hinge member and spider operated by said means, said locks being operated in advance of said hinge member.
- 40 8. In a car seat, a pedestal, a spider rotatably mounted on said pedestal, a hinge member slidably mounted on said spider, a seat carried by said hinge member, means for shifting said hinge member on said spider and a pin and slot connection between said spider and hinge member to raise said hinge member when shifted on said spider.
- 45 9. In a car seat, a pedestal, a spider rotatably mounted on said pedestal, a hinge member normally bearing on said pedestal and having inclined slots, pins carried by said spider and engaging in said slots, a seat carried by said hinge member and means to shift said hinge member on said pins, said shifting of said hinge member moving said hinge member from and to said pedestal.
- 50 10. In a car seat, a pedestal, a spider rotatably mounted on said pedestal and normally restrained from rotating, a member mounted on said spider and normally bearing on said pedestal, a seat hinged to said member and means having a continuous movement for releasing said spider for rotation and then raising said member from said pedestal.
- 55 11. In a car seat, a pedestal, a spider rotatably mounted on said pedestal, a hinge member slidably connected to said spider and normally bearing on said pedestal, a seat carried by said hinge member, a lock for preventing sliding of said hinge member and means having a continuous movement to operate said lock and raise said hinge member from said pedestal.
- 60 12. In a car seat, a pedestal, a seat mounted on said pedestal and operating means for simultaneously shifting said seat longitudinally and raising said seat from said pedestal.
- 65 13. In a car seat, a pedestal, a seat mounted on said pedestal, locking means restraining movement of said seat and a common operating means for operating said locking means and moving said seat longitudinally and vertically with respect to said pedestal.
- 70 14. In a car seat, a pedestal, a seat mounted on said pedestal, operating means for simultaneously shifting and elevating said seat with respect to said pedestal and yielding means engaging said operating means and aiding in returning said seat to normal position.
- 75 15. In a car seat, a pedestal, a seat body mounted on said pedestal, and operating means for simultaneously shifting said seat body to one side and raising said seat body from said pedestal, said seat body retaining its angular relation with respect to the car floor during said movement.
- 80 16. In a car seat, a pedestal, a seat body having a back and cushion mounted on said pedestal, operating means for simultaneously shifting said seat body to one side and raising said seat body from said pedestal, said seat back and cushion retaining their original inclination during such movement.
- 85 17. In a car seat, a pedestal having outwardly and inwardly projecting flanges, a spider rotatably mounted on said inwardly projecting flange, a member slidably connected to said spider and normally bearing on said outwardly projecting flange, and operat-

ing means pivotally engaging said member to shift said member relatively to said spider and elevate said member from said pedestal.

5 18. In a car seat, a pedestal having outwardly and inwardly projecting flanges, a spider having an opening therein rotatably mounted on said inwardly projecting flange, a member slidably mounted in the opening in said spider and normally bearing on said outwardly projecting flange, and operating means extending within said pedestal and pivotally engaging said member.

10 In witness whereof we have hereunto set our hands.

15 JOHN M. KNIGHT.  
VICTOR WILLOUGHBY.

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