N. H. MILLER.

OPERA CHAIR.

APPLICATION FILED JAN. 28, 1913.

**1,105,990.**

**Patented Aug. 4, 1914.**

2 SHEETS—SHEET 1.

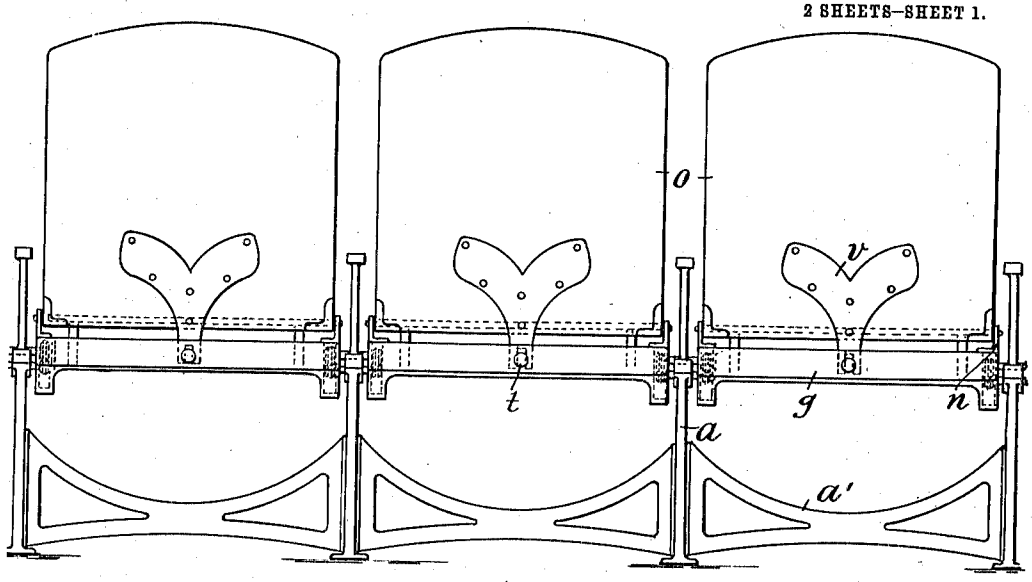



Fig. 1.

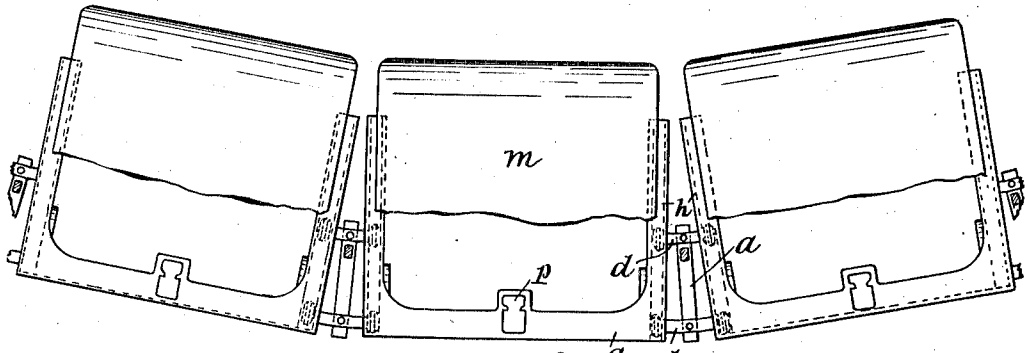



Fig. 2.

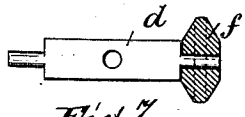



Fig. 7.

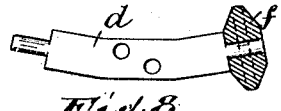



Fig. 8.

WITNESSES

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2 SHEETS—SHEET 2.

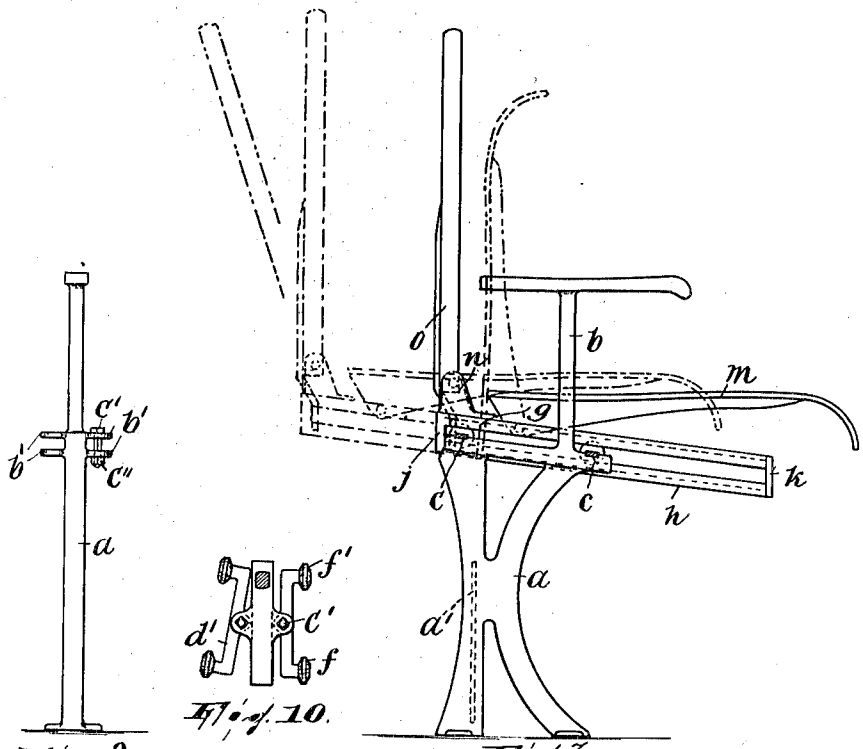



Fig. 3.




Fig. 9.




Fig. 10.

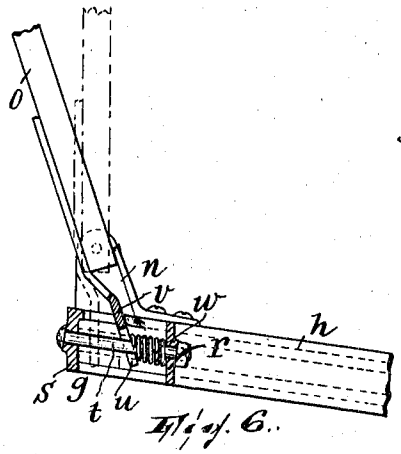



Fig. 6.

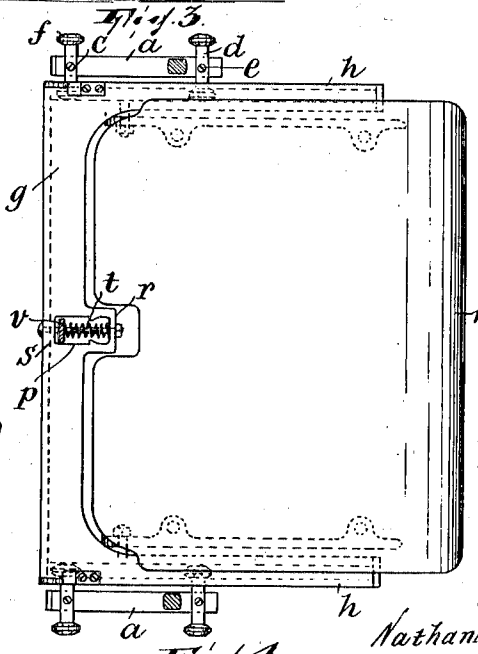



Fig. 4.

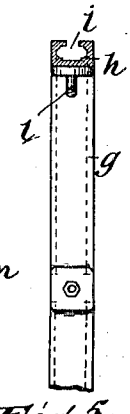



Fig. 5.

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# UNITED STATES PATENT OFFICE.

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## OPERA-CHAIR.

1,105,990. Specification of Letters Patent. Patented Aug. 4, 1914.

Application filed January 28, 1913. Serial No. 744,650.

*To all whom it may concern:*

Be it known that I, NATHAN H. MILLER, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Opera-Chairs, of which the following is a specification.

This invention has for its object to provide a seating appliance for theaters and the like so constructed as to permit a greater clearance or spacing to be afforded between each chair and the one ahead of it when it is necessary for a person to pass between them.

According to this invention the chairs are so constructed and arranged that when it is necessary for a person to pass between an occupied row of chairs and the row ahead this may be accomplished without greater inconvenience to the occupants of the chair in the relatively rear row than is involved in simply pushing themselves backward to give the necesssary clearance between their knees and the chairs ahead.

In the accompanying drawings, Figure 1 is a rear elevation of a row of the improved chairs; Fig. 2 is a plan view thereof; Fig. 3 is a side elevation of one of the chairs, partly in section; Fig. 4 is a sectional view in a horizontal plane just above the seat in Fig. 3; Fig. 5 is a front elevation, partly in section, of a fragment of the seat-carrying frame; Fig. 6 is a view partly in side elevation and partly in section illustrating the elastic back-support; Figs. 7 and 8 are detail views of two different types of roller-carrying brackets for supporting the seat-frames; and Figs. 9 and 10 are views of a modification whereby the chair may be adapted to rows of chairs having differing curvatures.

Each side standard of the improved chair consists of a base portion *a* of any suitable construction and the arm *b* rising therefrom and preferably cast in one piece therewith, the top of said base portion being in the present instance inclined forwardly as shown and having the crosswise recesses *c*. The side standards may be placed in parallelism with each other, as shown in Figs. 4, or so as to converge, as shown in Fig. 2, according to whether the rows of chairs are straight or curved; they are rigidly held together by any suitable means, such as the brace *a'*. Roller carrying brackets, one forward of the other, are carried by each standard, the same consisting in the present instance of bars *d* secured by screws *e* in the recesses *c* and having rollers *f* journaled on their ends. If the side standards are parallel, as in Fig. 4, the bars for each standard are of the same length; if they converge, the rear bar should be sufficiently longer than the forward bar to compensate for the greater space between the rear than between the forward portions of two adjoining side standards and the bearing portions for the rollers should be bent forward (Figs. 2 and 8), all with the object of bringing each roller (forward or rear) in the same vertical plane as its counterpart. The peripheries of the rollers are preferably beveled in section. (See Figs. 7 and 8).

In the preferred construction of the improved chair each seat is carried by a frame which has sliding forward and backward movement on said standards, the supporting portions of which (the forward and rear roller-carrying brackets) are arranged at a forward incline; thus the seat may be pushed back in or relatively to the side standards, the action of gravity upon returning it to the normal or forward position.

The aforesaid frame *g* is substantially U-shaped in plan, its extermities *h* projecting forwardly and being provided in their outer faces with longitudinal cross-sectionally T-shaped grooves or channels *i* in which are received the rollers *f*. Each channel *i* may be formed closed at one end, as at *j* in Fig. 3, and open at the other, the latter end being covered by a plate *k* or other suitable form of stop suitably secured to the frame. In the normal or forward position gravity maintains the frame with the closed ends *j* of its channels *i* abutting against the rear rollers *f*. On the inwardly projecting pintles *l* of this frame is pivoted the seat *m*.

To the rear portion of the frame *g* and at the sides thereof are secured the brackets *n* to which is pivoted the back *o* of the chair. This back normally (*i. e.*, when the chair is unoccupied) stands upright, as shown in full lines in Fig. 3. It is held in that position and has its pivotal movement limited by the following means: A housing *p* is formed in the rear mid-portion of the frame *g* and through the front and rear walls *r* and *s* of this housing extends a bolt *t* which is received by a suitable opening *u* in the downwardly projecting portion of a tail-

piece $v$ secured to the back $o$, $w$ being a spiral spring coiled about the bolt between wall $r$ and said tail-piece. The spring normally holds the tail-piece in contact with the wall $s$ of housing $t$, said wall thus constituting the limit of forward movement of the back $o$; when the chair is occupied, the weight of the occupant reclining against the back forces the latter to the position shown in full lines in Fig. 6, where the tail-piece rests against the more or less fully compressed spring $w$, in turn supported by wall $r$.

When it is desired to afford the necessary clearance forward of the improved chair for a person to pass between the occupant thereof and the chair in front, the occupant, by pressing his feet on the floor, pushes himself rearwardly, resting his arms on the chair arms $b$ to facilitate the rearward displacement if necessary. In this way ample space is left between the knees of the occupant and the chair in front for the person to pass; if necessary, the person in front can increase the fairway by assuming an upright position, allowing the back of the forward chair to assume the upright position shown in Fig. 3. Upon the person occupying the first-named seat ceasing to maintain the pressure of his feet on the floor, the frame $g$ will resume its normal position.

By forming the frame $g$ U-shaped in plan with its extremities projecting forwardly space is afforded thereby for the occupant's hat when supported by the usual hanger attached to the under side of the seat, and by pivoting the seat at its rear portion at the back of such a frame a free space is afforded the occupant when standing and with the seat swung to the upright position.

As shown in Figs. 9 and 10 the side standard $a$ has the opposite pairs of ears $b'$ in each of which is pivoted on the vertical bolt $c'$ a bracket $d'$ carrying at its forward and rearward ends the rollers $f'$, arranged in the same plane. In a row of chairs provided with brackets $d'$ thus pivotally attached to the side standards, it will be apparent that the frames and side standards are pivotally coupled together by means of said brackets, whose rollers, it will be understood, are received in the T-shaped slots $i$ of the frames $g$. Thus such may be adapted to varying curvatures. Once the row has been properly adjusted to the curvature, the nuts $c''$ on the several bolts $c'$ are screwed up tight to insure against any lost motion and give the necessary rigidity to the entire row structure.

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

1. In combination, a pair of fixed spaced upright structures forming the side standards, rollers journaled in said structure one forward of and lower than the other and each on a horizontal axis, a forwardly inclined frame formed substantially U-shaped in plan and having its extremities extending forwardly and having cross-sectionally T-shaped grooves formed in the outer lateral faces of said extremities and extending longitudinally thereof, each groove receiving one forward and one rearward roller snugly therein, and a seat arranged in said frame, substantially as described.

2. In combination, a row of three or more side standards, a forwardly and rearwardly movable seat-carrying frame arranged between each two side standards, and brackets connecting each frame with the two side standards adjoining the latter, the bracket connecting each side standard and frame being pivoted to one of them and having sliding contact with the other of them forward and rearward of the pivot of said bracket, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

NATHAN H. MILLER.

Witnesses:
JOHN W. STEWARD,
WM. D. BELL.