May 22, 1923. 1,456,235

M. W. HARD

CHAIR

Filed Aug. 18, 1919 3 Sheets-Sheet 1

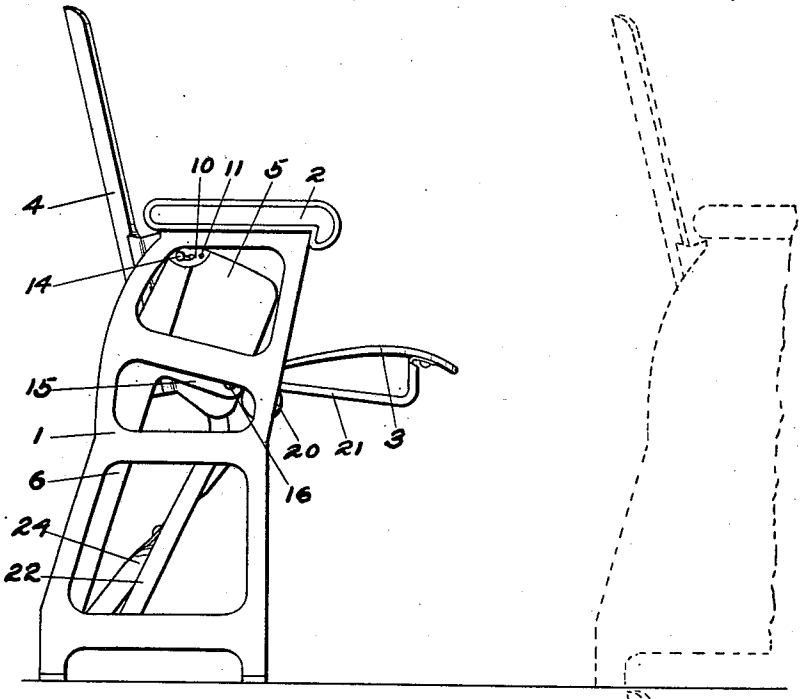


FIG. I.

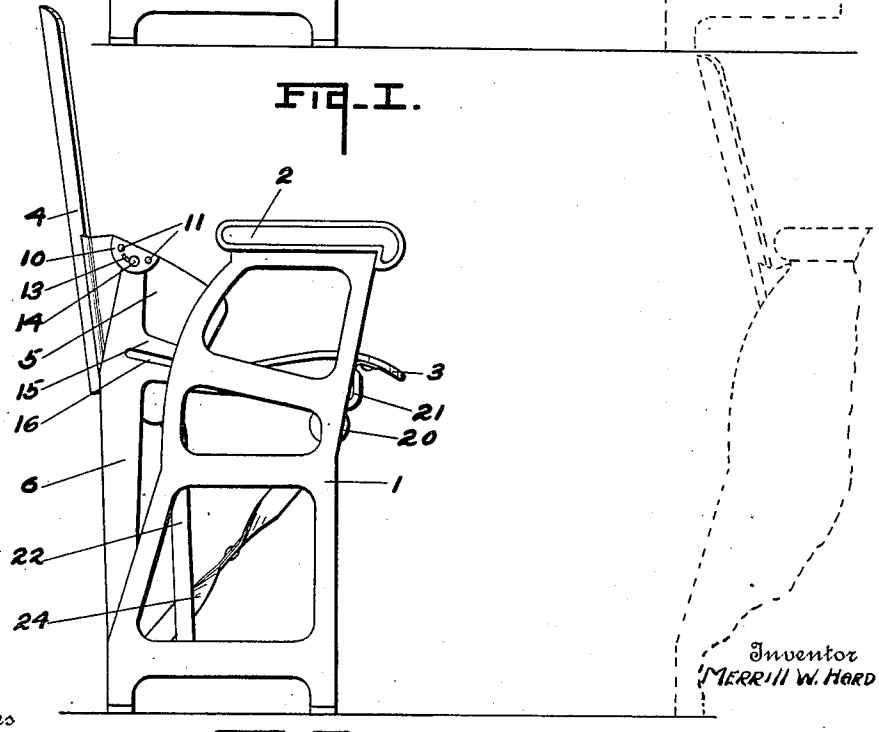


FIG. II.

Witnesses
Fred Ullrich
M. Louise Thurston

Inventor
MERRILL W. HARD

By Chappell Hard

Attorneys

May 22, 1923. 1,456,235

M. W. HARD

CHAIR

Filed Aug. 18, 1919 3 Sheets-Sheet 2

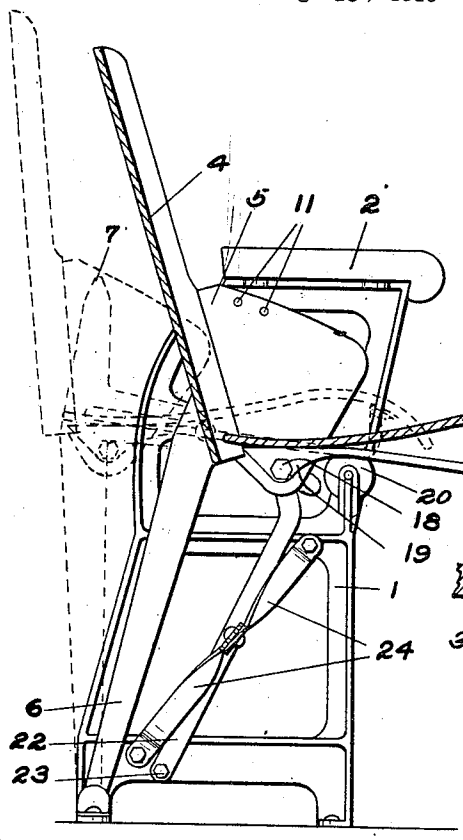


FIG. IV.

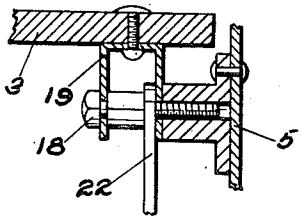


FIG. V.

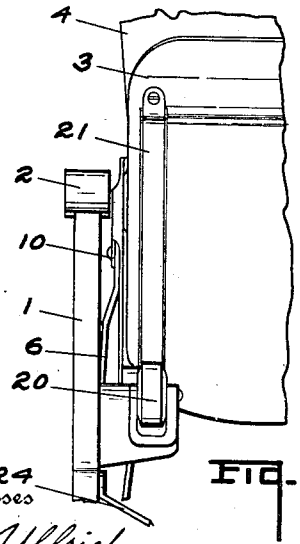


FIG. III.

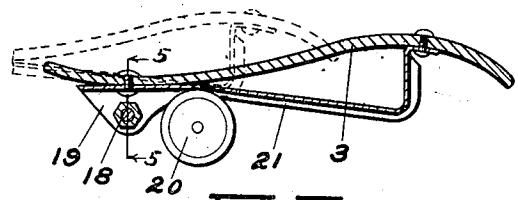


FIG. VI.

Witnesses
Fred Ullrich
M. Louise Thurston

Inventor
MERRILL W. HARD

By Chappell & Earl

Attorneys

May 22, 1923. 1,456,235

M. W. HARD

CHAIR

Filed Aug. 18, 1919 3 Sheets-Sheet 3

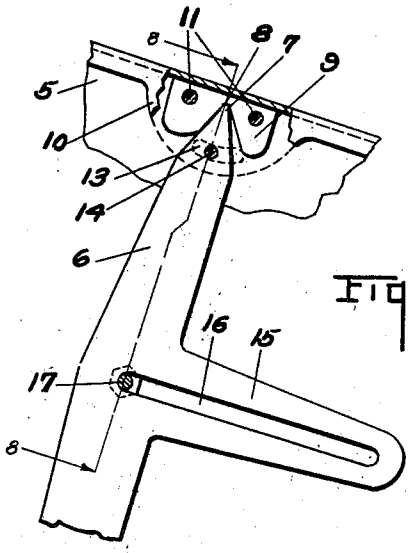


Fig. VII.

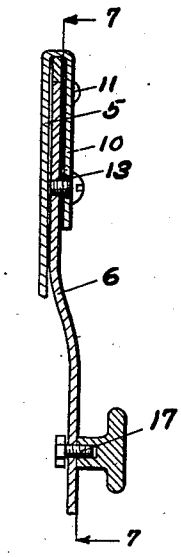


Fig. VIII.

Witnesses
Fred Ullrich
M. Louise Thurston

Inventor
MERRILL W. HARD

By Chappell & Earl

Attorneys

Patented May 22, 1923. 1,456,235

UNITED STATES PATENT OFFICE.

MERRILL W. HARD, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF TO W. LEWIS MACK, OF CHICAGO, ILLINOIS.

CHAIR.

Application filed August 18, 1919. Serial No. 318,178.

To all whom it may concern:

Be it known that I, MERRILL W. HARD, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented certain new and useful Improvements in Chairs, of which the following is a specification.

This invention relates to improvements in chairs.

My improved chair is especially designed and adapted for use in theatres, auditoriums and the like where it is desirable to economize space or install the largest number of seats possible in any given area.

The main objects of this invention are:

First, to provide an improved chair, the seat of which may be easily moved back by the occupant thereof to permit the passing of persons between rows of chairs without compelling the occupants to stand.

Second, to provide an improved chair having these advantages which is strong and durable in structure and at the same time comparatively light in weight and economically produced and installed.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification. The invention is clearly defined and pointed out in the claims.

A structure which is a preferred embodiment of my invention is clearly illustrated in the accompanying drawing forming a part of this specification, in which:

Fig. I is a side view of the chair embodying the features of my invention in normal position, a second chair being indicated in operative relation thereto by dotted lines.

Fig. II is a side elevation, with the seat in its retracted or rear position, the second chair being also here indicated by dotted lines.

Fig. III is a detail front view with the seat in its raised position.

Fig. IV is a vertical section from front to rear, the retracted position of the seat being indicated by dotted lines.

Fig. V is an enlarged detail section on a line corresponding to line 5—5 of Fig. VI showing structural details of the seat support.

Fig. VI is a sectional view through the seat and one of its ways, the seat being shown in its forward or normal position by full lines and in its rear position by dotted lines.

Fig. VII is an enlarged detail view partially in section on a line corresponding to line 7—7 of Fig. VIII showing details of the end member mounting.

Fig. VIII is a detail section on a line corresponding to line 8—8 of Fig. VII.

In the drawing similar reference characters refer to similar parts throughout the several views, and the sectional views are taken looking in the direction of the little arrows at the ends of the section lines.

Referring to the drawing, a frame in the structure illustrated comprises a pair of end pedestals 1, 1 having arm members 2 at their upper ends. These pedestals are arranged in series, there being in practice a single pedestal between each pair of seats.

The seats 3 and the back 4 are shown more or less conventionally and may be upholstered or finished as desired. The back is rigidly mounted on the side members or plates 5 which are carried by the swinging standards 6 pivoted on the pedestals 1.

The upper ends of the standards 6 are tapered to provide point bearings 7 which engage the V shaped bearing recesses 8 in the bearing plates 9 secured at the upper edges of the end members 5. These end members 5 are, in the structure illustrated, formed of sheet metal, the same being provided with ears 10 folded over the bearing plates or blocks 9 which are retained by the rivets 11. The ears 10 have segmental slots 13 which are engaged by pins 14 for retaining the parts in their assembled relation.

The standards have forwardly projecting arms 15 having slots 16 therein engaged by the pins 17 on the pedestals to limit the swing of the standards and thereby limit the movement of the seat. The seat 3 is mounted on pivots 18 carried by the side members 5, the seat having U shaped brackets 19 on their under side to engage these pivots. See Fig. V.

The seats are further supported by the rollers 20 mounted on the pedestals, the seats having channel shaped ways 21 mounted on their under sides to travel on these rollers. These ways are forwardly inclined so that the weight of the occupant on the chair tends to carry it forward.

The pivots 18 are located in the lower

front corners of the side members and in advance of the vertical plane of the bearing for the side members on the supporting standards.

Links 22 are pivoted at 23 on the pedestals, their upper ends being mounted on the pivots 18.

Thus arranged, when the seat is pushed back as shown by dotted lines in Fig. IV, the side members are rocked or tilted forwardly thereby swinging the back forwardly as shown by dotted lines in said figure.

The end pedestals are braced by means of the cross braces 24.

With this arrangement of parts, the seat may be swung up against the back as is shown in Fig. III and when in lowered position may be pushed back by the person occupying the same, to provide passage in front of the occupant thereby avoiding the necessity of his arising to permit persons to pass. The parts are arranged so that the weight of the occupant tends to carry the chair to its forward or normal position, little effort, however, being required to push it back, when desired.

I have illustrated and described my improvements in an embodiment which I have found very practical. I have not attempted to illustrate or describe other embodiments or adaptations which I contemplate as I believe the disclosure made will enable those skilled in the art to which my invention relates to embody or adapt the same as may be desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. The combination with side pedestals, of a seat and a back, standards pivotally mounted on said pedestals and having tapered bearing portions at their upper ends and forwardly projecting slotted arms, pins on said pedestals engaging the slots of said arms, side members on which said back is rigidly mounted, provided with bearing plates at their upper edges having bearing recesses coacting with said bearing portions of said standards, pins on said standards engaging segmental slots in said side members whereby said members are retained on said standards, pivots for said seats disposed on said side members in front of their bearing point on said standards, links pivoted on said pedestals in front of said standards and engaging said seat pivots, seat supporting rollers on said pedestals, and channeled ways on the under side of said seat traveling on said rollers, said ways being forwardly inclined so that weight on the seat tends to carry the seat forward, and a support for the forward end of the seat.

2. The combination with side pedestals, of a seat and a back, standards pivotally mounted on said pedestals and having tapered bearing portions at their upper ends, side members on which said back is rigidly mounted, provided with bearing plates at their upper edges having bearing recesses coacting with said bearing portions of said standards, pins on said standards engaging segmental slots in said side members whereby said members are retained on said standards, pivots for said seats disposed on said side members in front of their bearing point on said standards, links pivoted on said pedestals in front of said standards and engaging said seat pivots, seat supporting rollers on said pedestals, and channeled ways on the under side of said seat traveling on said rollers, said ways being forwardly inclined so that weight on the seat tends to carry the seat forward, and a support for the forward end of the seat.

3. A chair comprising side pedestals, standards pivotally mounted on said pedestals, a seat having its rear portion suspended from the upper portion of said standards and its forward portion resting on guides on said pedestals, a back mounted on said seat, and links connecting said seat with said pedestals.

4. A chair comprising side pedestals, a seat provided with upwardly projecting side plates, standards pivotally mounted on said pedestals and having their upper extremity engaging said side plates above the level of said seat to form a suspension support for the rear portion of said seat, rollers on said pedestal forming a support for the forward portion of said seat, a back mounted on said seat, and links connecting said seat and said pedestals.

5. A chair comprising side pedestals, standards pivotally mounted at their lower extremities on said pedestals, a seat having its rear portion suspended from the upper extremities of said standards and its forward portion resting on said pedestals, a back mounted on said seat, and means for limiting the movement of said standards relative to said pedestals.

6. A chair comprising side pedestals, standards pivotally mounted at their lower extremities on said pedestals, a seat, side plates pivotally connected to the rear portion of said seat and projecting upwardly therefrom, bearing recesses in the upper portion of said side plates to receive the upper extremities of said standards, means for limiting the movement of said standards relative to said pedestals, guides on the under face of said seat, and rollers on said pedestals to operate within said guides to form supports for the forward portion of said seat.

7. A chair comprising side pedestals, standards pivotally mounted on said pedestals, a seat having its rear portion below the upper extremities of said standards and

suspended therefrom, rollers on said pedestals, and ways on said seat travelling on said rollers to provide a support for the forward portion of said seat, said ways being forwardly inclined so that weight on the seat tends to carry the seat forward.

8. A chair comprising side pedestals, standards pivotally mounted on said pedestals, a seat, side plates pivotally connected to the rear portion of said seat and projecting upwardly therefrom, a back secured to said side plates, means on said side plates above said seat for engaging the upper extremities of said standards to provide a suspension support for the rear portion of said seat, and links connecting said pedestals with said side plates in front of said standards, the forward portion of said seat resting on said pedestals.

9. A chair comprising side pedestals, standards pivotally mounted at their lower extremities on said pedestals, a seat, side plates pivotally connected to the rear portion of said seat and projecting upward therefrom, pivotal connections between the upper portion of said side plates and the upper extremities of said standards, means for limiting the movement of said standards relative to said pedestals, guides on the under face of said seat, and rollers on said pedestals to operate within said guides to form supports for the forward portion of said seat.

10. A chair comprising side pedestals, standards pivotally mounted at their lower extremities, a seat having one portion suspended from said standards and another portion supported on said pedestals, a back for said seat, and means for limiting the movement of said standards relative to said pedestals.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

MERRILL W. HARD. [L. S.]

Witnesses:
W. L. MACK,
RAY TRIMBLE.