June 24, 1930. J. M. KNIGHT ET AL 1,766,079

RAILWAY CAR SEAT

Filed March 31, 1927 2 Sheets-Sheet 1

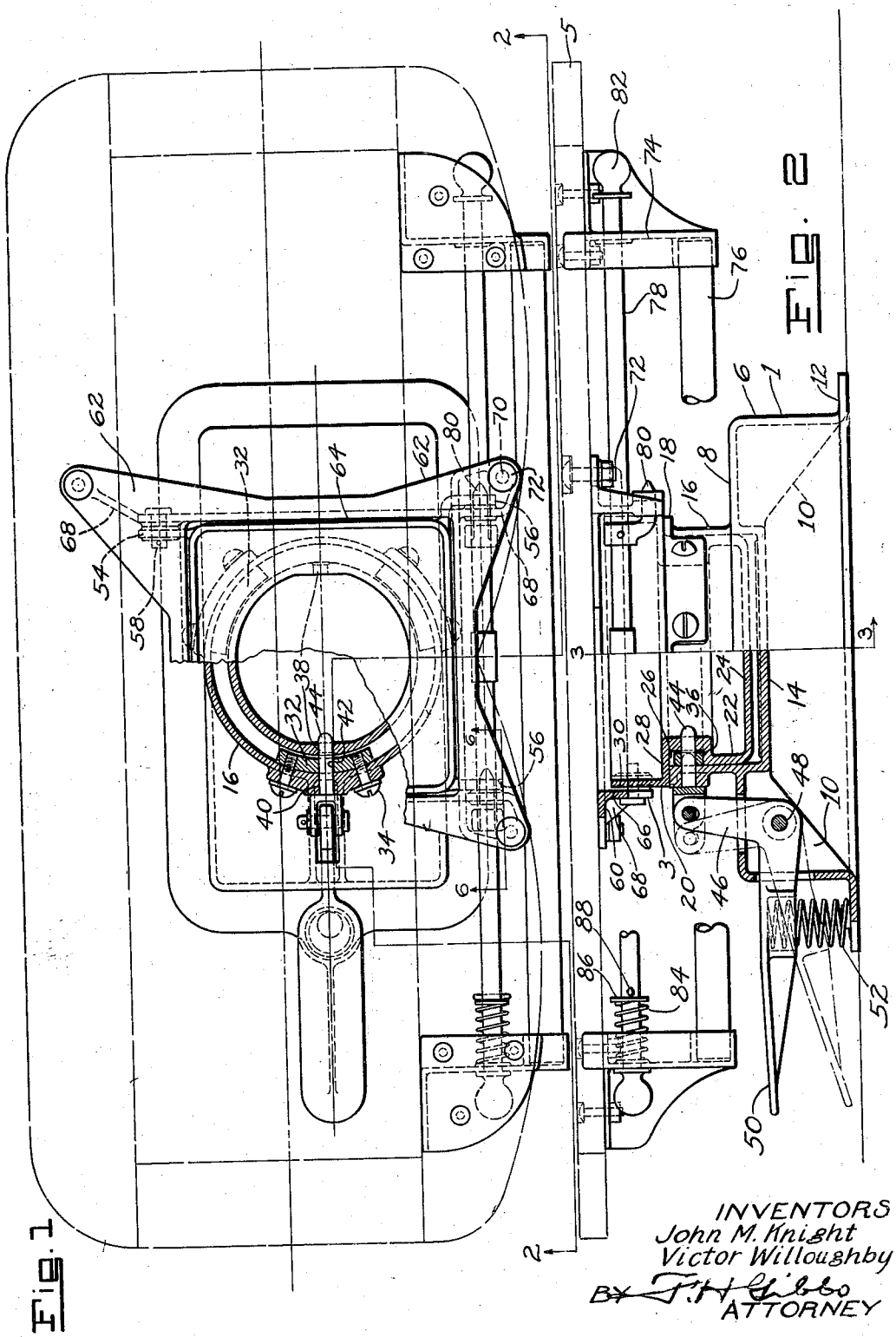

Fig. 2

Fig. 1

INVENTORS
John M. Knight
Victor Willoughby
BY F. H. Gibbs
ATTORNEY

June 24, 1930. J. M. KNIGHT ET AL 1,766,079

RAILWAY CAR SEAT

Filed March 31, 1927 2 Sheets-Sheet 2

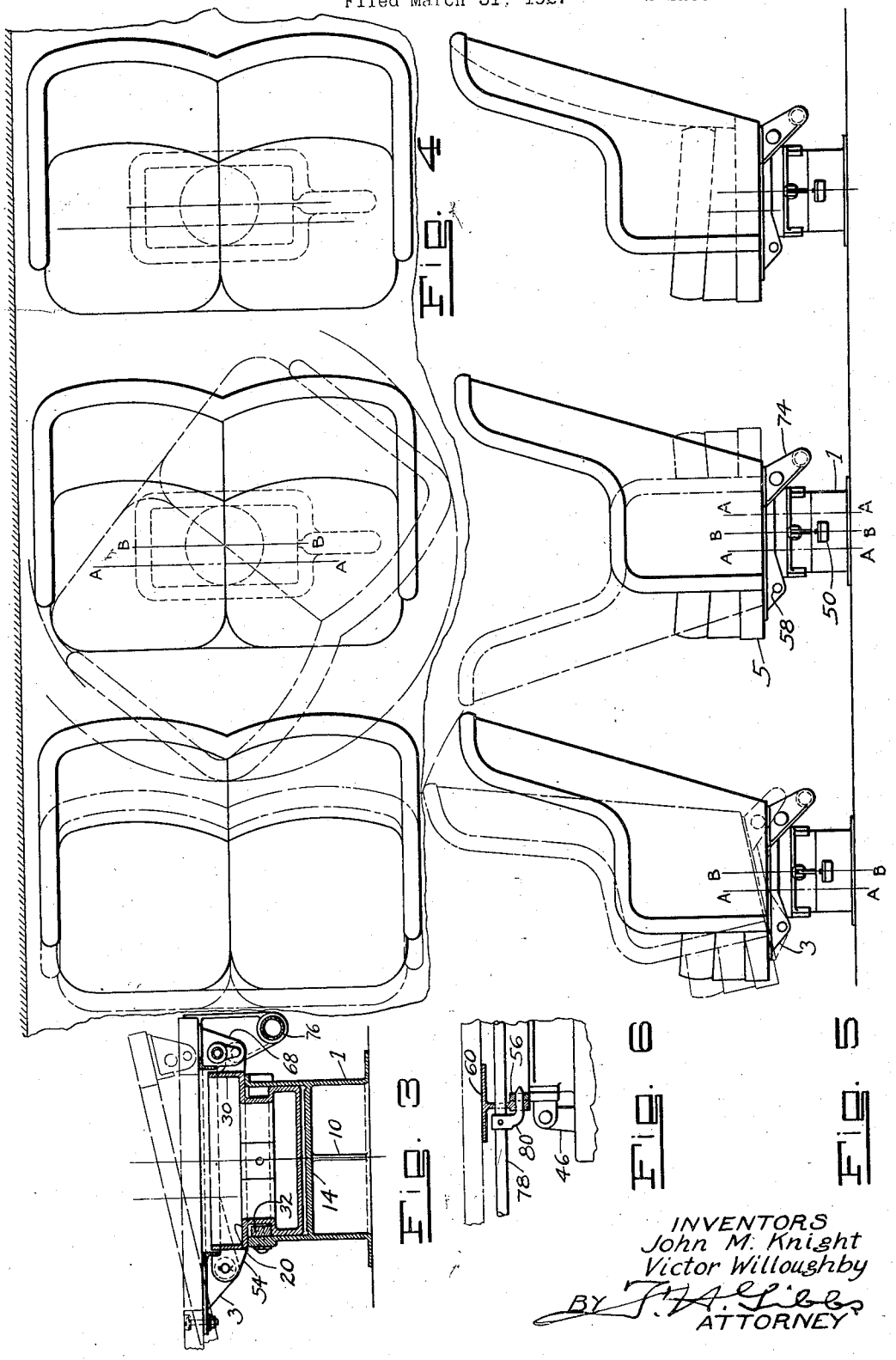

Fig. 4

Fig. 5

Fig. 6

Fig. 3

INVENTORS
John M. Knight
Victor Willoughby
BY J. A. Gibbs
ATTORNEY

Patented June 24, 1930 1,766,079

UNITED STATES PATENT OFFICE

JOHN M. KNIGHT, OF ATLANTIC HIGHLANDS, AND VICTOR WILLOUGHBY, OF RIDGEWOOD, NEW JERSEY, ASSIGNORS TO AMERICAN CAR AND FOUNDRY COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY

RAILWAY-CAR SEAT

Application filed March 31, 1927. Serial No. 179,952.

Reference is had to the accompanying drawings, which illustrate the preferred form of the invention, though 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.

In said drawings:

Figure 1 is a view partly in plan and partly in section of an improved revolving seat or chair mechanism for cars constructed in accordance with this invention, the outline of the seat body being shown in broken lines;

Fig. 2 is a view partly in elevation and partly in section of the structure shown in Fig. 1, the section being taken on the line 2—2 of Fig. 1;

Fig. 3 is a central vertical section taken on the line 3—3 of Fig. 2;

Fig. 4 is a plan view showing the relative positions of the seats when installed in a car and showing, in broken lines, a position assumed by a seat while being turned;

Fig. 5 is a view in elevation of the seats shown in Fig. 4, one seat being shown, in broken lines, in reversed position and an adjacent seat being shown, in broken lines, in raised position to permit the turning of the other seat; and

Fig. 6 is a fragmentary section taken on the line 6—6 of Fig. 1.

This invention relates to revolving seats for cars, and it is the object of this invention to provide an improved supporting means for a revolving seat which will permit of a single seat being turned irrespective of its position in the car; which will provide a steady and freely operating support for a seat body and which will permit of arranging the seats to provide a proper spacing between seats without waste of the available space.

As shown in drawings, the invention comprises a pedestal 1 in which is rotatably supported a hinged center plate 3 to which is secured a seat body 5. The pedestal 1 comprises a cylindrical wall 6 and a top wall 8 joined by reinforcing ribs 10, the lower edge of the wall 6 being extended into an outwardly projecting flange 12 by means of which the pedestal is secured to the floor or car frame in any suitable manner. Centrally positioned in the top wall 8 is a circular depressed portion 14 and a cylindrical wall 16 which projects above the top wall 8 and is formed at its upper edge with an outwardly projecting flange 18. The depressed portion 14 of the upper wall 8 and the wall 16 form a bearing or journal box in which is mounted the bearing or journal portion 20 of the hinged center plate 3. The journal portion 20 comprises a substantially cylindrical wall 22 closed at its lower end by a bottom wall 24 and having a groove 26, the upper wall 28 of which projects outwardly beyond the wall 22 and rests upon the flange 18. The wall 28 is extended so as to form a substantially rectangular plate and at its edges is provided with flanges 30 forming a rectangular guiding end to the bearing portion 20.

To secure the bearing portion 20 in the pedestal, retaining blocks 32 are mounted in the groove 26 of the bearing portion 20, and are secured to the inner surface of the wall 16 by tap screws 34, the retaining blocks engaging with the lower wall 36 of the groove to prevent removal of the journal portion 20 from the pedestal. To prevent rotation of the journal portion 20 in the pedestal, the journal portion 20 is provided with openings 38, one of which, in a normal position of the chair, is in line with openings 40 and 42 formed in the wall 16 and one of the retaining blocks 32 respectively. Engaging in the openings 38, 40 and 42 is a plunger 44 operated by a bell-crank lever 46 pivotally mounted upon a pin 48 carried by one of the reinforcing ribs 10 and provided with a pedal 50 which projects beyond the pedestal. The plunger 44 is normally retained in engagement in the openings by means of a spring 52 which bears against the bell-crank lever 46 and an extension of the flange 12 and serves to force the pedal arm of the bell-crank lever upwardly.

Projecting from the corners formed by the flanges 30 are parallel ears or lugs 54 and 56 provided with openings, the openings in the lugs 54 receiving hinge pins 58 which pivotal-

ly connect the plate portion 60 of the hinged center plate 3 to the journal portion 20 of the center plate. The plate portion 60 is substantially rectangular and provided with diagonally projecting arms 62 at the corners and with a rectangular opening 64 outlined by downwardly projecting flanges 66. The flanges 66 fit about the flanges 30 in the normal position of the seat and would keep the plate portion 60 positioned on the pedestal in case of failure of the other securing means as well as serving to reenforce the plate portion 60. The arms 62 are joined to the flanges 66 by reinforcing ribs 68, the ribs 68 adjacent the lugs 54 being provided with openings which receive the hinge pins 58, while the ribs 68 adjacent the lugs 56 are provided with openings which aline with the openings in the lugs 56. The arms 62 are also provided with bolt openings 70 to receive bolts 72 which secure the seat body to the plate portion 60.

To the seat body are secured foot-rest brackets 74 in which are mounted a foot-rest 76 and a lock operating rod 78 to which is fixed the plungers or locking bolts 80 which engage in the alined openings in the lugs 56 and adjacent ribs 68. At its ends the rod 78 is provided with operating handles 82, and surrounding the rod 78 adjacent one of the brackets 74 is a spring 84 which is held under compression between a wall of the bracket 74 and a washer 86 secured in position by a pin 88, the spring 84 normally holding the rod 78 in position to keep the plungers 80 in engagement in the openings in the lugs 56 and adjacent ribs 68.

In the operation of this device, the pedal 50 is depressed to withdraw the locking bolt 44 from engagement with the bearing portion 20 and permit the bearing portion and seat body to be rotated upon the pedestal 1.

As shown in Figs. 4 and 5, the pedestals will be mounted in line adjacent the car sides and so placed that the seats may be rotated without engaging the car sides but, as shown in the broken lines in Fig. 4, the seat back will, if turned so as to be placed back to back with respect to an adjacent seat, engage with the back of the adjacent seat while being turned. During the turning of one seat, therefore, the adjacent seat body will be released by operating the rod 78, withdrawing the plungers 80 from engagement in the openings in the lugs 56 and the adjacent ribs 68, and will be tilted forward on the hinge pins 58 so as to permit the movement of the other seat to the reversed position, after which the tilted seat may be dropped back to its normal position and the plungers 80 engaged in the openings in the lugs 56 and adjacent ribs 68. As shown in Fig. 5 in this position there is ample clearance between the two backs. As also shown in Fig. 5, the transverse center line A—A of the body seat cushions is offset forwardly of a parallel line B—B drawn through the axis of rotation of the seat. Positioning of the seat bodies in this manner enables the seats to be placed more closely as it provides for an increase of double the offset distance between the seat backs when placed back to back over what would be the relative positions of the seat backs were the seats placed with the center lines of the cushions upon the line through the axis of rotation, the line A—A taking the position shown in dotted lines in Fig. 5 when the seat is reversed.

When the seats are all reversed beginning, as is usual, with the seat at the head of the row, it is not necessary to tip any seat body in order to turn an adjacent seat.

What is claimed is:

1. The combination with a pedestal of a hinged seat center plate comprising a cylindrical bearing portion rotatably mounted in said pedestal and a plate portion pivotally connected to said bearing portion, a seat body secured to said plate portion, lugs on said bearing and plate portions, brackets on said seat body and locking means mounted in said brackets and engaging said lugs.

2. In a revolving car seat, the combination of a pedestal having a bearing opening therein and a hinged center plate for securing a seat body to said pedestal, said hinged center plate comprising a grooved cylindrical bearing portion rotatably mounted in said pedestal bearing opening and having a shoulder bearing on said pedestal, retaining blocks secured to said pedestal and engaging in said groove and locking means engaging in a retaining block, said pedestal and said bearing portion.

3. The combination with a pedestal, of means for mounting a seat comprising a bearing rotatably mounted in the pedestal and provided with an annular recess and a flange engaging the pedestal and on which the bearing rotates, retaining elements secured to the pedestal and positioned in said recess, a plate secured to the seat and hingedly connected to the bearing, and locking means connecting the pedestal and bearing for normally restraining the bearing against rotation.

4. In a car having rotatable seats normally restrained against rotation and so arranged that their paths of rotation intersect whereby complete rotation is prevented, mechanism mounting each of said seats to permit vertical tilting of any one of said seats out of the path of rotation of an adjacent seat, said mechanism preventing the rotation of the seat being tilted.

5. In a car having rotatable seats normally restrained against rotation and so arranged that their paths of rotation intersect whereby complete rotation is prevented, hinged means mounting said seats to permit vertical turning of one seat out of the path of movement of an adjacent seat to provide

clearance space to permit complete rotation of an adjacent seat.

6. In a car having rotatable seats normally restrained against rotation and so arranged that their paths of rotation intersect whereby complete rotation is prevented, means for mounting the seats comprising pedestals, and means connecting said seats and pedestals and permitting vertical tilting of one seat out of the path of movement of an adjacent seat to provide clearance space for rotating said adjacent seat, said means being operative to prevent rotation of the seats when tilted.

7. In a car having rotatable seats normally restrained against rotation and so arranged that the paths of rotation of the seat backs normally intersect whereby complete rotation of the seat is prevented, means for mounting the seats to provide a clearance space between adjacent seats comprising pedestals, and mechanism connecting said seats and pedestals and permitting vertical swinging of one seat to place the back thereof out of the path of rotation of an adjacent seat back when said adjacent seat is rotated.

8. In a car having rotatable seats normally restrained against rotation and so arranged that the paths of rotation of the seat backs normally intersect whereby complete rotation of the seat is prevented, means for mounting the seats to provide a clearance space between adjacent seats comprising pedestals, and mechanism hingedly connecting said seats and pedestals and permitting vertical swinging of one seat and preventing rotation thereof when in vertically swung position to place the back thereof out of the path of rotation of an adjacent seat back when said adjacent seat is rotated.

9. The combination with a stationary pedestal, of means for mounting a seat comprising a bearing rotatably mounted in the pedestal and provided with an upwardly extending guide portion, a seat, a plate secured to the seat and provided with depending flanges arranged around the guide portion to position said plate, hinge means connecting said flanges and bearing whereby to pivotally mount the seat, means connecting the pedestal and bearing to normally restrain the seat against horizontal rotation, and means connecting the bearing and seat to normally restrain the latter against movement on the hinge.

10. In a car, a plurality of pedestals arranged relatively close together, a plurality of seats, mechanism secured to each seat for rotatably mounting the latter on a pedestal when in position of use and for permitting the seat to tilt forwardly, means normally restraining the seats against rotation, and locking means for normally restraining the seats against movement on said mechanism, the said mechanism permitting said seats to be moved vertically and normally preventing their rotation when moved vertically to provide clearance space for rotating adjacent seats.

In witness whereof we have hereunto set our hands.

JOHN M. KNIGHT.
VICTOR WILLOUGHBY.