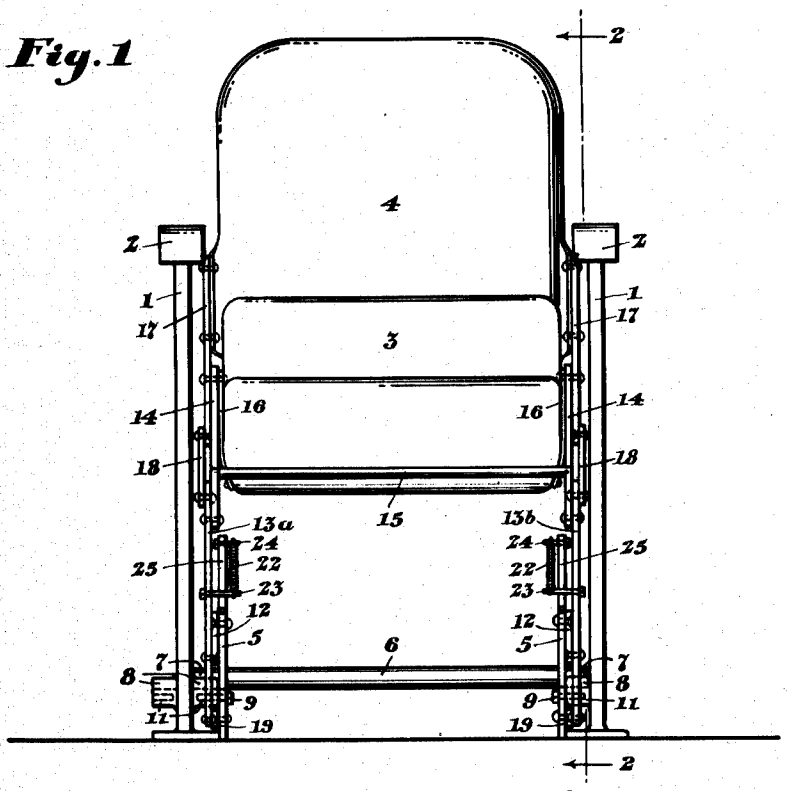
Dec. 20, 1949 J. G. PROSSER 2,492,108

RETRACTING TYPE THEATER CHAIR

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Fig. 1



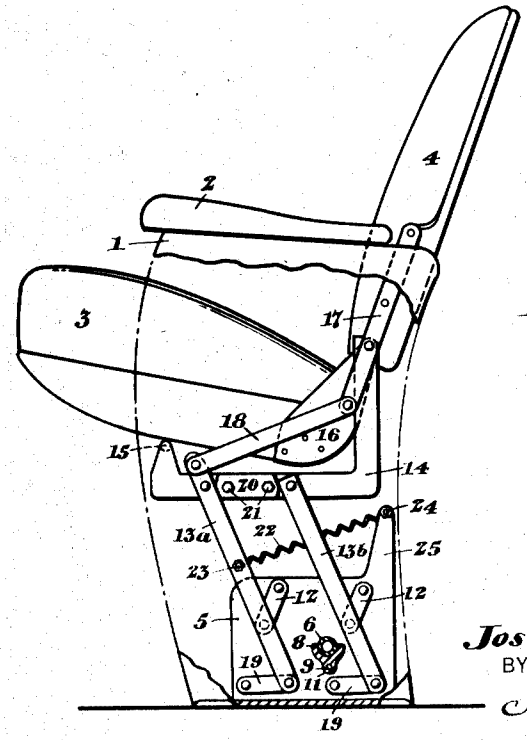


Fig. 2

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Fig. 3

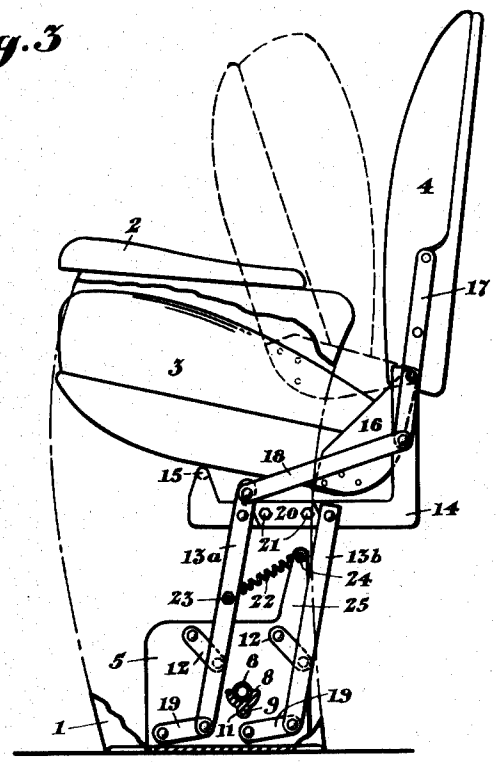
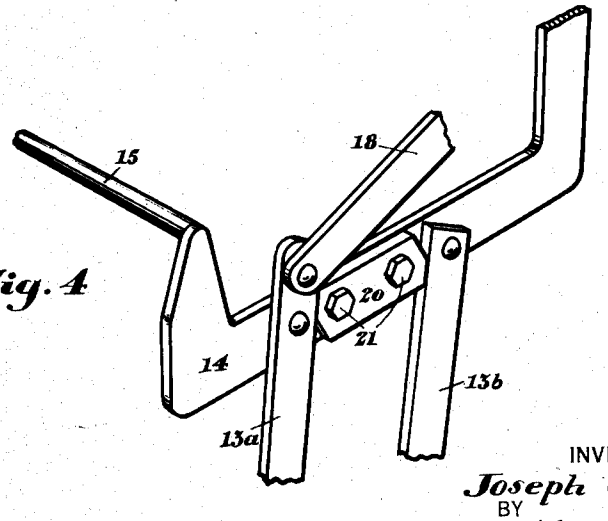


Fig. 4



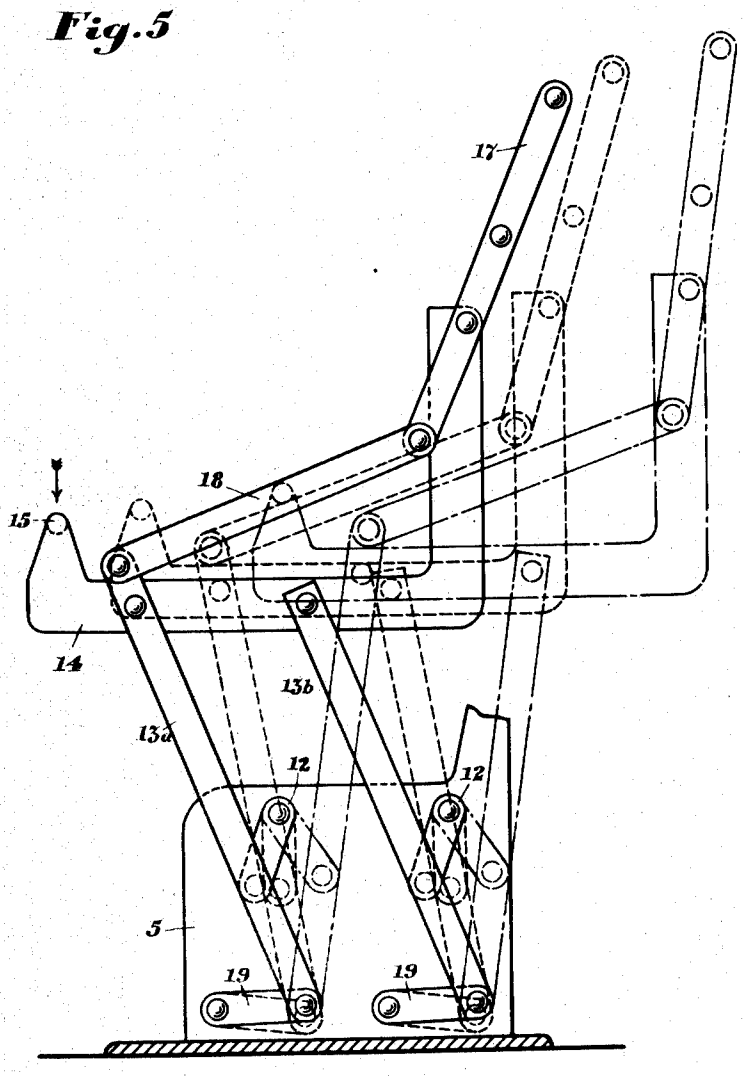
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Fig. 5



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RETRACTING TYPE THEATER CHAIR

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9 Claims. (Cl. 155—116)

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The present invention relates to chairs, and more particularly to chairs of the retracting type adapted for installation in theaters, auditoriums and the like.

The primary objects of the invention are to provide a novel theater chair of the retracting type wherein the chair occupant may move the seat and back rearwardly thus to increase the space in front of him and facilitate the passage of other theater patrons in front of him without his having to rise from his seat; to provide such a chair whose seat maintains the same angular inclination from the horizontal throughout its rearward and forward movements; to provide such a chair whose rearwardly-upwardly inclined back approaches the vertical as the chair is moved rearwardly thus effecting a minimal reduction of space to the rear of the chair when the same is retracted; to provide such a chair whose seat is independently turnable to a raised position of non-use; and to provide such a chair which is sturdy in construction, reasonably economical in manufacture, and attractive in appearance.

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

Figure 1 is a front elevational view of a theater chair constructed according to the present invention;

Figure 2 is a left hand side elevational view of the same, the standard therefor being broken away to reveal the operating mechanism, and the chair being shown in its forward position of occupancy;

Figure 3 is a view similar to Figure 2 showing the chair in its retracted position;

Figure 4 is an enlarged fragmentary perspective view of certain parts of the operating mechanism for the chair; and

Figure 5 is a diagrammatical view showing parts of the chair in their forward positions in solid lines, in partially retracted positions in dotted lines, and in fully retracted positions in broken lines.

Referring now in detail to these drawings wherein like parts are designated by the same numerals in the several views, the chair generally comprises a pair of spaced upright chair standards 1 having conventional arm rests 2, and a seat 3 and back 4 of conventional upholstered construction mounted between the standards 1.

Spaced, upstanding mounting members 5 are secured to the standards 1 respectively by suitable means such as the tubular connecting strut 6 secured as by welding to the mounting members

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5 and having outer end portions 7 disposed in sockets 8 in the standards 1. Machine screws 9 passing through apertures in the mounting plates 5 and threaded in bosses 11 in the standards 1 also serve to secure the mounting members to the standards.

A pair of suspension links 12 is pivotally connected at the upper ends thereof to the outer surface of each mounting member 5, and a supporting link is pivotally connected intermediate its ends to the lower end of each suspension link 12 thus forming spaced pairs of supporting links on opposite sides of the chair. The front supporting links are specifically designated 13*a* and the rear supporting links are specifically designated 13*b* in the drawings.

A pair of chair supports 14 is pivotally connected to the upper ends of the pairs of supporting links respectively, said chair supports being of generally U-shaped formation and being connected at their forward ends by a seat supporting rod 15. The seat 3 is pivotally mounted on the chair supports 14 by means of seat brackets 16 on the opposite sides thereof, and the seat is thus movable to a lowered position of use wherein its rests on the rod 15 and to a raised position of non-use as illustrated in dotted lines in Figure 3.

The back 4 of the chair is pivotally mounted on the chair supports 14 by means of back mounting bars 17 connected to the rearward upper ends of the chair supports 14 by the same pivotal connections that secure the seat brackets 16 to the chair supports. A back actuating link 18 connects each forward supporting link 13*a* to the corresponding back mounting bar 17. The forward pivotal connections of the back actuating links 18 to the front supporting links 13*a* are above the pivotal connections of these supporting links to the chair supports 14, while the rearward pivotal connections of the back actuating links to the back mounting bars 17 are below the pivotal connections of these back mounting bars to the chair supports 14.

A pair of confining links 19 is pivotally secured at the forward ends thereof to the outer surface of each mounting member 5. The rearward ends of these confining links 19 are pivotally secured to the lower ends of the supporting links 13*a* and 13*b* respectively.

Stop members 20 are secured to the outer surfaces of the chair supports 14 respectively between the supporting links 13*a* and 13*b* by means of bolts or screws 21, and these stop members

limit the forward and rearward movements of said supporting links. If desired, tension springs 22 may be provided for normally urging the chair to its retracted position, said springs having their forward ends attached to studs 23 on the front supporting links and their rearward ends attached to studs 24 on the upper extensions 25 of the mounting members 5.

Operation

The operation of the chair may best be understood by reference to Figure 5 of the drawings. The major portion of the chair occupant's weight (represented by the arrow) is carried by the front links which are under compression. The rear links carry little or none of the occupant's weight, and they may even be under tension when the chair is in its forward position shown in full lines. These forces are mainly transmitted to the mounting members 5 through the suspension links 12, and in lesser degree by the confining links 19. It will be seen that the occupant's weight maintains the chair in this forward position.

When the chair is moved rearwardly to its intermediate position illustrated in dotted lines the suspension links 12 are in vertical positions wherein they transmit virtually all of the occupant's weight to the mounting members 5, while the confining links 19 are in lowered positions.

When the chair is moved to its fully retracted position, which is illustrated by broken lines in Figure 5, the supporting links 13*a* and 13*b* are inclined rearwardly past center and the occupant's weight tends to maintain the chair in this position; the confining links are again in their raised positions and transmit a portion of the load to the mounting members 5.

During this rearward movement, the seat and back move slightly upwardly and the back is rotated toward the vertical by the back actuating links 18.

It will be seen that in this chair construction the following distances are substantially equal: The distance between the pivotal connections of each pair of suspension links 12 to the adjacent mounting member 5, the distance between the pivotal connections of each pair of supporting links 13*a* and 13*b* to the adjacent pair of suspension links 12, the distance between the pivotal connections of each pair of supporting links 13*a* and 13*b* to the adjacent chair support 14, the distance between the pivotal connections of each pair of confining links 19 to the adjacent mounting member 5, and the distance between the pivotal connections of each pair of confining links 19 to the adjacent pair of supporting links 13*a* and 13*b*. The lengths of the supporting links between their pivotal connections are the same. Links 12 are parallel and links 19 extend in the same direction. By this arrangement the supporting links 13*a* and 13*b* are in constant parallelism, and thus the chair supports and chair seat supported thereby maintain the same angular disposition throughout these movements.

The invention being intended to be pointed out in the claims, it is not to be limited to or by details of construction of the particular embodiment thereof illustrated by the drawings as hereinbefore described.

I claim:

1. In a chair, spaced upstanding mounting members, oppositely disposed pairs of supporting links having their lower ends pivotally connected to said mounting members, a pair of chair supports each pivotally connected to the upper ends of a pair of said supporting links, a seat mounted on the chair supports, a back pivotally mounted on the chair supports, a back actuating link pivotally connected to the back and to one of said supporting links, and stop means for limiting the forward and rearward movements of said supporting links.

2. In a chair, spaced upstanding mounting members, oppositely disposed pairs of supporting links having their lower ends pivotally connected to said mounting members, a pair of chair supports each pivotally connected to the upper ends of a pair of said supporting links, a seat mounted on the chair supports, a back pivotally mounted on the chair supports, a back actuating link pivotally connected to the back and to one of said supporting links above the pivotal connection of said supporting link to its adjacent chair support, and stop means for limiting the forward and rearward movements of said supporting links.

3. In a chair, spaced upstanding mounting members, oppositely disposed pairs of supporting links having their lower ends pivotally connected to said mounting members and each pair comprising a front and a rear supporting link, a pair of chair supports each pivotally connected to the upper ends of a pair of said supporting links, a seat mounted on the chair supports, a back pivotally mounted on the chair supports, a back actuating link pivotally connected to the back and to the front one of a pair of said supporting links above the pivotal connection of said supporting link to its adjacent chair support, and stop means for limiting the forward and rearward movements of said supporting links.

4. In a chair, spaced upstanding mounting members, oppositely disposed pairs of supporting links having their lower ends pivotally connected to said mounting members, a pair of chair supports each pivotally connected to the upper ends of a pair of said supporting links, a seat pivotally mounted on the chair supports, stop means carried by the chair supports for limiting the lowering movement of the seat, a back pivotally mounted on the chair supports, a back actuating link pivotally connected to the back and to one of said supporting links and stop means for limiting the forward and rearward movements of said supporting links.

5. In a chair, spaced upstanding mounting members, oppositely disposed pairs of supporting links having their lower ends pivotally connected to said mounting members, a pair of chair supports each pivotally connected to the upper ends of a pair of said supporting links, a seat pivotally mounted on the chair supports, stop means carried by the chair supports forwardly of the pivotal connections between said chair supports and their adjacent supporting links for limiting the lowering movement of the seat, a back pivotally mounted on the chair supports, a back actuating link pivotally connected to the back and to one of said supporting links and stop means for limiting the forward and rearward movements of said supporting links.

6. In a chair, spaced upstanding mounting members, a pair of suspension links pivotally connected at their upper ends to each mounting member, a supporting link pivotally connected intermediate its ends to the lower end of each suspension link thus forming spaced pairs of supporting links, a pair of chair supports each pivot-

ally connected to the upper ends of a pair of said supporting links, a seat mounted on the chair supports, a back mounted on the chair supports, a pair of confining links pivotally connected at their forward ends to each of said mounting members and pivotally connected at their rearward ends to the lower ends of said supporting links, and stop means for limiting the forward and rearward movements of said supporting links.

7. A chair according to claim 6 in which the following distances are substantially equal: The distance between the pivotal connections of each pair of suspension links to the adjacent mounting member, the distance between the pivotal connections of each pair of supporting links to the adjacent pair of suspension links, the distance between the pivotal connections of each pair of supporting links to the adjacent chair support, the distance between the pivotal connections of each pair of confining links to the adjacent mounting member, and the distance between the pivotal connections of each pair of confining links to the adjacent pair of supporting links.

8. In a chair, spaced upstanding mounting members, oppositely disposed pairs of supporting links having their lower ends pivotally connected to said mounting members and each pair comprising a front and a rear supporting link, a pair of chair supports each pivotally connected to the upper ends of a pair of said supporting links, a seat mounted on the chair supports, a back pivotally mounted on the chair supports, back actuating links pivotally connected to opposite

sides of the back and to the front supporting links respectively above the pivotal connections of said supporting links to their adjacent chair supports, and stop means for limiting the forward and rearward movements of said supporting links.

9. In a chair, spaced upstanding mounting members, oppositely disposed pairs of supporting links having their lower ends pivotally connected to said mounting members, a pair of chair supports each pivotally connected to the upper ends of a pair of said supporting links, a back pivotally mounted on the chair supports, a back actuating link pivotally connected to the back and to one of said supporting links, a spring connected to one of said supporting links and to the adjacent mounting member for normally urging the supporting links rearwardly, and stop means for limiting the forward and rearward movements of said supporting links.

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