Dec. 23, 1941. W. NORDMARK 2,266,897

CHAIR

Filed June 20, 1938

2 Sheets-Sheet 1

Fig. 1.

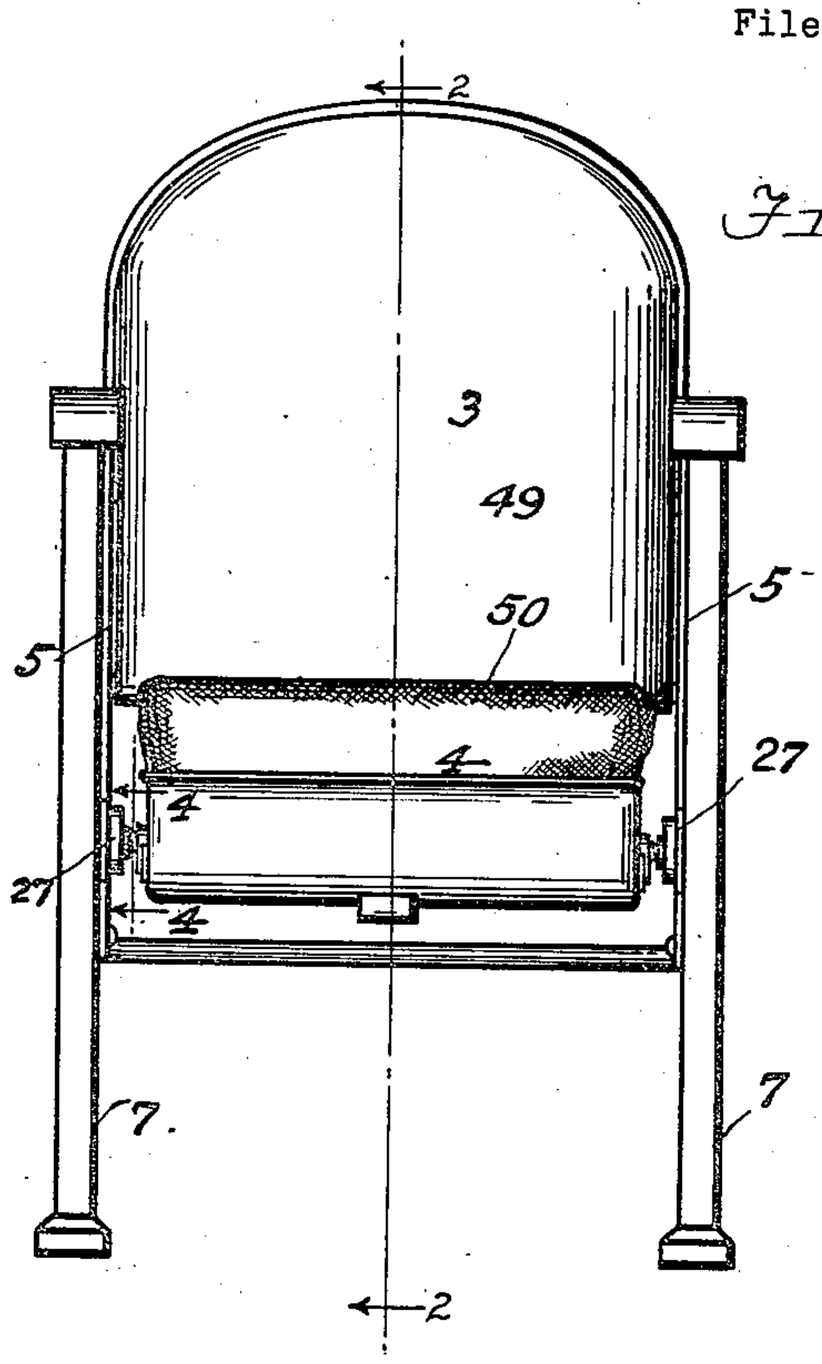


Fig. 2.

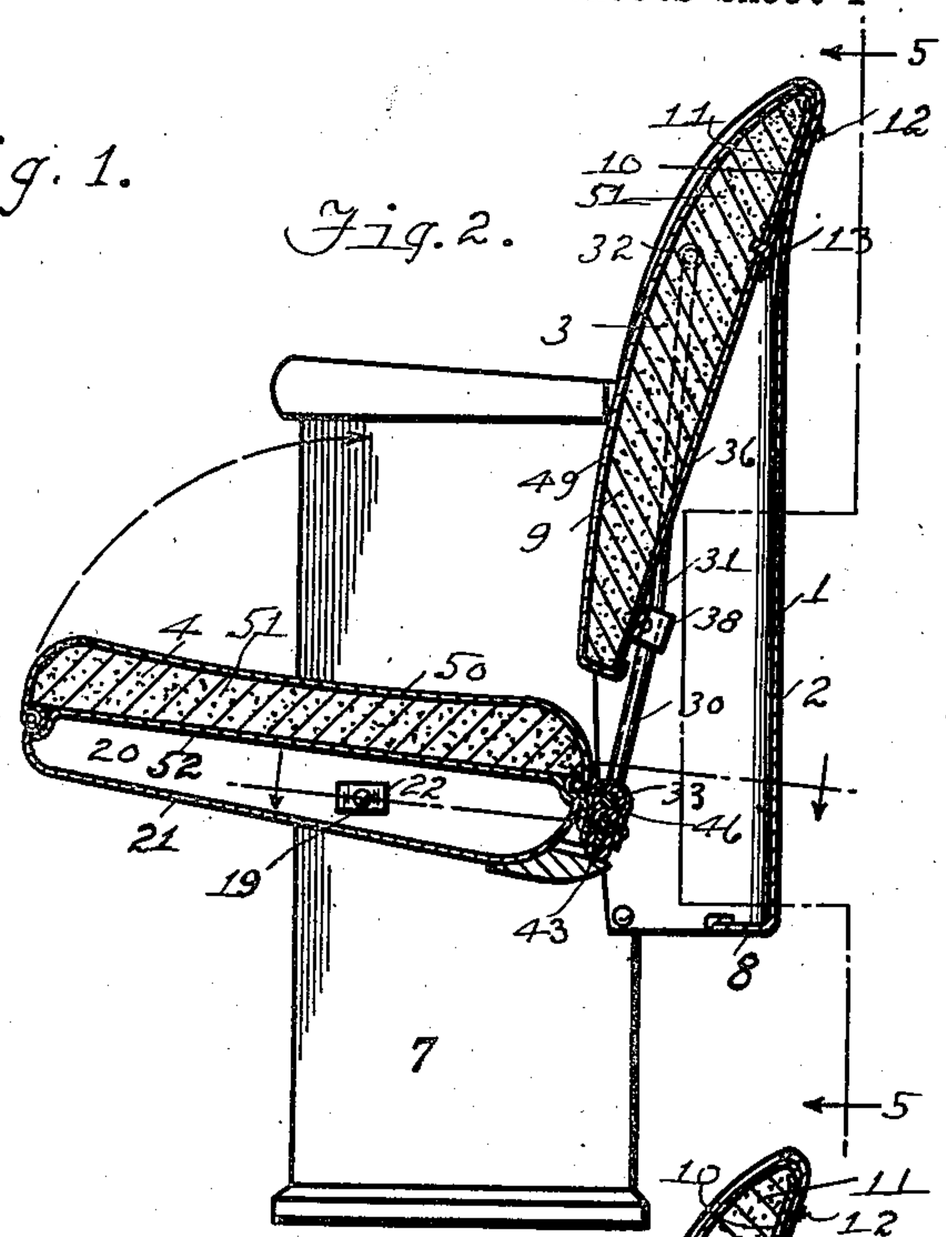


Fig. 3.

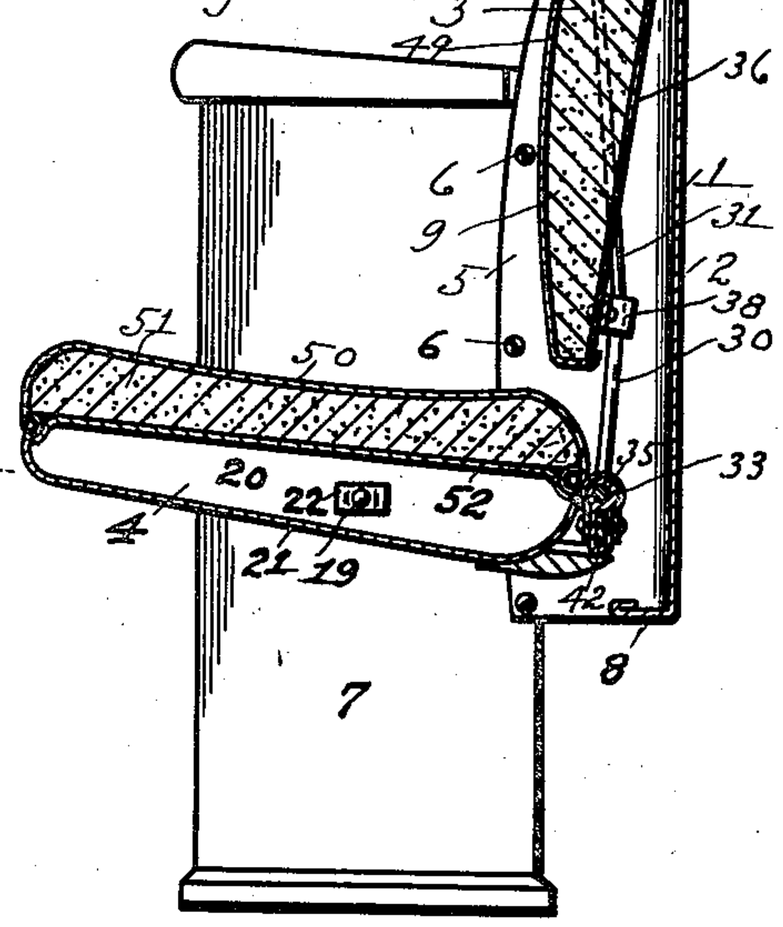
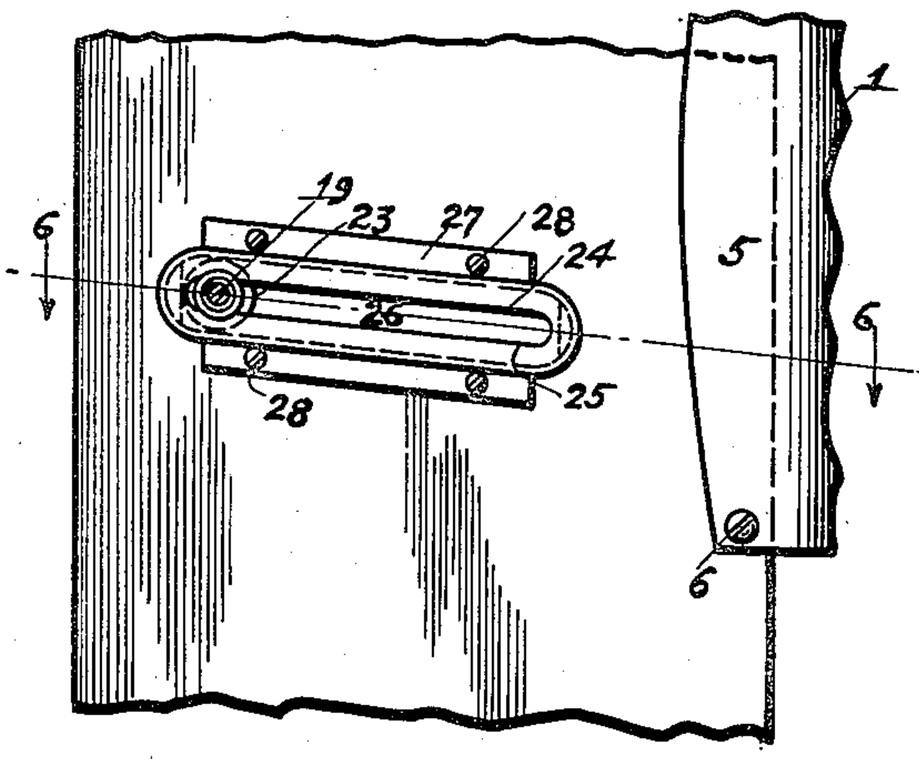


Fig. 4.



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CHAIR

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2 Sheets-Sheet 2

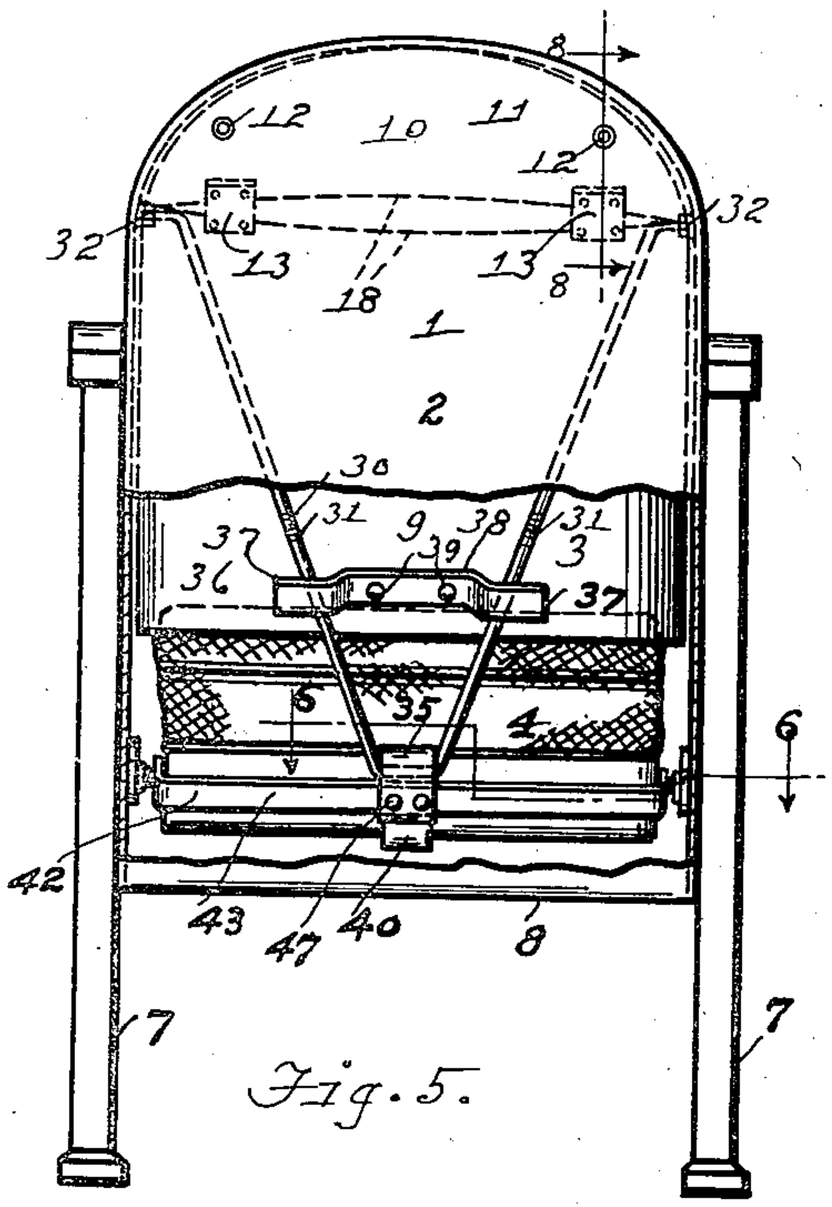

Fig. 5.

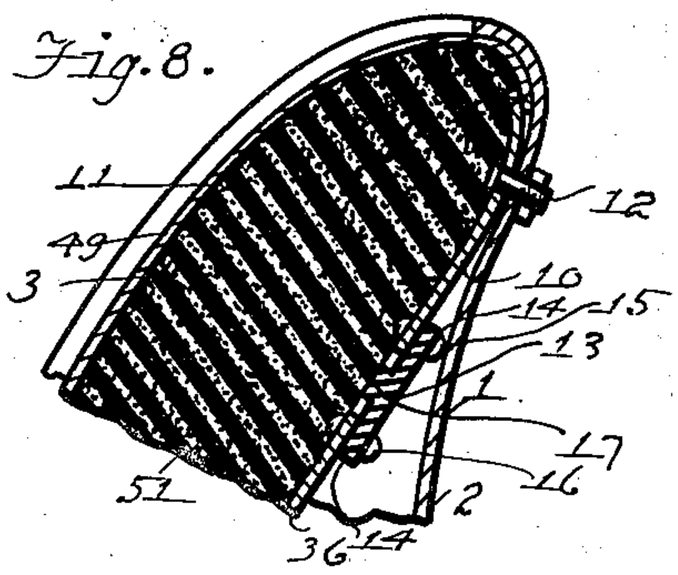

Fig. 8.

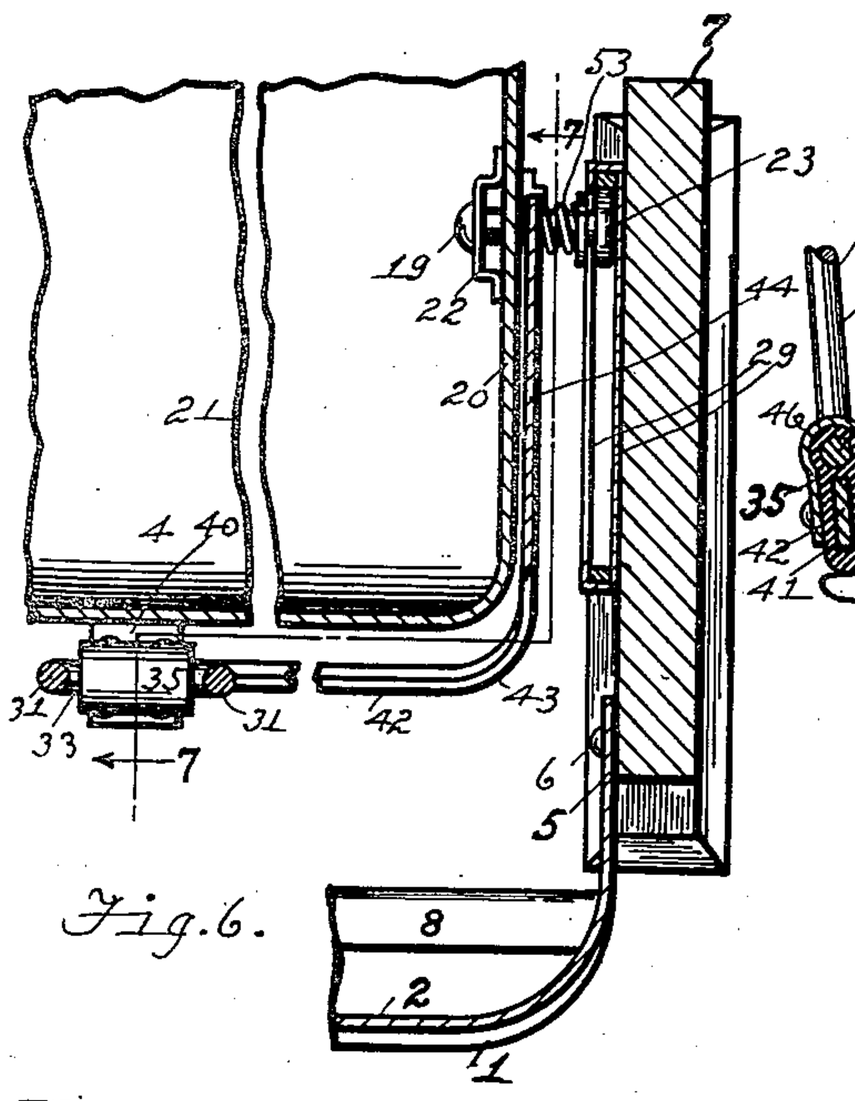

Fig. 6.

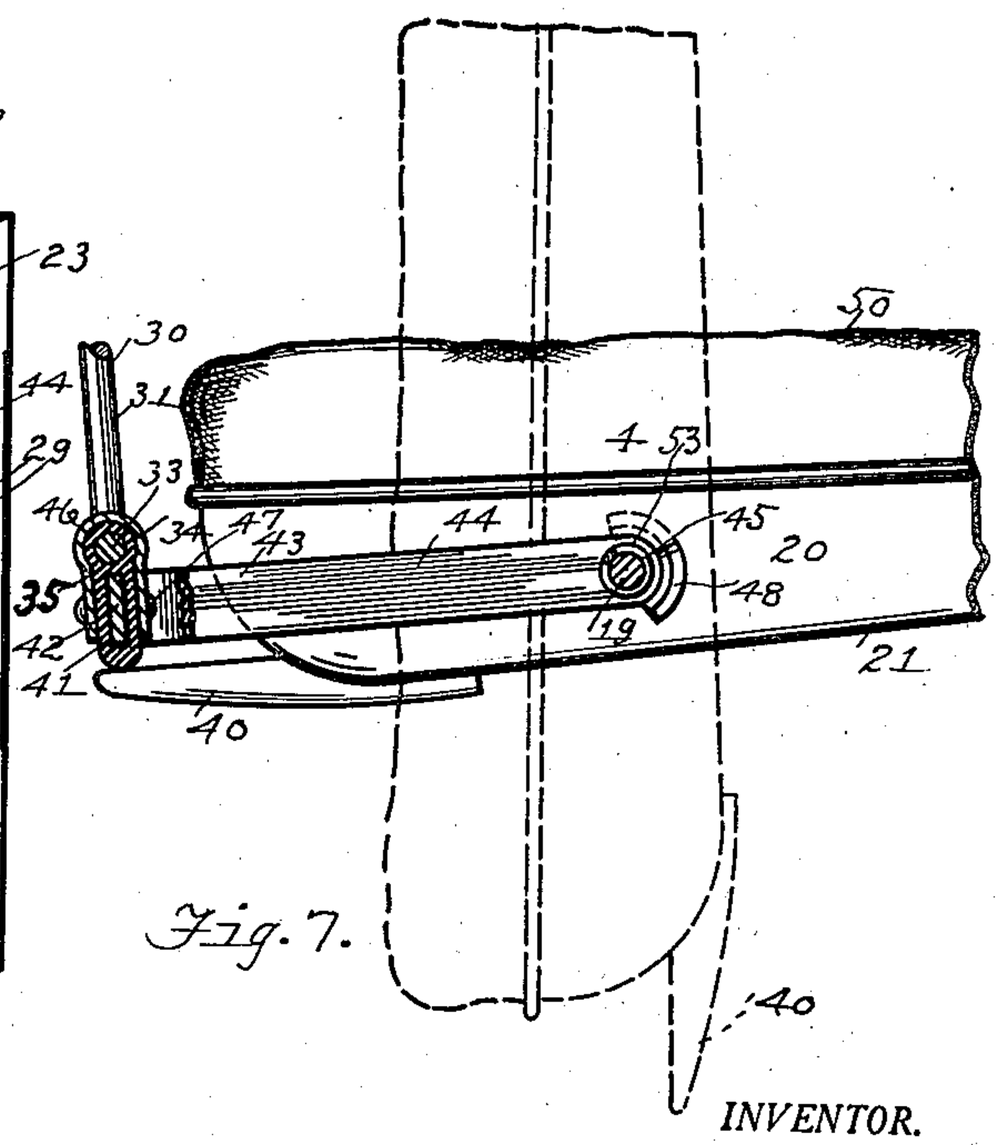

Fig. 7.

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UNITED STATES PATENT OFFICE

2,266,897

CHAIR

Walter Nordmark, Grand Rapids, Mich., assignor to American Seating Company, Grand Rapids, Mich., a corporation of New Jersey

Application June 20, 1938, Serial No. 214,623

4 Claims. (Cl. 155—84)

The present invention relates to chairs, particularly such as are provided for theatres and the like; and its object is, generally, to provide such a chair improved in various respects hereinafter appearing; and more particularly, to provide in such a chair a seat having improved means for supporting it for movement forwardly-rearwardly and for movement to lowered use position and to raised position; and further, to provide an improved back pivotally mounted for forward-rearward movement; and further, to provide improved means whereby the seat and back together move forwardly-rearwardly; and further, to provide improved means for holding the seat from tilting downwardly at its front edge; and further, to provide an improved shield for preventing injury from rearward movements of the seat or back; and further, to provide such parts in various improved combinations.

These and any other and more specific objects hereinafter appearing are attained by, and the invention finds preferable embodiment in, the chair structure particularly described in the body of this specification and illustrated by the accompanying drawings, in which:

Figure 1 is an elevational front view of a theatre chair;

Figure 2 is a central vertical sectional view thereof taken on line 2—2 of Figure 1;

Figure 3 is a like view of the same but showing the chair's seat and back in another position;

Figure 4 is an inner side view of one of the chair's leg standards with connected parts;

Figure 5 is an elevational rear view of the chair, certain parts being sectioned on line 5—5 of Figure 2;

Figure 6 is a horizontal sectional view thereof taken on line 6—6 of Figures 4 and 5;

Figure 7 is a vertical sectional view of the same taken on line 7—7 of Figure 6;

Figure 8 is a vertical sectional view of the upper portion of the chair taken on line 8—8 of Figure 5.

In the chair illustrated by these drawings, the shield 1 (a plate of sheet metal or the like) has a rearwardly bowed main or middle portion 2 behind the chair's back 3 and the rear edge of its seat 4, lateral portions 5 extending forwardly around the side edges of the back and mounted at 6 on the inner sides of the chair's leg standards 7 respectively, and also a bottom portion 8.

The rearwardly bowed back 3, i. e. its main lower part 9, is supported hingedly by the shield; that is, the rear member or plate 10 (of sheet metal or the like) of the back's upper part 11 is mounted, preferably detachably, as by the threaded bolts 12 extending through said plate 10 and through the shield 1, and said lower main part 9 of the back is supported directly on this upper part 11 by resilient hinges 13 (of rubber or the like) whose upper and lower portions or hinge leaves 14 are secured at 15, 16 on the back's said parts respectively, so that the back, i. e. its lower main part, may turn between forward and rearward positions shown in Figures 2 and 3. The portion 17 of this hinge extending forwardly between the mutually adjacent edges 18 of the back's said parts serves to cushion their relative approaching movement.

For supporting the seat medially of its front and rear edges for forward-rearward bodily movement and also for turning movement to raised and lowered positions, horizontal pins 19 are mounted on and extend through the upwardly extending lateral flanges 20 of the seat's bottom frame or "pan" 21 (of sheet metal or the like) and through fixed bar supports 22 secured as by welding to the inner surfaces of the lateral flanges 20 of the seat "pan" 20, these pins serving as axles for the anti-friction rolls 23 turnable thereon and traveling between the upper and lower sides 24, 25 of slot bearings 26 in the track members 27 fastened at 28 on the inner sides of the standards respectively, these rolls being retained, against lateral displacement, between the spaced lateral sides of these track members.

The seat is held against tilting downwardly at its front edge from its lowered position of use by a stop rod 30 having upwardly diverging arm portions 31 pivoted at their upper ends in bearings 32 on and adjacent the upper ends of the shield's side portions 5 respectively, the horizontal middle or bight portion 33 of this rod being turnable in a bearing 34 in the upper portion of a block 35 which block is located slightly behind the rear center of the seat and is provided with a depending portion, and said arms 31 being held on the rear plate 36 of the back's lower part by the opposite ends 37 of a clip 38 mounted at 39 in its middle on said plate 36.

The rear end of the seat, i. e. its rearwardly projecting portion 40, engages the under side of said block and the downwardly turning movement of the seat at its front edge is thereby stopped in the seat's position of use. This block is desirably resilient (as rubber) to cushion its stopping action, and the depending portion thereof has an opening 41 through which extends the middle portion 42 of a bail 43 behind the seat,

the end portions 44 of this bail extending forwardly and having bearings 45 turnably receiving the axle pins 19. The chair's back and seat are thus connected by this bail and the rod 30 for forward-rearward movement together.

A reinforcing metal clip 46 extends around the upper end of the block and along its sides and bolts or rivets 47 extend through this clip, the block and the bail for holding the same together. A stop 48 on the side of the seat serves to limit its turning movement.

Coiled springs 53 pressing between the standards and the sides of the seat balance the seat resiliently between the standards.

Upholstery for the back and the seat is shown, comprising the flexible cover sheets 49, 50 and resilient stuffing 51 (of sponge rubber or the like) between the sheet 49 and the rear plates 10, 36 of the back and between the sheet 50 and the top plate 52 of the seat's bottom frame or "pan" 21. It will be seen that the axis of the turning movement of the hinge's leaves 14 is offset horizontally from the axis 32 of the turning movement of the rod 30, so that the back and the rear portion of the seat in its use position move forwardly-rearwardly in a nearly horizontal line.

It will also be seen that the slot bearings 26 of the track members are somewhat inclined downwardly-rearwardly whereby the seat and back tend to move rearwardly, and that the forward-rearward movement of either of these parts of the chair carries the other with it by reason of the bail 43 which connects said parts, and that this action is true in any turned position of the seat about the axis of the pins 19 which, bearing in the slots 26, support the seat for its turning movement and also for its forward-rearward movement.

It will also be seen that the shield prevents injury to persons behind the chair resulting from the rearward movement of its seat and back, and that the shield's bottom 8 prevents persons seated behind the chair from thrusting their feet between the shield and the rear part of the seat.

The invention being intended to be pointed out in the claims, is not to be limited to or by details of construction and arrangement of the particular embodiment thereof illustrated by the drawings or hereinbefore shown or described.

I claim:

1. In a chair of the class described: a frame comprising a pair of laterally spaced leg standards having forwardly-rearwardly extending slide bearings; a seat between the standards having pivots at its sides slidable and turnable in said bearings for permitting forwardly-rearwardly bodily movement and turning movement of the seat to lowered use position and to raised position; a back connected adjacent its upper end with the frame for forwardly-rearwardly turning movement; a vertically elongated member connected medially with the back adjacent the lower end thereof and pivotally connected adjacent its upper end with the frame and adjacent its lower end with the seat adjacent the rear end thereof and having at its lower end a stop portion, the seat having a rearward extension adapted to engage said stop portion in the seat's lowered use position for holding the seat against turning downwardly from said position.

2. In a chair of the class described: a frame comprising a pair of laterally spaced leg standards having forwardly-rearwardly extending slide bearings; a seat between the standards having pivots at its sides slidable and turnable in said bearings for permitting forwardly-rearwardly bodily movement and turning movement of the seat to lowered use position and to raised position; a back connected adjacent its upper end with the frame for forwardly-rearwardly turning movement; a vertically elongated member connected medially with the back adjacent the lower end thereof and pivotally connected adjacent its upper end with the frame; and a bail having a middle portion behind the seat pivotally connected with said member adjacent the lower end thereof and opposite side portions pivotally connected with the sides of the seat, said member having a stop portion adjacent its lower end and the seat having a rearward extension adapted to engage said stop portion in the seat's lowered use position for holding the seat against turning downwardly from said position.

3. In a chair of the class described: a frame comprising a pair of laterally spaced leg standards having forwardly-rearwardly extending slide bearings; a seat between the standards having pivots at its sides slidable and turnable in said bearings for permitting forwardly-rearwardly bodily movement and turning movement of the seat to lowered use position and to raised position; a back connected adjacent its upper end with the frame for forwardly-rearwardly turning movement; a resilient stop having an opening therethrough; a vertically elongated member connected medially with the back adjacent the lower end thereof and pivotally connected adjacent its upper end with the frame and adjacent its lower end with the stop; and a bail having a middle portion behind the seat extending through the stop and opposite side portions pivotally connected with the sides of the seat, the seat having a rearward extension adapted to engage the stop in the seat's lowered use position for holding the seat against turning downwardly from said position.

4. In a chair of the class described: a frame comprising a pair of laterally spaced leg standards having forwardly-rearwardly extending slide bearings; a seat between the standards having pivots at its sides slidable and turnable in said bearings for permitting forwardly-rearwardly bodily movement and turning movement of the seat to lowered use position and to raised position; a back connected adjacent its upper end with the frame for forwardly-rearwardly turning movement; a resilient stop having an opening therethrough; a vertically elongated member connected medially with the back adjacent the lower end thereof and pivotally connected adjacent its upper end with the frame and adjacent its lower end with the stop; and a bail having a middle portion behind the seat extending through the stop and opposite side portions pivotally connected with the sides of the seat, the seat having a rearward extension adapted to engage the stop in the seat's lowered use position for holding the seat against turning downwardly from said position, the point of the back's connection with the frame being offset rearwardly from the point of the elongated member's connection with the frame.

WALTER NORDMARK.