

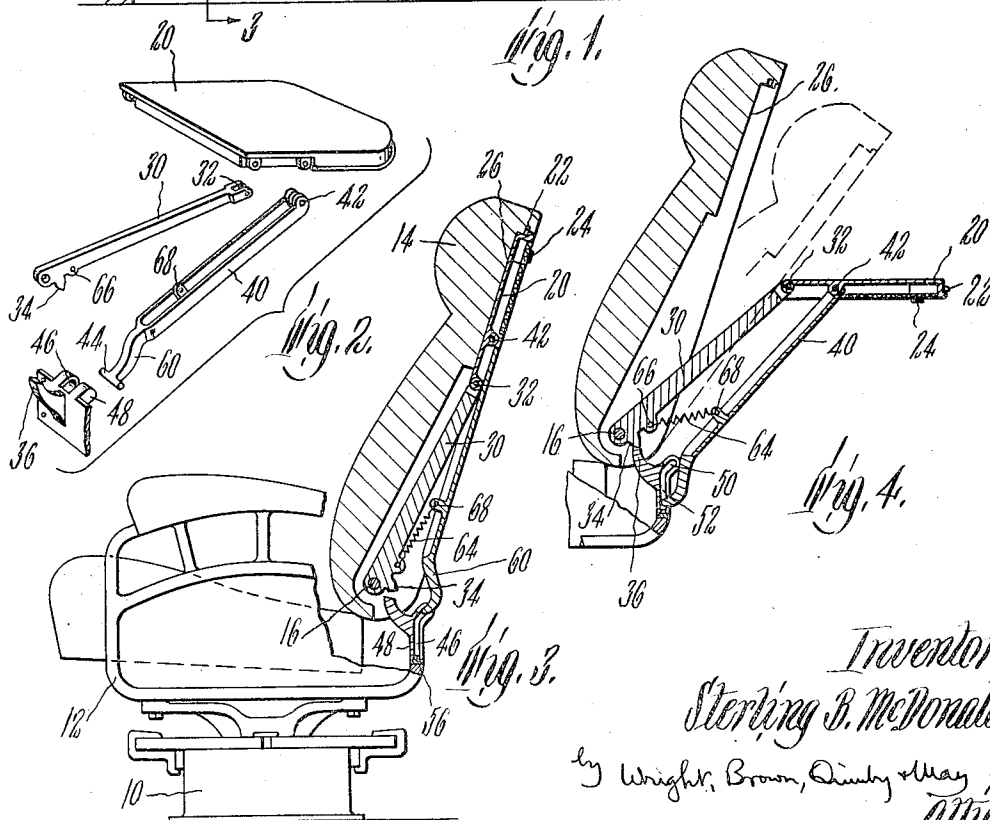
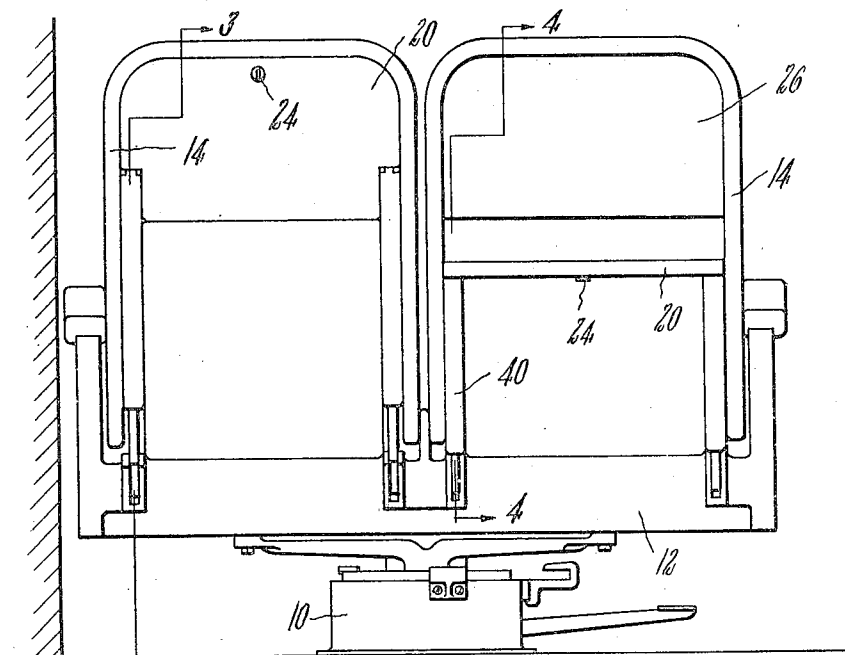
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TRAY FOR RECLINER-BACK CHAIRS

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TRAY FOR RECLINER-BACK CHAIRS

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10 Claims. (Cl. 155—128)

This invention relates to a recliner-back chair provided with a tray which is movable between an idle position in which it is secured facewise against the rear face of the back of the chair so as to move as a unit therewith when the inclination of the back is adjusted to various angles, and a horizontal position for use in which the tray is supported independently of the chair back so that the back can be adjusted to any angle of inclination within its range of movement without interfering with the tray or its supports.

For a more complete understanding of the invention, reference may be had to the following description thereof and to the drawing of which

Figure 1 is a rear elevation of a pair of recliner-back chairs of the type employed in railway coaches.

Figure 2 is a perspective view of a tray and certain parts of the supporting apparatus therefor.

Figure 3 is a sectional view on the line 3—3 of Figure 1.

Figure 4 is a sectional view on the line 4—4 of Figure 1.

Figure 1 illustrates a chair unit for a railway coach, mounted on a base 10 which preferably contains reversing mechanism by which the chairs can be made to swing about on a pivot. The chairs themselves comprise a seat frame 12 which may be for a single seat, or, as shown in Figure 1, may be for a double seat, each individual seat being provided with a separate back 14 so that the occupant can adjust the back independently to the angle of inclination desired. The backs 14 are mounted to rock about the axis of a horizontal shaft 16, the shaft being suitably supported on the seat frame 12. Any suitable mechanism for controlling the adjustment of the backs 14 may be employed. A tray 20 is provided, this tray being normally secured in an idle position in the back 14 of the chair, as indicated in Figure 3. To this end, a suitable latch 22 may be provided, the latch being operable by a key thrust through a keyhole 24 or by any other desired means. When the tray 20 is in its idle position, it is preferably disposed in a shallow recess 26 in the rear face of the chair back so that the under surface of the tray is flush with the rear face of the seat as indicated in Figure 3.

The useful position of the tray 20 is illustrated in Figure 4, the tray being shown as supported horizontally. Supporting means for the tray include a pair of supporting arms 30, each of these

arms being pivoted at its lower end about the shaft 16 and being pivoted at its upper end to the tray 20 as at 32. In order to limit the rearward rocking movement of the arms 30, each arm may be provided with an abutment element 34 adapted to engage a stop member 36 which is carried by the seat frame 12. In order to support the tray 20 in a horizontal position when it has been released from the chair back, additional supporting means are provided to limit its rocking movement relative to the arms 30. As shown, such additional means comprise a pair of auxiliary arms 40 which are pivoted to the tray 20 at their upper ends as at 42. The lower ends of the arms 40 are provided with lugs or cam followers 44 adapted to ride in guiding grooves 46 formed in guiding elements 48 which are secured to or are a part of the seat frame 12. The guiding grooves 46 each have an upper portion 50 which is substantially concentric with the axis of the shaft 16. The upper portions 50 of the grooves 46 merge into lower portions 52 which extend preferably in an up-and-down direction. The lugs 44 travel in the lower portions of the guide grooves when the tray is swung out to its position for use, the lugs 44 engaging rubber pads 56 or other suitable resilient abutment elements at the lower end of each guiding groove 46. The lugs 44 at the lower ends of the auxiliary arms 40 may be offset from the axes of the arms 40 by suitable goosenecks 60. As indicated in Figure 2, the auxiliary arms 40 may be in the form of channels for a greater part of their length, so that, when the tray and its supports are folded into position against the chair back, the joints 32 can be received within the channels of the arms 40, as indicated in Figure 3.

A suitable tension spring 64 is stretched between a lug 66 on the rear edge of each arm 30 and a lug 68 projecting forwardly from each auxiliary arm 40. As shown in Figure 3, the lug 68 is forward of the line of centers of the pivots 32 and 42 when the tray is folded up against the chair back. Thus, when the tray is in its idle position, the spring 64 tends to hold the tray in the position shown relative to the supporting arms 30 and 40. When the tray is released from its idle position and rocks on the pivot 32 so as to move the lug 68 to the rear of the line of centers between the pivots 32 and 42, the spring 64 thereupon tends to rock the tray to its rearmost angular position. When the lugs 44 are against the abutment elements 56 at the bottom of the grooves 46, the tray is then in a horizontal position as shown in Figure 55

4. In this position it is conveniently presented to the occupant of the seat immediately behind the chair on which the tray is supported. If the tray is accidentally knocked from below, as by the knee of the person using the tray, the spring 64 serves to prevent a sharp forward tilt of the tray and causes the tray to rise while maintaining a substantially horizontal position. This tends to avoid trouble which might otherwise arise from objects being knocked off of the tray 20 when the tray is accidentally struck from below.

When the tray is secured in its idle position as illustrated in Figure 3, the supporting arms 30 and 40 are also disposed within the structure of the chair back so that there are no parts projecting from the rear face of the chair back. When the parts are in this position, the supporting means and the tray rock as a unit with the chair back when the latter is shifted to different angles of inclination. At such times, the lugs 44 ride in the upper portions 50 of the guide slots. Since these guide slots are substantially concentric with respect to the axis of the shaft 16, the lugs 44 ride freely in these portions of the guide slots when the chair back is being rocked to different angles of adjustment. It is evident from Figure 4 that, when the tray is supported in its horizontal position for use, it is entirely independent of the chair back, so that the back may be adjusted as desired without interfering in any way with the tray.

It is evident that various modifications and changes can be made in the details of the embodiments herein shown and described as an example of the invention, without departing from the spirit or scope thereof as defined in the following claims.

I claim:—

1. A recliner-back chair, comprising a seat frame, a back pivotally mounted on said frame to rock on a horizontal axis, a tray adapted to be moved from an idle position facewise against said back to a horizontal position for use, means for supporting said tray independently of said back when the tray is in its position for use, and means for releasably securing said tray and supporting means to said back to rock as a unit therewith when the tray is in its idle position.

2. A recliner-back chair, comprising a seat frame, a back pivotally mounted on said frame to rock on a horizontal axis, a tray adapted to be moved from an idle position facewise against said back to a horizontal position for use, means for supporting said tray independently of said back when the tray is in its position for use, said supporting means including a bracket arm pivotally connected to the tray and rockable about the rocking axis of the chair back, and means for releasably securing said tray in its idle position to rock with said back as a unit.

3. A recliner-back chair, comprising a seat frame, a back pivotally mounted on said frame to rock about a horizontal axis, a tray permanently attached to said frame and movable from an idle position against said back to a horizontal position for use, means for releasably securing said tray in its idle position against the back, and means for supporting said tray in its position for use independently of the angle of inclination of said back.

4. A recliner-back chair, comprising a seat frame, a back pivotally mounted on said frame to rock about a horizontal axis, a tray attachable against said back to rock as a unit therewith when in idle position, and means for sup-

porting said tray in a horizontal position independently of said back, said supporting means including a pair of arms pivoted at one end to said tray and pivoted at the other end to rock about said horizontal axis, and means limiting the rearward rocking movement of said arms.

5. A recliner-back chair, comprising a seat frame, a back pivotally mounted on said frame to rock about a horizontal axis, a tray movable from an idle position against the rear face of said back to a horizontal position for use, and means for supporting said tray in its horizontal position independently of said back, said supporting means including a pair of supporting arms pivoted at their lower ends to rock about said axis and pivoted at their upper ends to said tray, a pair of auxiliary arms pivoted at their upper ends to said tray, and abutment means on said frame engageable by the lower ends of said auxiliary arms to support the same when the tray is in its horizontal position.

6. A recliner-back chair, comprising a seat frame, a back pivotally mounted on said frame to rock about a horizontal axis, a tray movable from an idle position against the rear face of the back to a horizontal position for use, and means for supporting said tray in its horizontal position independently of said back, said supporting means including a pair of supporting arms pivoted at their lower ends to rock about said axis and pivoted at their upper ends to said tray, a pair of auxiliary arms pivoted at their upper ends of said tray, abutment means on said frame engageable by the lower ends of said auxiliary arms to support the same when the tray is in its horizontal position, and means on said frame to guide said lower ends of the auxiliary arms into engagement with said abutment elements when the tray is moved into position for use.

7. A recliner-back chair, comprising a seat frame, a back pivotally mounted on said frame to rock about a horizontal axis, a tray movable from an idle position against the rear face of said back to a horizontal position for use, and means for supporting said tray in its horizontal position independently of said back, said supporting means including a pair of supporting arms pivoted at their lower ends to rock about said axis and pivoted at their upper ends to said tray, a pair of auxiliary arms pivoted at their upper ends to said tray, abutment means on said frame engageable by the lower ends of said auxiliary arms to support the same when the tray is in its horizontal position, and spring-tensioned means between each said auxiliary arm and its corresponding supporting arm between the ends thereof.

8. A recliner-back chair, comprising a seat frame, a back hinged to said frame to rock about a horizontal axis, a tray movable from an idle position against said back to a horizontal position for use, and supporting means for said tray including a pair of support arms pivotally attached to said tray and rockable about said axis, a pair of auxiliary arms pivotally attached to said tray and extending below said axis, resilient abutment elements engageable by the lower ends of said auxiliary arms to support the same, and spring means pulling said auxiliary arms in a downward direction.

9. A recliner-back chair, comprising a seat frame, a back pivotally mounted on said frame to rock about a horizontal axis, a tray movable from an idle position against the rear face of the back to a horizontal position for use, a pair of supporting arms pivoted at their lower ends to

rock about said axis and pivoted at their upper ends to said tray, a pair of auxiliary arms pivoted at their upper ends to said tray and having cam followers at their lower ends, and guide elements having cam slots mounted on said frame for said cam followers, said slots having their upper portions in arcuate shape concentric with said axis, the lower ends of said slots being engageable by said cam followers when said tray is in its horizontal position.

frame, a back pivotally mounted on said frame to rock about a horizontal axis, said back having a shallow recess in the rear face thereof, a tray adapted to fit into said recess flush with the rear face of the back, means for releasably retaining said tray in said recess, and means carried by said frame for supporting said tray in a horizontal position independently of the back when released therefrom.

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10. A recliner-back chair, comprising a seat