Jan. 17, 1950 J. G. PROSSER ET AL 2,494,779

RETRACTING TYPE THEATER CHAIR

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Fig. 1

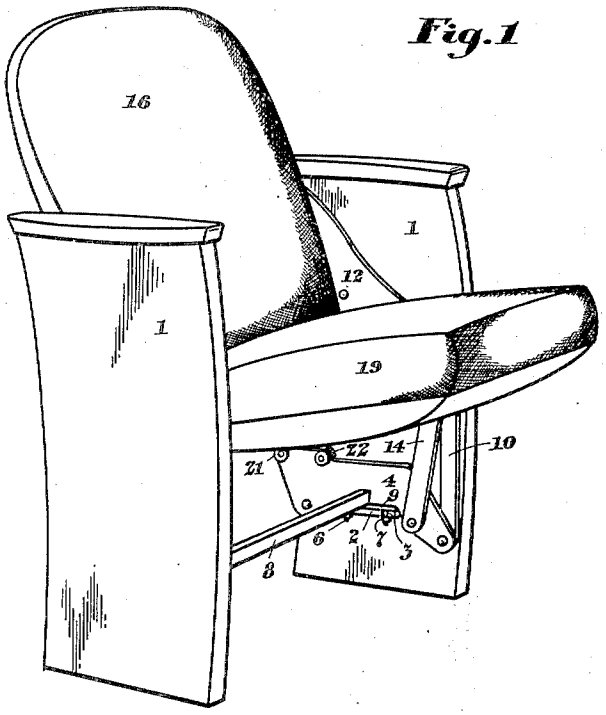
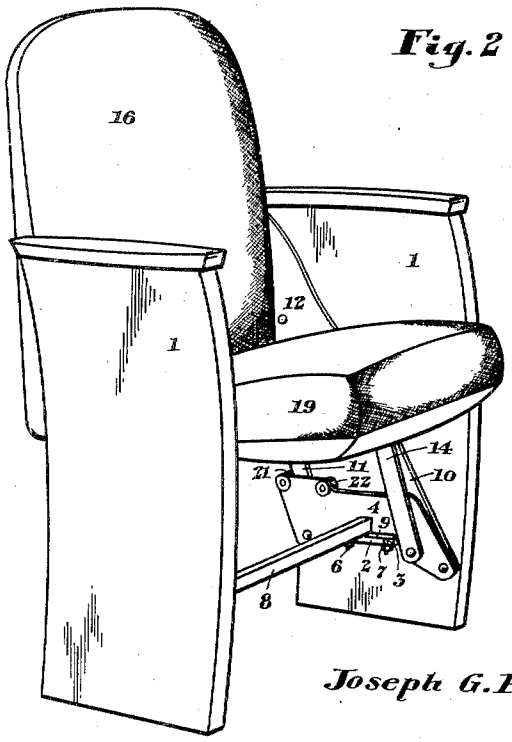


Fig. 2



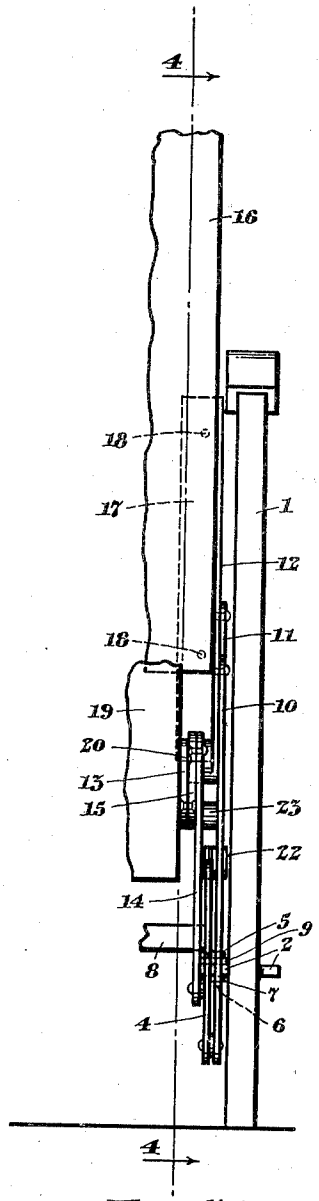


Fig. 3

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Fig. 4

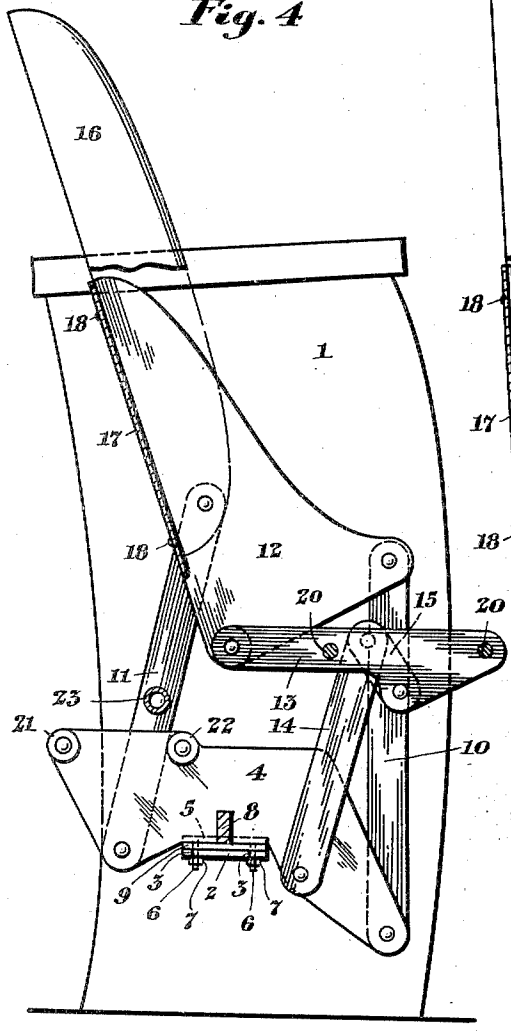
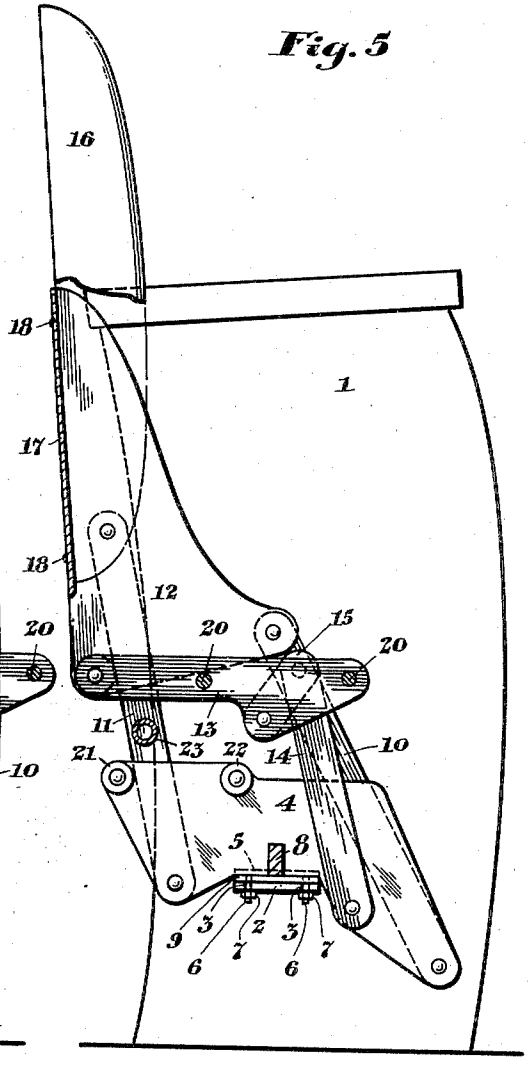


Fig. 5



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Fig. 6

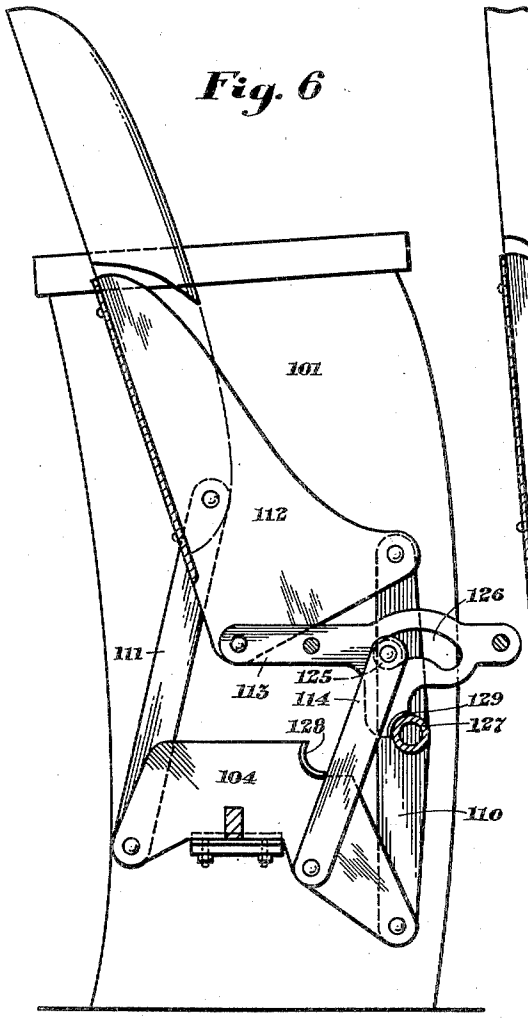
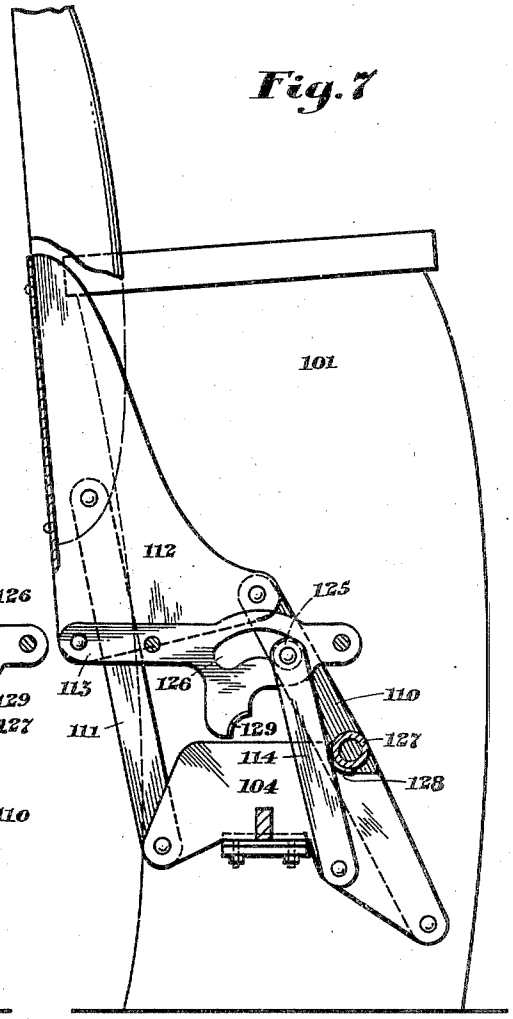


Fig. 7



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RETRACTING TYPE THEATER CHAIR

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Application June 26, 1946, Serial No. 679,361

5 Claims. (Cl. 155—116)

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The present invention relates to chairs and more particularly to chairs of the retracting type for use in theaters, auditoriums and the like. This application is a continuation-in-part of our copending application Serial No. 679,354, filed June 26, 1946.

The primary objects of the invention are to provide an improved chair of the retracting type wherein the occupant may move the seat rearwardly in order to permit others to pass in front of him without his having to rise from the seat; to provide such a chair having a link mechanism for mounting the chair back and seat, which mechanism insures easy and comfortable forward and rearward movements and which is concealed below the level of the chair seat; to provide such a chair which when retracted occupies a minimum of space in the rear of the chair; to provide such a chair having improved means for mounting on spaced chair-supporting standards; and in general to provide such a retracting chair which is efficient in operation, reasonably economical in manufacture and attractive in appearance.

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

Figure 1 is a perspective view of a retracting chair showing the chair seat and back in their normal, forward positions for occupancy;

Figure 2 is a perspective view similar to Figure 1 showing the chair seat and back in their retracted positions;

Figure 3 is a fragmentary front elevational view of the left-hand side of the chair;

Figure 4 is an inside elevational view of the mounting and operating mechanism at the left hand side of the chair, certain parts being shown in vertical section taken on line 4—4 of Figure 3, and the movable chair parts being shown in their forward positions;

Figure 5 is an inside elevational view similar to Figure 4 and showing the movable chair parts in their rearward positions;

Figures 6 and 7 are views similar to Figures 4 and 5 but showing a modified embodiment of the invention, the movable parts of this chair being shown in forward position and in rearward position in Figures 6 and 7 respectively.

Referring now in detail to these drawings and referring first to Figures 1 through 5 in particular, the retracting chair there shown is mounted on a frame comprising spaced, upright, chair-supporting standards 1 having inwardly projecting lugs 2 thereon provided with vertical stud-receiving slots 3, mounting members 4 having outwardly turned flanges 5 with depending

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threaded studs 6 adapted to fit into the slots 3, nuts 7 threaded on the lower ends of the studs 6, and a transverse bar 8 secured as by welding to the opposite mounting members. The frame thus formed is of sturdy and rigid construction. If desired, members 9 of rubber, cork or other resilient material may be interposed between the flanges 5 of the mounting members and the lugs 2 on the standards for absorbing any vibration of the chair during its retracting and returning movements.

The mounting and operating mechanisms on opposite sides of the chair being of like construction, only one side is shown in Figures 3–5 and hereinafter described. A pair of side plate supporting links comprises a front supporting link 10 and a rear supporting link 11 which have their lower ends pivotally connected to the mounting member 4. A side plate 12 of generally triangular shape is pivotally connected at its lower forward corner to the upper end of the front supporting link 10, and is pivotally connected in its rearward portion to the upper end of the rear supporting link 11. The side plate 12 is thus mounted for forward-rearward movement with the supporting links, and for simultaneous turning or rocking movement.

A seat carrier 13 has its rearward portion pivotally connected to the lower rear corner of the side plate 12. The forward portion of the seat carrier 13 is supported by means of a seat supporting link 14 having its lower end pivotally connected to the mounting member 4, and a short suspension link 15 the upper end of which is pivotally connected to the upper end of the seat supporting link 14 and the lower end of which is pivotally connected to the seat carrier 13.

A chair back 16 is mounted on inwardly turned flanges 17 of the side plates 12 on opposite sides of the chair, as by means of screws 18. The chair seat 19 is shown rigidly secured to the seat carriers 13 on opposite sides of the chair as by means of bolts or rivets 20.

It will be seen that when the chair is retracted, the seat moves rearwardly in a substantially straight path, while the back moves rearwardly and also assumes a near-vertical position thus to minimize the space required for retraction in the rear of the chair. Rearward movement of the chair is stopped by contact of the rear supporting links 11 with rubber stops or bumpers 21 on the mounting members 4, while forward movement of the chair is stopped by the contact of said links 11 with similar stops or bumpers 22 on the mounting members 4.

An equalizing strut 23 is here shown secured as by welding to the rear supporting links 11 on opposite sides of the chair so that these links are rigidly secured in assembly and move in unison, thus adding to the stability of the structure.

Figures 6 and 7 show a modified structure in which the side plate 112 is supported for forward-rearward movement on a front supporting link 110 and a rear supporting link 111, the lower ends of which links are pivotally connected to a mounting member 104 secured to the upright standard 101 in the manner previously described. In this modification, the seat carrier 113 is pivotally connected in the rear to the side plate 112, while the forward end of the seat carrier 113 is supported by a seat supporting link 114 the lower end of which link is pivotally connected to the mounting member 104 and the upper end of which link is provided with a sliding block or roller 125 which travels in a curved race 126 in the seat carrier 113. It will be seen that as this chair is retracted or returned, the forward portion of the seat carrier is first lowered and then raised by the camming action of the roller 125 in the race 126. This movement substantially parallels the lowering and raising of the rearward portion of the seat carrier, and the seat is therefore maintained in a substantially horizontal position during its forward and rearward movements.

An equalizing strut 127 connects the front links 110 on opposite sides of this modified structure, thus adding to the stability of the structure. The strut 127 also serves to limit the forward and rearward movements of the chair, being adapted to contact the stop 128 in the mounting member 104 when the chair is in its rearwardmost position and to contact the stop 129 on the seat carrier 113 when the chair is in its forwardmost position.

It will thus be seen that a retracting chair has been provided having a novel combination of supporting links for the chair back and seat, in which the mounting and operating mechanism is located out of sight below the seat level, and which mechanism is arranged for easy and comfortable forward-rearward movements of the chair. While but several specific embodiments of the chair have been herein shown and described, it will be understood tha numerous 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, wherein the word "frame" is to be construed broadly enough to include either a unitary assembly or a pair of spaced chair standards whose only rigid connection is the floor upon which such pair of standards is installed.

We claim:

1. In a chair, a frame, opposite pairs of side plate supporting links having their lower ends pivotally connected to the frame, side plates mounted on the upper ends of said supporting links for forward and rearward movements with said links, a chair back mounted on the side plates, seat carriers having their rearward ends pivotally connected to the side plates, independent seat supporting links having their lower ends pivotally connected to the frame and their upper ends pivotally connected to the seat carriers, a chair seat mounted on the seat carriers, and stop means for limiting the forward and rearward movements of the side plates.

2. In a chair, a frame, opposite pairs of side plate supporting links having their lower ends pivotally connected to the frame, side plates mounted on the upper ends of said supporting links for forward and rearward movements with said links, a chair back mounted on the side plates, seat carriers having their rearward ends pivotally connected to the side plates, independent seat supporting links having their lower ends pivotally connected to the frame, suspension links having their upper ends pivotally connected to the upper ends of the seat supporting links and having their lower ends pivotally connected to the seat carriers, a chair seat mounted on the seat carriers, and stop means for limiting the forward and rearward movements of the side plates.

3. In a chair, spaced upright chair-supporting standards, mounting members attached to said standards, opposite pairs of side plate supporting links having their lower ends pivotally connected to the mounting members, side plates mounted on the upper ends of said supporting links for forward and rearward movements with said links, a chair back mounted on the side plates, a seat connected in the rear with the side plates, independent seat supporting links having their lower ends pivotally connected to the mounting members and their upper ends pivotally connected to the forward part of the seat, and stop means for limiting the forward and rearward movements of the side plates.

4. In a chair, spaced upright chair-supporting standards, mounting members attached to said standards, opposite pairs of side plate supporting links having their lower ends pivotally connected to the mounting members, side plates mounted on the upper ends of said supporting links for forward and rearward movements with said links, a chair back mounted on the side plates, a seat connected in the rear with the side plates, independent seat supporting links having their lower ends pivotally connected to the mounting members, suspension links having their upper ends pivotally connected to the upped ends of the seat supporting links and their lower ends pivotally connected to the forward part of the seat, and stop means for limiting the forward and rearward movements of the side plates.

5. In a chair, spaced upright chair-supporting standards, mounting members attached to said standards, opposite pairs of side plate supporting links having their lower ends pivotally connected to the mounting members, side plates mounted on the upper ends of said supporting links for forward and rearward movements with said links, a chair back mounted on the side plates, seat carriers having their rearward ends pivotally connected to the side plates, independent seat supporting links having their lower ends pivotally connected to the mounting members, suspension links having their upper ends pivotally connected to the upper ends of the seat supporting links and their lower ends pivotally connected to the forward ends of the seat carriers, a chair seat mounted on the seat carriers, and stop means for limiting the forward and rearward movements of the side plates.

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THOMAS W. PROSSER.

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