The present invention relates to chair structures and more particularly to chairs of the type which are installed in the rows in theaters, auditoriums and the like. This application is a continuation-in-part of our co-pending application, Serial No. 46,742, filed August 30, 1944, which was abandoned.

The primary objects of the invention are to provide theater chairs in which the seats automatically tilt upwardly when unoccupied, thus to increase the space between the rows and facilitate the ingress and egress of patrons passing between the rows, and also to facilitate sweeping under the chairs; to provide a novel mechanism for effecting such automatic upward tilt of each seat, said mechanism being simple in design and thus economical in manufacture and maintenance, and said mechanism being noiseless and efficient in operation, and concealed from view.

Illustrative embodiments of the invention are shown in the accompanying drawings, wherein:

Figure 1 is a front elevation view of a theater chair supplied between two standards which also serve as supports for one side each of adjacent chairs, here shown fragmentarily;

Figure 2 is a view of the chair shown partly in side elevation and partly in section taken on line 2—2 of Figure 1;

Figure 3 is an enlarged fragmentary sectional view of parts thereof taken on line 3—3 of Figure 1;

Figure 4 is a top perspective view of a seat foundation or pan element mounted between spaced supporting standards shown fragmentarily, the upholstered seat cushion having been removed to reveal the interior of the pan element;

Figure 5 is a fragmentary view of the pivotal mountings and adjacent parts at one side—the right hand side as shown—of the seat, shown partly in top view and partly in horizontal section taken on line 5—5 of Figure 3;

Figure 6 is a similar view of the pivotal mountings and adjacent parts at the other side of the seat;

Figure 7 is a view of certain parts thereof shown partly in side elevation and partly in vertical section taken on line 7—7 of Figure 6;

Figure 8 is a perspective view similar to Figure 4 but illustrating the invention in a modified form;

Figure 9 is a vertical sectional view of parts thereof, taken on line 9—9 of Figure 8; and

Figure 10 is a vertical sectional view, similar to Figure 9, showing a still further modified form of the invention.

Referring now in detail to these drawings wherein like parts and designated by the same numerals in the several views, the theater chairs shown in Figures 1 and 2 are mounted on spaced, upright, chair-supporting standards 10 and comprise chair backs 11 secured at their opposite sides to the standards by means of back clips 12, and chair seats 13 mounted on and between each pair of standards. Each chair seat 13 comprises an upper upholstered seat cushion element 14 detachably mounted on a lower, dish shaped, sheet metal seat pan element 15, the latter element being pivotally connected at its opposite sides to the supporting standards 10 respectively by means hereinbefore more fully described, so that the entire seat 13 is swingable about a horizontal axis to a lowered position for seat occupancy and to a raised position between the supporting standards for the chair.

The pivotal mountings for the seat comprise mount-
through the vertical portion of the mounting member 16 axially of its trunnion portion 23. The end 36 of the torque spring 34 is secured to the seat's pan element 15 by means of a bracket 33 in the same manner as previously described, whereas the opposite end 35 of the torque spring 34 is passed through the bore 101 of the mounting member 16 and has its outer end bent so as to engage behind the stop lug 100 on the outer side of this mounting member, with the spring under torsion at all times. It will be seen that the end 35 is thus connected non-turnably to the mounting member 16 and the seat will always be returned to its upright, non-use position when vacated.

In the modified form of the invention shown in Figure 10 the trunnion 23, instead of being secured to or a part of the mounting member 16 as previously described, is here shown secured to the seat's pan element 15. This trunnion 23 has a cylindrical outer portion 201 journalled in a bearing 202 in the mounting member 16, a collar 203 extending between the mounting member 16 and the bracket 205 on the seat pan 15, a reduced portion 204 extending through openings in the bracket 205 and the seat pan 15, and a head portion 205 which is span over to secure the trunnion 23 to the seat pan 15. The end 35 of the torque spring 34 extends through an axial bore 206 in the trunnion 23 and its outer extremity is bent so as to engage behind a stop lug 207 on the outer side of the mounting member 16. The operation is the same as that previously described and, if desired, the opposite side of the seat may also be provided with a trunnion journalled in a bearing in the opposite mounting member.

It will thus be seen that the invention provides an effective and extremely simple means for automatically upwardly tilting the seats of theatre chairs; and while but several specific embodiments of the invention have been herein shown and described, it will be understood that the invention includes all such modifications thereof as fall within the scope of the following claims.

We claim:

1. A chair structure comprising, in combination: spaced upright chair supporting standards; mounting members on said standards respectively and having mutually inwardly extending trunnions, one of said mounting members having a bore therethrough disposed axially of its trunnion; a chair seat comprising an upholstered element mounted upon a dish shaped seat pan element journalled at its opposite sides on said trunnions respectively for swinging movement to a lowered, substantially horizontal position for seat occupancy and to an upwardly tilted position between the standards; and a torque spring comprising a substantially straight wire extending through the interior of said pan element and having one end thereof extended through the bore in said one mounting member and non-turnably engaged therewith, and the other end thereof connected to the pan element turnably therewith adjacent the other of said mounting members, whereby the seat is normally urged to an upwardly tilted position.

2. A chair structure comprising, in combination: spaced upright chair supporting standards; mounting members on said standards respectively; a chair seat comprising an upholstered element mounted upon a dish shaped seat pan element journalled at its opposite sides on said mounting members respectively for swinging movement to a lowered, substantially horizontal position for seat occupancy and to an upwardly tilted position between the standards, the journal connection at one side of the seat pan element comprising a bearing in the adjacent mounting member and a trunnion on said pan element extending through said bearing and having an axial bore therethrough; and a torque spring comprising a substantially straight wire extending through the interior of said pan element and having one end thereof extended through the bore in said trunnion and non-turnably engaged with the adjacent mounting member, and the other end thereof connected to the pan element turnably adjacent the other of said mounting members, whereby the seat is normally urged to an upwardly tilted position.

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