

Dec. 7, 1943.

M. K. ORTON

2,336,031

CHAIR

Filed May 9, 1941

4 Sheets-Sheet 1

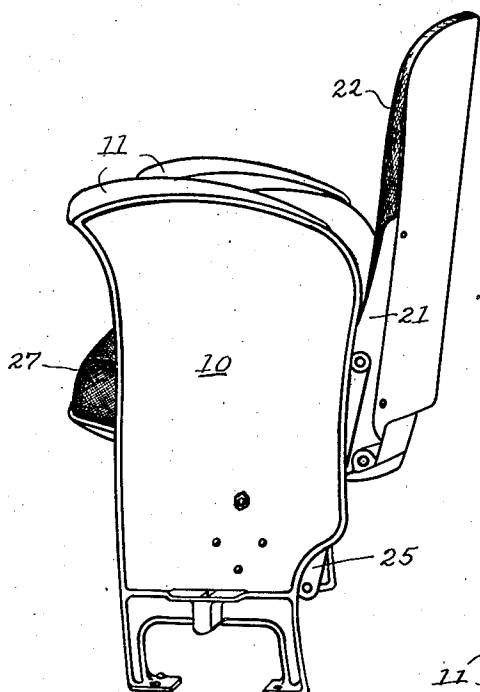


Fig. 2

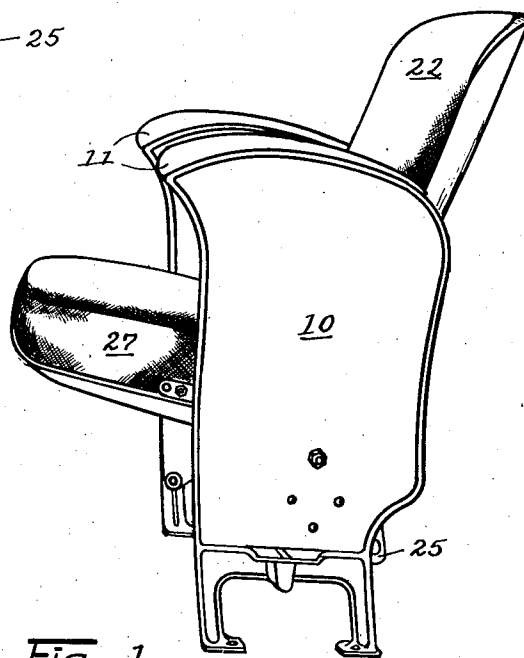


Fig. 1

Witness
Geo. L. Chapel

Merritt K. Orton Inventor

By *Rice and Rice*

Attorneys.

Dec. 7, 1943.

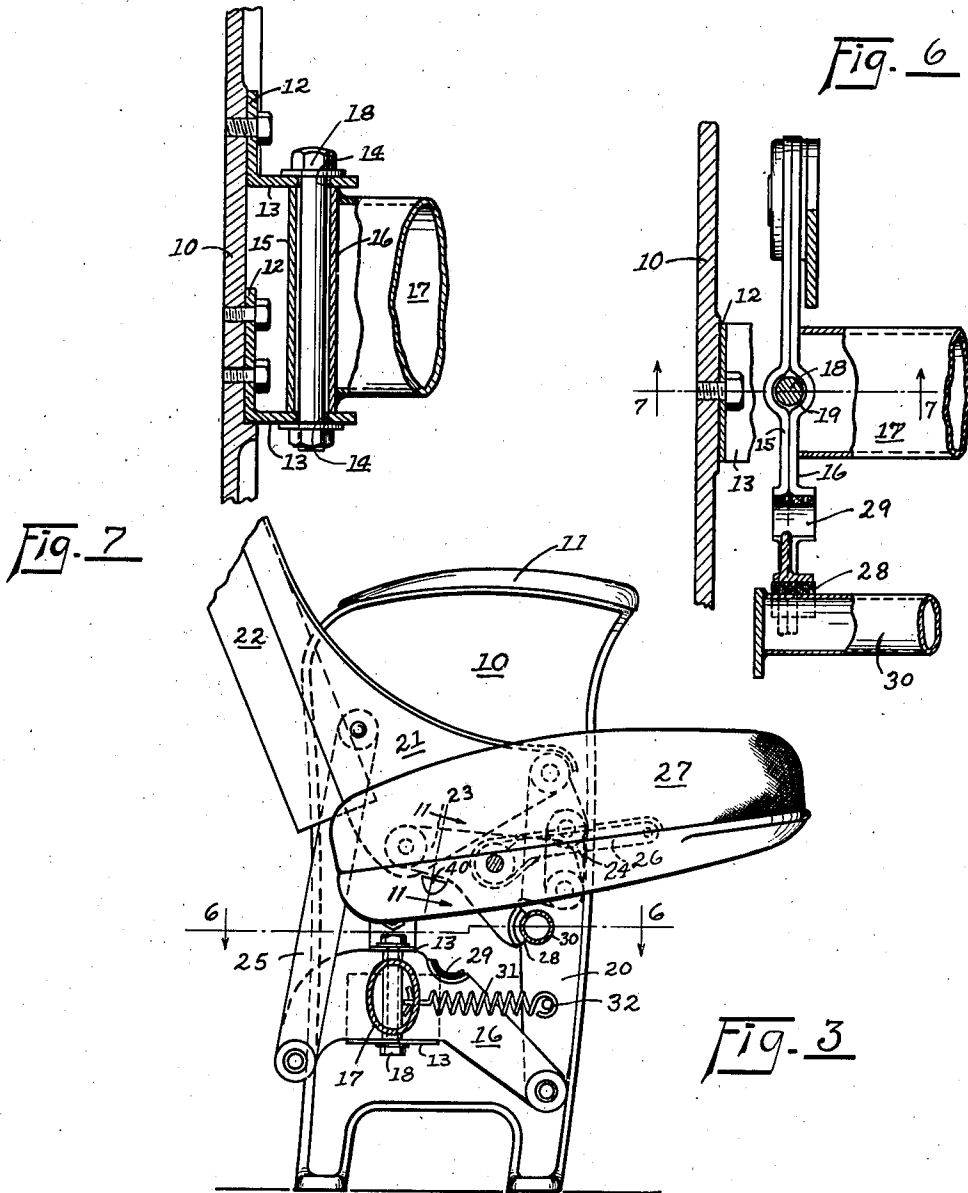
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4 Sheets-Sheet 2



Witness:
Geo. L. Chapel

Inventor
Merritt K. Orton

By *Rice and Rice*

Attorneys

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M. K. ORTON

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4 Sheets-Sheet 3

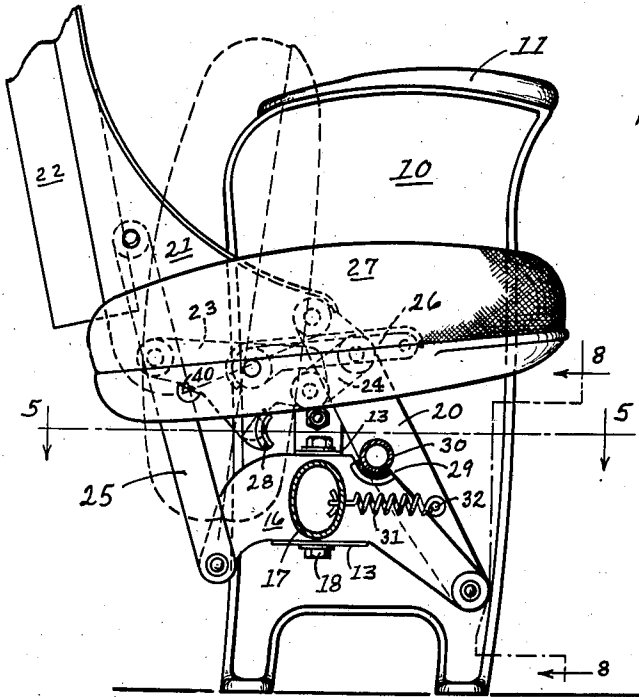


Fig. 4

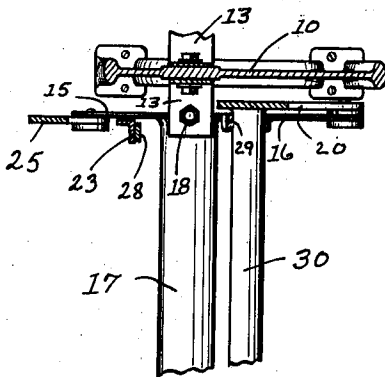


Fig. 5

Witness/
Geo. L. Chapel

Inventor
Merritt K. Orton

By

Rice and Rice

Attorneys

Dec. 7, 1943.

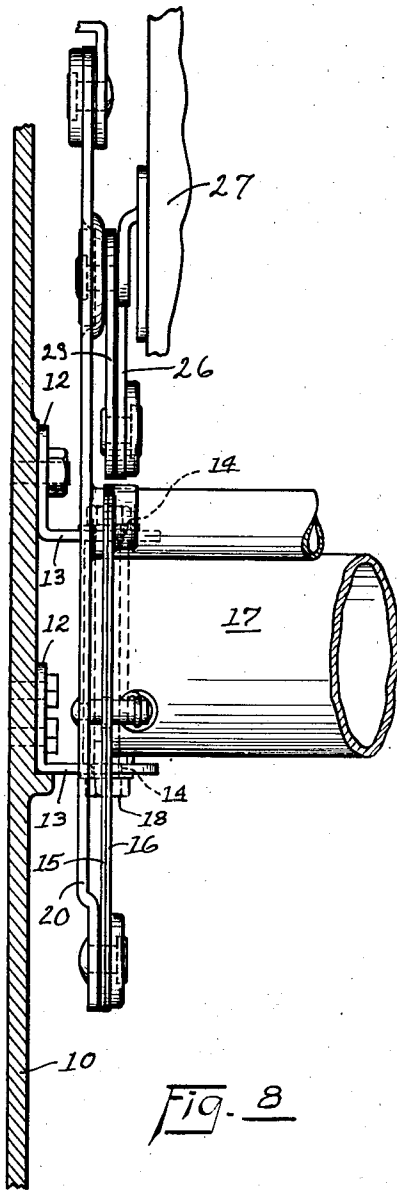
M. K. ORTON

2,336,031

CHAIR

Filed May 9, 1941

4 Sheets-Sheet 4



Witness/
Geo L. Chapin

Inventor
Merritt K. Orton

By Rice and Rice

Attorneys

UNITED STATES PATENT OFFICE

2,336,031

CHAIR

Merritt K. Orton, Grand Rapids, Mich., assignor
to American Seating Company, Grand Rapids,
Mich., a corporation of New Jersey

Application May 9, 1941, Serial No. 392,629

5 Claims. (Cl. 155—80)

The present invention relates to chairs and more particularly to a modification in construction of the chairs shown and described in my application for patent for chairs, filed by me December 16, 1940, Serial No. 370,365.

The primary objects of the instant invention are to provide a chair of the general character above indicated having a seat which is rearwardly movable on a substantially horizontal plane for a limited distance; to provide such a chair whose seat is upwardly tiltable as well as rearwardly horizontally movable; to provide such a chair whose back is so connected with the seat that a rearward movement of the seat effects a slight forward movement of the upper end of the back and a slight rearward movement of the bottom end thereof; to provide such a chair which when installed as one in a plurality of rows of like chairs and which when occupied provides for ready and convenient egress from and ingress to unoccupied seats in the same row without seriously disturbing the occupant of such an occupied chair or the occupant of a chair immediately rearwardly of such occupied chair; and, to provide such a chair which is comfortable and convenient in use, relatively simple in mechanical construction and reasonably economical in manufacture.

An illustrative embodiment of the invention is shown in the accompanying drawings, wherein—

Figure 1 is a side elevational perspective view of the chair showing the position of its seat and back when the chair is normally occupied;

Figure 2 is a view similar to that of Figure 1 but showing the respective positions of the seat and back when moved by the occupant of the chair to permit convenient passage of another before him;

Figure 3 is a vertical sectional view of the chair particularly showing the position of its mechanically moving parts when the chair is normally occupied;

Figure 4 is a view similar to that of Figure 3 but showing the position of the mechanically moving parts of the chair when the seat and back thereof have been moved by the occupant from their positions as shown in Figure 1 to their positions shown in Figure 2 and further showing in dotted lines the seat when upwardly tilted during non-occupancy of the chair;

Figure 5 is a sectional view on line 5—5 of Figure 4;

Figure 6 is an enlarged sectional view on line 6—6 of Figure 3;

Figure 7 is an enlarged sectional view on line 7—7 of Figure 6;

Figure 8 is an enlarged sectional view on line 8—8 of Figure 4.

Referring then to the drawings wherein like parts of the structure shown are designated by the same numerals in the several views the chair there shown comprises a pair of spaced vertically disposed standards 10, each provided with an arm rest 11 secured to its upper end in any suitable and convenient manner.

Each standard 10 is provided with a pair of vertically spaced horizontally disposed brackets 12 secured to its inner surface which brackets are each provided with an inwardly projecting horizontally disposed shelf 13 having aligned bolt receiving apertures 14.

A pair of identically formed irregularly shaped supporting plates 15, 16 (Figures 3 and 4) contiguous to one another and secured together as by welding are vertically disposed interjacent each pair of shelves 13 forwardly-rearwardly of the chair (Figures 6, 7 and 8).

A tubular strut 17, here shown as elliptical in cross section, is secured at each of its opposite ends to a pair of plates 15, 16 as by welding and a bolt 18 projected through the aligned apertures 14 of each companion pair of shelves 13 and through the pre-formed bore 19 (Figure 6) between each pair of supporting plates 15, 16 serves to maintain adjacent standards 10 in vertically spaced relation.

An upwardly extending arm 20 is pivotally connected at its lower end to the forward end of each pair of supporting plates 15, 16 and the upper end of each arm 20 is pivotally connected to the forward end of a generally triangularly formed bracket 21 between which pair of brackets the upholstered chair back 22 is secured.

A pair of generally horizontally disposed links 23, each pivotally connected adjacent its rear end to a back supporting bracket 21 rearwardly of the pivotal connection of an upwardly extending arm 20, are each pivotally connected adjacent its forward end to a short link 24 whose other end is pivotally connected to its adjacent arm 20 below the pivotal connection of said arm with the back supporting bracket 21.

A pair of upwardly extending links 25, each pivotally connected at its lower end to rearward end of a pair of supporting plates 15, 16, are each pivotally connected at its upper end to a back supporting bracket 21 adjacent its rear length and intermediate thereof.

Seat supporting brackets 26 are pivotally se-

cured to each link 23 and an upholstered seat 27 is supported on the brackets 26 for upwardly tilting movement between each pair of standards 10 when the seat and back are in retracted positions and as indicated by dotted lines in Figure 4. The opposite sides of the seat 27 are provided with a laterally projecting lug 40 each of which engages a link 23 when the seat is in its occupied position to prevent the forward end of the seat from dropping downwardly.

The links 23 are each provided with a depending portion adjacent the forward edge of which is an arcuately formed rubber bumper 28 and the upper forward edge of each pair of supporting plates 15, 16 are likewise provided with an arcuately formed rubber bumper 29. A strut 30 secured between the upwardly extending arms 20 engages the bumpers 28 for limiting the forward movement of the seat 27 and during normal occupancy of the chair as shown in Figure 3 and the strut 30 engages the bumpers 29 for limiting the rearward movement of the seat when the occupant thereof effects such movement to permit another to pass before him as shown in Figure 4.

A coiled contraction spring 31 is secured at one end to the tubular strut 17 and at its other end to a pin 32 projecting inwardly from the arm 20 for normally maintaining the back 22 and seat 27 in retracted position as best shown in Figure 4.

Each of the several pivotally connected members such as the links 23, 24 are here shown as connected by bolts 33, fibre washers 34, 35 and the fibre washer 36 within the cup 37 being preferably used to prevent noise.

Since each link 23 is disposed substantially horizontally in its pivotally connected relation to the seat supporting brackets 26 and since each link 25 is slightly swingable forwardly-rearwardly about its lower pivotal connection, all as best shown in Figures 3 and 4, the seat 27 and back 22 are each forwardly-rearwardly movable to provide ready and convenient egress from and ingress to unoccupied seats in the same row without seriously disturbing the occupant of such a chair or the occupant of a chair immediately rearwardly of such occupied chair.

It will thus be seen that the chair herein shown and described is comfortable in use, is relatively simple in mechanical construction and is reasonably economical in manufacture, and while but one specific embodiment of the invention has been herein shown and described, it will be understood that certain details of the construction shown may be altered or omitted without departing from the spirit of the invention as the same is defined by the following claims.

I claim:

1. A chair comprising a pair of spaced vertically disposed standards; a chair back interposed between the standards the opposite sides of which back are each provided with a forwardly extending portion; a vertically disposed plate secured to the inner side of each standard in spaced relation thereto; a pair of upwardly extending arms, each pivotally connected at its lower end adjacent the forward end of one of said plates and each pivotally connected at its upper end to one of said forwardly extending portions of the chair back; a pair of upwardly extending links disposed rearwardly of the upwardly extending arms, each pivotally connected at its lower end adjacent the rearward end of one of said plates and each pivotally connected at its upper end to

one of said portions of the chair back; pairs of toggle links, each pair having one of its links pivotally connected to one side of the chair back and each having its other link pivotally connected to an upwardly extending arm; a seat secured at its opposite sides between like links of each pair of toggle links; and means for maintaining the seat in a substantially horizontal position when occupied.

2. A chair comprising a pair of spaced vertically disposed standards; a chair back interposed between the standards the opposite sides of which back are each provided with a forwardly extending portion; a vertically disposed plate secured to the inner side of each standard in spaced relation thereto; a pair of upwardly extending arms, each disposed between one of said plates and its adjacent standard and each pivotally connected at its lower end adjacent the forward end of one of said plates and each pivotally connected at its upper end to one of said forwardly extending portions of the chair back; a pair of upwardly extending links disposed rearwardly of the upwardly extending arms, each pivotally connected at its lower end adjacent the rearward end of one of said plates and each pivotally connected at its upper end to one of said portions of the chair back; pairs of toggle links each pair having one of its links pivotally connected to one side of the chair back and each having its other link pivotally connected to an upwardly extending arm; a seat secured at its opposite sides between like links of each pair of toggle links; and means for maintaining the seat in a substantially horizontal position when occupied.

3. A chair comprising a pair of spaced vertically disposed standards; a chair back interposed between the standards the opposite sides of which back are each provided with a forwardly extending portion; a vertically disposed plate secured to the inner side of each standard in spaced relation thereto; a pair of upwardly extending arms, each pivotally connected at its lower end adjacent the forward end of one of said plates and each pivotally connected at its upper end to one of said forwardly extending portions of the chair back; a pair of upwardly extending links disposed rearwardly of the upwardly extending arms, each pivotally connected at its lower end adjacent the rearward end of one of said plates and each pivotally connected at its upper end to one of said portions of the chair back; pairs of toggle links, each pair having one of its links pivotally connected to one side of the chair back and each having its other link pivotally connected to an upwardly extending arm; a seat secured at its opposite sides between like links of each pair of toggle links; a strut interposed and secured between the vertically disposed plates; and means for maintaining the seat in a substantially horizontal position when occupied.

4. A chair comprising a pair of spaced vertically disposed standards; a chair back interposed between the standards the opposite sides of which back are each provided with a forwardly extending portion; a vertically disposed plate secured to the inner side of each standard in spaced relation thereto; a pair of upwardly extending arms, each pivotally connected at its lower end adjacent the forward end of one of said plates and each pivotally connected at its upper end to one of said forwardly extending portions of the chair back; a pair of upwardly extending links disposed rearwardly of the upwardly extending arms, each pivotally connected

at its lower end adjacent the rearward end of one of said plates and each pivotally connected at its upper end to one of said portions of the chair back; pairs of toggle links, each pair having one of its links pivotally connected to one side of the chair back and each having its other link pivotally connected to an upwardly extending arm; a seat secured at its opposite sides between like links of each pair of toggle links; a stop secured to a like link of each pair of toggle links; a stop on each plate; an equalizing strut interposed and secured between the upwardly extending arms adapted to engage the link stops during a forward movement of the seat and adapted to engage the plate stops during a rearward movement of the seat; and means for maintaining the seat in a substantially horizontal position when occupied.

5. A chair comprising a pair of spaced vertically disposed standards; a chair back interposed between the standards the opposite sides of which back are each provided with a forwardly extending portion; a vertically disposed plate secured to the inner side of each standard in spaced relation thereto; a pair of upwardly ex-

tending arms, each pivotally connected at its lower end adjacent the forward end of one of said plates and each pivotally connected at its upper end to one of said forwardly extending portions of the chair back; a pair of upwardly extending links disposed rearwardly of the upwardly extending arms, each pivotally connected at its lower end adjacent the rearward end of one of said plates and each pivotally connected at its upper end to one of said portions of the chair back; pairs of toggle links, each pair having one of its links pivotally connected to one side of the chair back and each having its other link pivotally connected to an upwardly extending arm; a seat secured at its opposite sides between like links of each pair of toggle links; a stop secured to a like link of each pair of toggle links; an equalizing strut interposed and secured between a pair of like movable links adapted for engagement with said stops for limiting the forward movement of the seat in its normal position of occupancy; and means for maintaining the seat in a substantially horizontal position when occupied.

MERRITT K. ORTON.