J. S. FARRELL & J. S. LEWIS.

FOLDING CAR SEAT.

APPLICATION FILED FEB. 20, 1909.

939,593.

Patented Nov. 9, 1909.

2 SHEETS—SHEET 1.

FIG. 1.

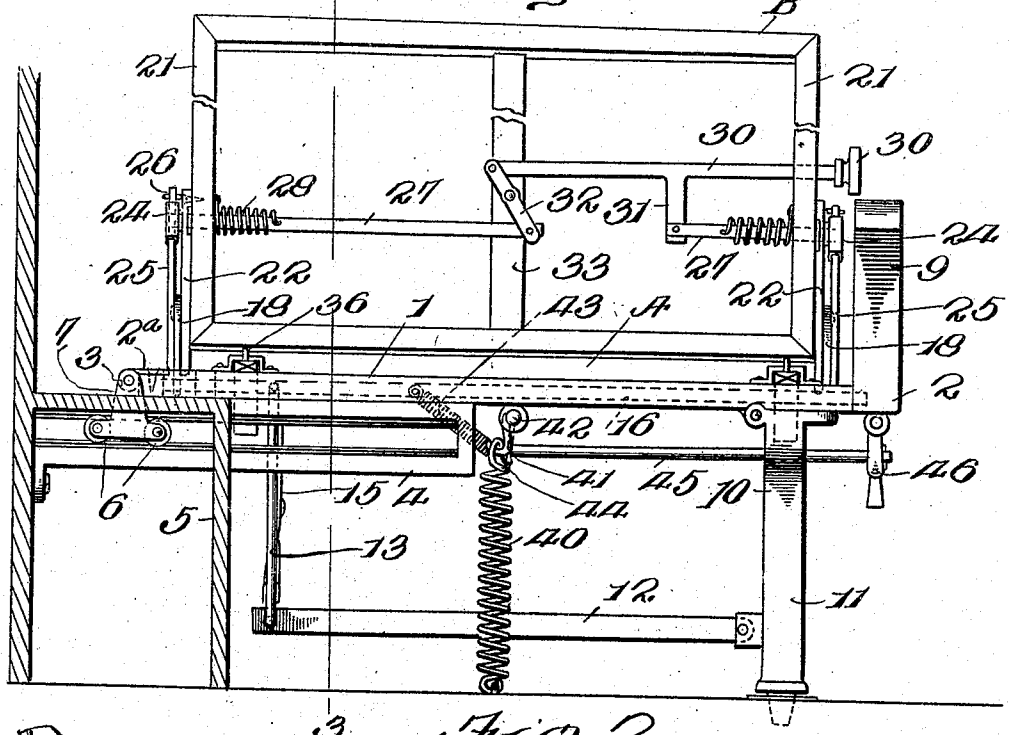
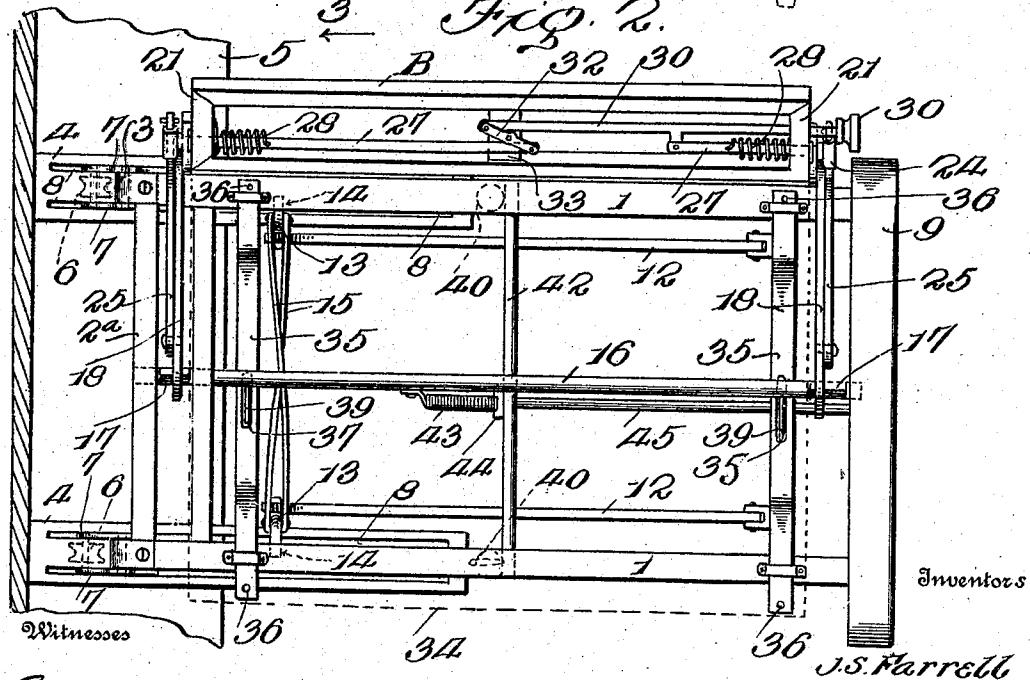


FIG. 2.



Witnesses

J. M. Fallin

W. T. Woodson.

Inventors

J. S. Farrell

J. S. Lewis

By

Attorneys.

J. S. FARRELL & J. S. LEWIS.

FOLDING CAR SEAT.

APPLICATION FILED FEB. 20, 1909.

939,593.

Patented Nov. 9, 1909.

2 SHEETS—SHEET 2.

Fig. 3.

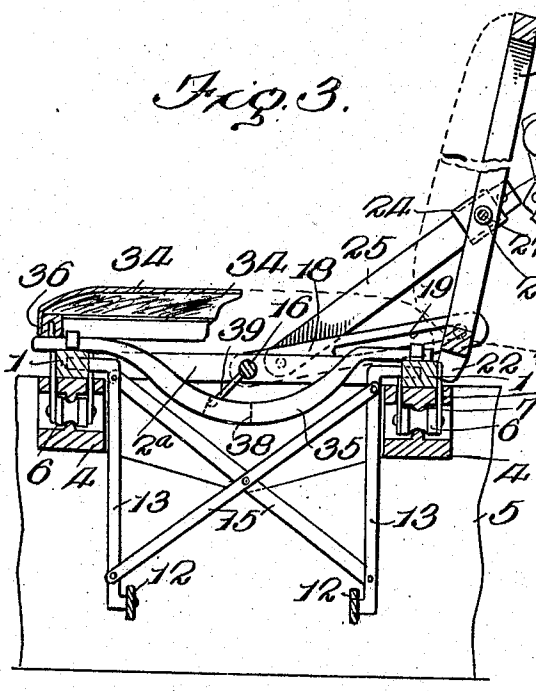


Fig. 4.

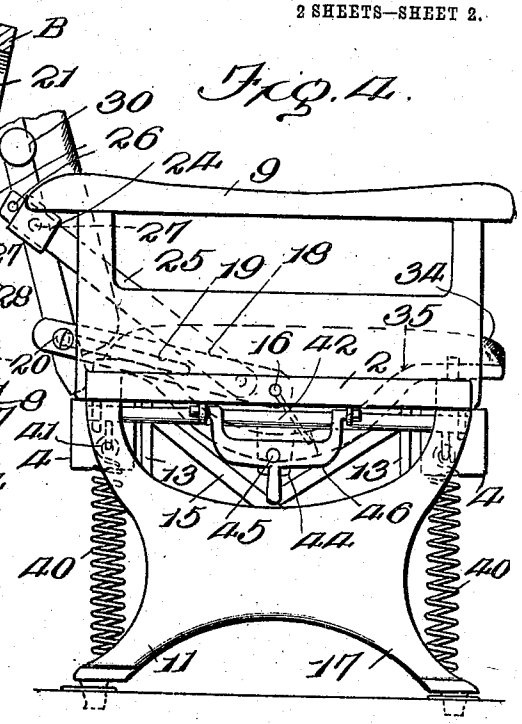


Fig. 6.

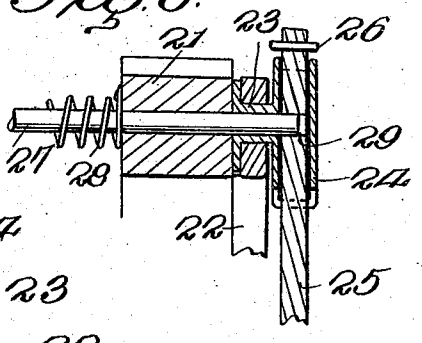


Fig. 5.

Witnesses

J. M. Fallin

W. T. Woodson.

Inventors

J. S. Farrell

J. S. Lewis

By

R. H. & B. Macey, Attorneys.

UNITED STATES PATENT OFFICE.

JOHN S. FARRELL AND JESSE S. LEWIS, OF PITTSBURG, PENNSYLVANIA.

FOLDING CAR-SEAT.

939,593. Specification of Letters Patent. Patented Nov. 9, 1909.

Application filed February 20, 1909. Serial No. 479,130.

To all whom it may concern:

Be it known that we, JOHN S. FARRELL and JESSE S. LEWIS, citizens of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Folding Car-Seats, of which the following is a specification.

This invention comprehends certain new and useful improvements in seats for use in railway cars or the like, and the invention has for its object an improved device of this character which has also a peculiar arrangement of parts whereby the seat is rendered susceptible of being folded into a compact structure and swung upwardly against the side of the car to afford access to the floor space usually occupied by the seat and thus admitting of the floor being mopped or painted with unusual convenience and facility.

A further object of the invention is an improved car seat which is securely maintained in an operative position and against any accidental folding of the parts, which may be readily and quickly collapsed when an occasion demands, and which is comparatively simple and durable in structure and possesses certain other advantages that will be apparent as the invention is hereinafter disclosed.

With these and other objects in view that will more fully appear as the description proceeds, the invention consists in certain constructions, arrangements, and combinations of the parts that we shall hereinafter fully describe and then point out the novel features thereof in the appended claims.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction and the means for effecting the result, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a front elevation of a car seat constructed in accordance with our invention; Fig. 2 is a top plan view thereof; Fig. 3 is a transverse section on the line 3—3 of Fig. 1; Fig. 4 is an end view showing the back of the seat reversed; Fig. 5 is a fragmentary perspective view illustrating the connection between the seat frame and the back frame; and Fig. 6 is a detail sectional view thereof.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Our improved car seat consists essentially of a seat frame A that consists of two longitudinal rails 1 which are connected by the end rails 2 and 2^a. The end rail designated 2^a is located at the end of the seat frame arranged in close proximity to the wall of the car, and the seat frame is pivotally connected at said end to two longitudinally traveling runners 3. These runners work in longitudinally disposed guide-ways 4 which are secured to the wall of the car and extend inwardly therefrom and are preferably supported upon the usual box or casing 5 which extends along the wall of the car at the base thereof and incloses the heating pipes, the guide-ways in the present instance being mortised in the box flush with the upper face thereof and projecting inwardly therebeyond as shown. The runners that are mounted in the guide-ways each consist of two rollers 6 which travel longitudinally on suitable tracks and are journaled between spaced side bars 7, the latter projecting at their upper ends through longitudinal slots 8 provided in the guide-ways, and having their projecting extremities pivoted to the seat frame in such a manner as to render the latter susceptible of being swung upwardly about a transverse horizontal axis for a purpose to be hereinafter more fully disclosed.

The end rail 2 designates the aisle end of the seat frame and is provided with a seat arm 9 of any approved construction or design, the seat frame being supported at such last named end through the instrumentality of a pedestal 10 which is hinged at its upper end to the longitudinal rails 1 and which is constructed with two legs 11 that are adapted to enter sockets provided in the floor in order to maintain the seats against longitudinal movement and thus insure the chairs of the car being all held in alinement to afford ample aisle space.

12 designates the foot rests which are pivotally secured at one end to the respective legs 11 and extend longitudinally therefrom

at a suitable distance from the floor with their other ends terminating in close proximity to the pipe casing 5. The foot rests are supported at such last named ends by hangers 13 that are pivoted at one end thereto and have their other ends mounted in suitable journals 14 carried by the longitudinal rails 1, the two hangers being preferably connected together and reinforced against lateral strain and for this purpose being provided intermediate of their ends with transversely disposed crossed braces 15.

Extending longitudinally of the seat frame A and journaled in the end rails 2 and 2^a thereof, is a rock shaft 16 that is formed in close proximity to the said rails with angular portions 17. The ordinary links 18 are fitted at one end to these angular portions and are formed at their other ends with longitudinal slots 19 in which work studs 20 outstanding from the back frame B at the lower end of the latter. In the present instance the side bars 21 of the back frame carrying supplemental bars 22 which are rigidly secured to the outer faces thereof and project beyond the lower end of the back frame in order to impinge against the adjacent longitudinal rail 1 as will be observed by reference to Fig. 5. Hollow trunnions 23 are rotatably mounted in the respective supplemental bars 22 at correspondingly elevated points and project longitudinally therefrom with their projecting ends each provided with a bearing sleeve 24 that is slidingly mounted upon a supporting arm 25 which is pivotally secured at its lower end to an intermediate portion of the corresponding link 18 and which is formed at its upper end with suitable stops 26, the latter serving to limit the rearward movement of the bearing sleeve and thus maintain the back frame against rearward displacement. In order to normally prevent the back frame from swinging forwardly and downwardly into collapsed position upon the seat, as is permitted by the just mentioned sliding connection of the bearing sleeves with the supporting arms 25, we employ two longitudinally extending latch rods 27 that are slidingly mounted in the respective side bars 21 and the adjacent hollow trunnions 23 and are adapted to be moved longitudinally under the influence of tension springs 28 so as to enter perforations 29 formed near the free ends of the supporting arms, the back frame being thereby held against sliding movement relative to the supporting arms although rendered susceptible of turning thereabout as is permitted by the trunnions 23. These latch rods 27 may be conveniently retracted out of engagement with the supporting arms when occasion demands, by means of a push rod 30 which is slidingly mounted in the side bar 21 disposed at the aisle end of the back frame, with one end projecting therethrough to admit of manual operation. This push rod extends longitudinally of the back frame in parallel relation with the two latch rods and is connected intermediate of its ends to the adjacent latch rod by a perpendicularly disposed rigid link 31, the extremity of the push rod being pivoted to one arm of a lever 32 that is operatively connected to the opposite latch rod and is fulcrumed on an intermediate bar 33 of the back frame.

The back of the seat may be upholstered in any approved manner while the seat itself is provided with a cushion 34 that is designed to be shifted automatically in the opposite direction to the movement of the back, as is customary with modern car seats. The frame of this cushion is supported upon the opposite ends of shifting beams 35 and is connected thereto in any approved manner as by receiving lugs or projections 36 upstanding therefrom. Two or more of these shifting beams may be employed according as desired and each extends transversely of the seat frame and is curved downwardly intermediate of its ends so as to pass beneath the rock shaft 16, the beams being formed at their opposite ends with inclined or rounded surfaces that ride upon the adjacent longitudinal rails 1. As is usual with devices of this character, the shifting beams are formed near their middle points with slots 38 in which operate pins 39 outstanding from the rock shaft 16 so as to effect simultaneous movement of the shifting beams as the rock shaft is turned by and upon the movement of the back to reverse the seat.

In the preferred construction of the parts in order to maintain the seat in an operative or extended position and against accidental displacement, we employ one or more tension springs 40 that are connected at one end to the floor and have their other ends arranged for engagement by a corresponding number of hooks 41 carried by a shaft 42 which is journaled transversely of the seat frame. A spring 43 is secured to the rock shaft 16 or some other adjacent part and is connected to an arm 44 outstanding from the shaft 42 so as to turn the latter and cause the same to assume such a position that the hooks 41 are normally retained in engagement with the springs 40. A link 45 is also connected to the arm 44 and is disposed oppositely to the spring 43 and extends longitudinally of the seat frame with its outer end pivoted to a releasing bail 46 that is rotatably secured to and depends from the end rail 2.

In the use of the seat, the back B is moved laterally thereacross in the ordinary manner

to effect the reversal of the seat and such movement causes the partial turning of the rock shaft 16 and thus automatically shifts the said cushion 34, it being observed that this operation may be performed without retracting the latch rods 27 from engagement with the supporting arms 25, inasmuch as a pivot connection is established through the instrumentality of the trunnions 23. If however, the car is to be swept or some other occasion demands that the seat be folded out of the way, the push rod 30 is moved longitudinally to withdraw the latch rods 27 from the perforations 29 against the force of the springs 28. The bearing sleeves 24 are thus afforded a sliding movement upon the corresponding supporting arms 25 which admits of the back B being moved forwardly and downwardly into collapsed position upon the cushion 34 of the seat. By swinging the releasing bail 46 longitudinally the shaft 42 is rocked against the tension of the spring 43 so as to cause the hooks 41 to be disengaged from the springs 40 and thus release the seat from operative connection with the floor. The outer end of the seat frame is then raised to withdraw the legs 11 from the sockets in the floor, whereupon the parts are drawn out longitudinally or extended a short distance into the aisle to cause the runners 3 to travel in the guideways 4 and away from the adjacent wall of the car, the seat frame being then swung upwardly about its pivot connections with the runners and against the wall of the car to which it is connected in any approved manner to be sustained in such elevated position. By extending the chair frame before swinging the parts upwardly, it will be observed that the foot rests 12 are afforded sufficient clearance from the pipe box 5 and thus swing by gravity against the seat frame upon the continued upward movement thereof, together with the hangers 13 and the pedestal 10. Attention is now directed to the fact that the car seat assumes a position entirely out of the way and ready access is afforded to the floor space usually occupied by the seat so as not to interfere with the sweeping of the car or the painting of the floor or the like.

By reversing the above operation, it will be manifest that the seat may be conveniently and quickly returned to operative position when again desired for use.

Having thus described the invention what is claimed as new is:

1. In a folding car seat the combination of a support, a seat hinged at one end to the support, a pedestal hinged at the opposite end of the seat, a foot rest hinged at one end to the pedestal, and means for supporting the opposite end of the foot rest from the seat.

2. In a folding car seat the combination of a support, a seat hinged at one end to the support, a pedestal hinged at the opposite end of the seat, a foot rest hinged at one end to the pedestal and extending longitudinally below the seat, and a hanger pivoted to the opposite end of the foot rest and to the seat.

3. In a folding car seat, the combination of parallel guides extending substantially perpendicularly from the side wall of the car above the floor, a seat having a hinged and slidable connection at one end with the guides and adapted to be swung upwardly against the car wall, a reversible back for the seat, the back being adapted to be folded against the seat, and means for supporting the free end of the seat.

4. In a folding car seat, the combination of parallel guides extending substantially perpendicularly from the side wall of the car above the floor, a seat having a hinged and slidable connection at one end with the guides and adapted to be swung upwardly against the car wall, a pedestal hinged to the opposite end of the seat, a foot rest hinged at one end to the pedestal and extending longitudinally below the seat, and a member pivotally supporting the other end of the foot rest from the seat.

5. The combination with a car wall and the box disposed at the base thereof, of guide ways secured to the wall and supported on the box, runners traveling in the guide ways, a seat hinged at one end to the runners, and means for supporting the opposite end of the seat.

6. The combination with the side wall of a car and the box disposed at the base thereof, of parallel guides secured to said wall and extending substantially perpendicularly therefrom and supported on the box, a seat having a hinged and slidable connection at one end with the guides, and means for supporting the opposite end of the seat.

7. In a folding car seat the combination of a vertical support, of parallel guides secured to the support above the floor and extending substantially perpendicularly therefrom, a seat having a hinged and slidable connection at one end with the guides and adapted to be swung upwardly against the support, a pedestal secured to the free end of the seat for supporting the same, the pedestal having an interlocking connection with the floor, and means secured to the floor and the seat for yieldingly maintaining the pedestal interlocked with the former.

8. In a folding car seat the combination of a support, a seat hinged at one end thereto and adapted to be swung upwardly thereabout, means for supporting the opposite end of the seat, a tension spring secured to the floor, means disposed on the seat for de-

tachably engaging the tension spring, and means for operating such engaging means to release the spring.

9. In a folding car seat the combination of a support, a seat frame hinged at one end thereto and adapted to be swung upwardly thereabout, means for supporting the opposite end of the seat frame, a tension spring secured to the floor, a shaft journaled in the seat frame and carrying a hook adapted to engage the tension spring, and means for turning the shaft to release the spring.

10. In a folding car seat the combination of a support, a seat frame hinged at one end thereto and adapted to be swung upwardly thereabout, means for supporting the opposite end of the seat frame, a tension spring secured to the floor, a shaft journaled in the seat frame and carrying a hook, a second spring for holding the shaft in position with the hook in engagement with the first mentioned spring, and means for turning the shaft against the force of the second spring to release the first spring.

11. In a folding car seat the combination of a support, a seat frame hinged at one end thereto and adapted to be swung upwardly thereabout, means for supporting the opposite end of the seat frame, a tension spring secured to the floor, a shaft journaled in the seat frame and carrying a hook adapted to engage the spring, a second spring acting on the shaft to hold the hook in such engagement, a releasing bail connected to the seat frame, and an operative connection between the releasing bail and the shaft.

12. In a folding car seat the combination of a support, a seat slidably and hingedly connected at one end to the support and adapted to be swung upwardly into an inoperative position, a leg hinged at the opposite end of the seat and adapted to enter a socket in the floor, and a detachable connection between the seat and the floor holding the leg against displacement from the socket, whereby to maintain the seat against sliding or turning movement.

13. In a folding car seat, the combination of a support, a seat hinged at one end to the support and adapted to be swung upwardly into an inoperative position, means for supporting the other end of the seat, a flexible anchoring member fastened at one end to the floor, an engaging member movably mounted on the seat and normally engaging the free end of the anchoring member to hold the seat in an operative position, and means mounted on the seat for moving said engaging member to release the anchoring member.

14. A folding car seat, the combination of a support, a seat hinged at one end to the support and adapted to be swung upwardly into an inoperative position, means for supporting the opposite end of the seat, a flexible anchoring member fixed at one end to the floor, an engaging member movably mounted on the seat and normally engaging with the free end of the anchoring member to hold the seat in an operative position, and a bail mounted on the seat and operatively connected with said engaging member to move the same to release the anchoring member.

15. A folding car seat embodying a seat, a back for the seat, a supporting arm movably connected to the seat at a point intermediate of the front and rear edges thereof and having a pivotal connection with the back to permit the same to be reversed, the supporting arm also having a sliding connection with the back to permit the same to be moved longitudinally of the arm to be folded against the seat, and means for holding the supporting arm and back against relative sliding movement without interfering with the free pivotal movement thereof.

16. A folding car seat embodying a seat, a back for the seat, a supporting arm movably connected to the seat at a point intermediate of the front and rear edges thereof, a bearing fitted on the free end of the supporting arm and pivotally connected to the back to permit the same to be reversed, the bearing being also adapted to slide longitudinally on the supporting arm to permit the back to be folded against the seat, and means for holding the bearing and supporting arm against relative sliding movement without interfering with the free pivotal movement of the bearing relative to the back.

17. In a folding car seat embodying a seat, a supporting arm movably connected thereto, a back, a pivotal and sliding connection between the back and supporting arm, said connection embodying a hollow trunnion rotatably mounted in the back and provided with a bearing sleeve slidably mounted on the supporting arm, and a latch rod sliding in the back and the hollow trunnion and adapted to engage the supporting arm.

18. In a folding car seat embodying a seat, a supporting arm movably connected thereto, a back, a pivotal and sliding connection between the back and supporting arm, said connection embodying a hollow trunnion rotatably mounted in the back and provided with a bearing sleeve slidably mounted on the supporting arm, a spring actuated latch rod disposed in the hollow trunnion and normally engaging the supporting arm, and means for retracting the latch rod.

19. A folding car seat embodying a seat, a back for the seat, members movably con-

nected at one end to the seat intermediate of the front and rear edges thereof, one of said members having a pivotal and sliding connection with the back, the second member having a pivotal connection with the back at a point above the connection of the first member therewith, said pivotal connection between the second member and the back permitting the latter to be reversed, the second member also having a sliding connection with the back to permit the same to be folded against the seat, and means for holding the second member and back against relative sliding movement without interfering with the free pivotal movement thereof.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN S. FARRELL. [L. S.]
JESSE S. LEWIS. [L. S.]

Witnesses:
FRANK C. TARNER,
IRA E. BING.