Jan. 19, 1960 B. W. HENRIKSON ET AL 2,921,622

CHAIR

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Fig. 1

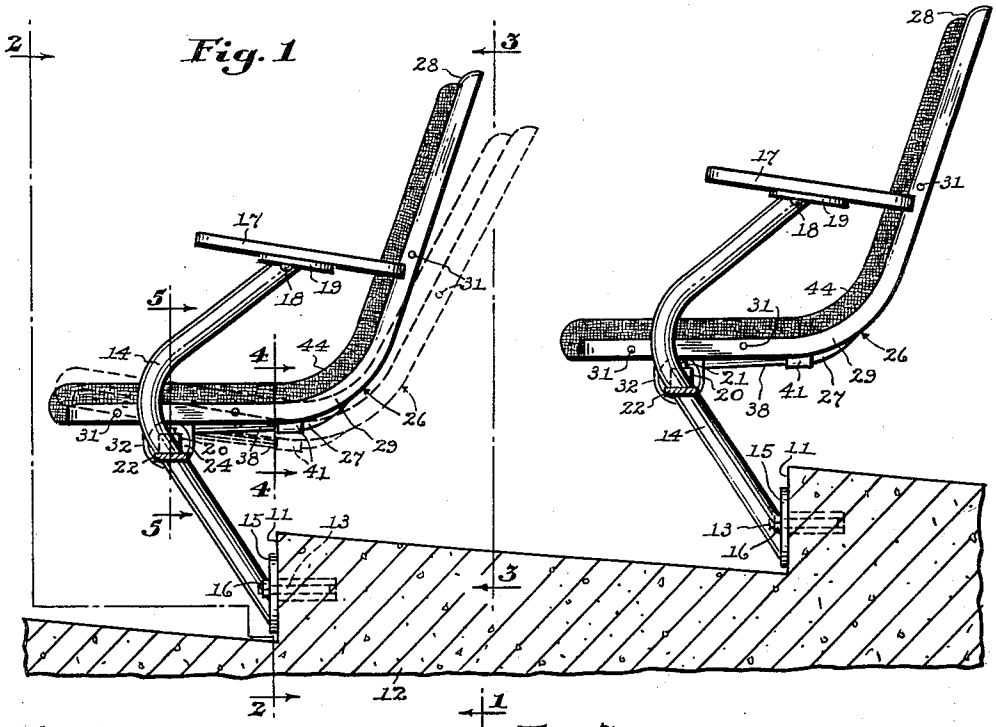


Fig. 2

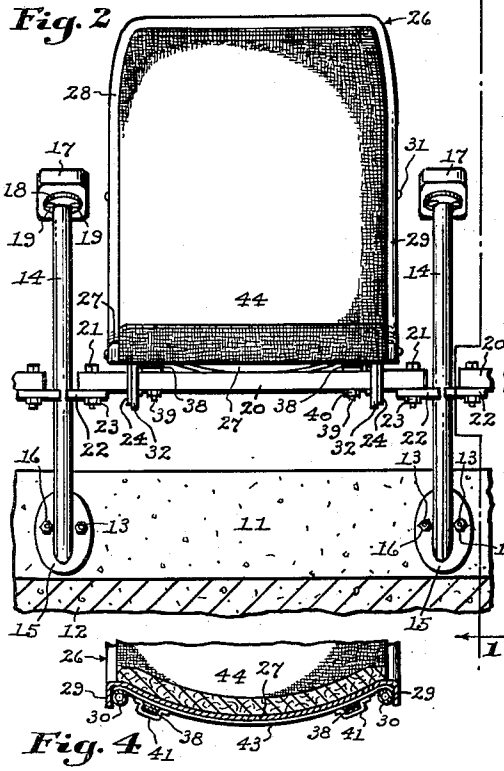


Fig. 3

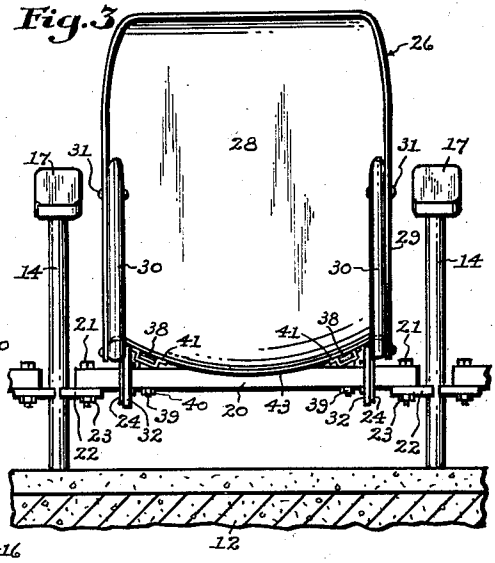


Fig. 4

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Fig. 5

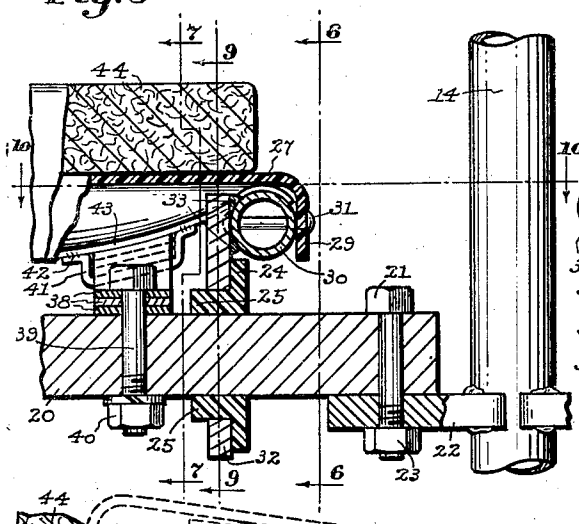
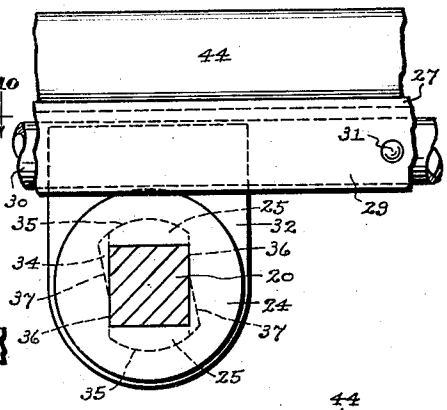


Fig. 6



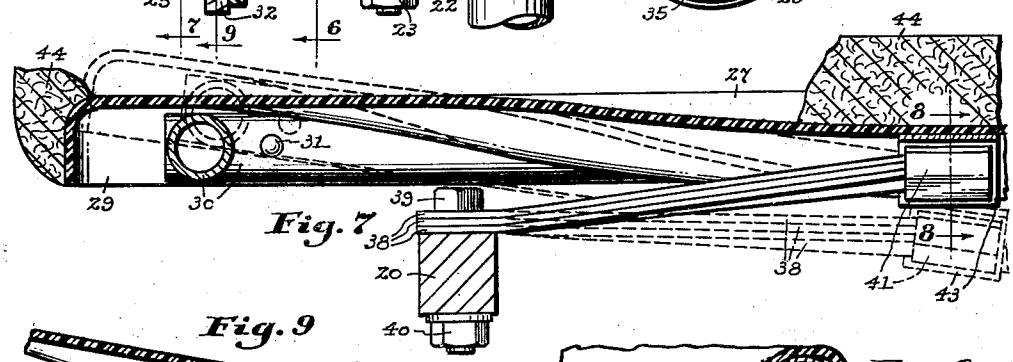


Fig. 7

Fig. 9

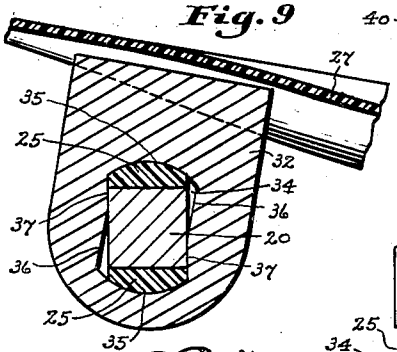


Fig. 8

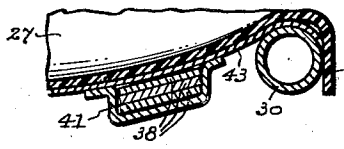


Fig. 10

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2,921,622

CHAIR

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Application April 14, 1958, Serial No. 728,194

4 Claims. (Cl. 155—55)

The present invention relates to chairs and more particularly to chairs of the type generally installed in theaters, auditoriums, stadiums and the like.

The primary objects of the invention are to provide a chair in which a unitary chair seat and back element is mounted for limited, cushioned rocking movement between upright and rearwardly reclined positions; to provide a novel arrangement of supporting standards and arm rests for such a chair; to provide novel and effective pivot mountings for such a chair; to provide such a chair which is especially well adapted for mounting on a riser; and in general to provide such a chair which is simple and sturdy in construction, exceptionally comfortable, and of novel and attractive appearance.

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

Figure 1 is a vertical section through a concrete floor of the stepped type having risers on which are mounted the new chairs, two such chairs being shown in side elevation as viewed from the section line 1—1 of Figure 2;

Figure 2 is a front elevational view of one of the chairs shown in Figure 1, as viewed from the section line 2—2 of Figure 1;

Figure 3 is a rear elevational view of the same as viewed from the section line 3—3 of Figure 1;

Figure 4 is a fragmentary vertical sectional view of parts thereof, taken on line 4—4 of Figure 1;

Filgure 5 is an enlarged, fragmentary, vertical sectional view of parts thereof, taken on line 5—5 of Figure 1;

Figure 6 is a fragmentary, vertical sectional view of parts thereof, taken on line 6—6 of Figure 5;

Figure 7 is a fragmentary, vertical sectional view of other parts thereof, taken on line 7—7 of Figure 5;

Figure 8 is a fragmentary, vertical sectional view of certain parts thereof, taken on line 8—8 of Figure 7;

Figure 9 is a fragmentary, vertical sectional view of parts thereof, taken on line 9—9 of Figure 5, certain parts being shown in different positions than those seen in Figure 6; and

Figure 10 is a fragmentary, horizontal sectional view of parts of the chair, taken on line 10—10 of Figure 5.

Referring now in detail to these drawings, wherein like parts are designated by the same numerals in the several views, the chairs shown in Figures 1–3 are mounted on risers 11 formed in the stepped concrete floor 12, the risers having anchor bolts 13 projecting therefrom for the attachment of the chairs. Each chair is mounted on spaced, upright, tubular metal supporting standards 14 having apertured metal plates 15 secured as by welding to the standards' lower ends. The anchor bolts 13 project through the apertures in the plates 15, and nuts 16 threaded on the outer ends of the anchor bolts secure the standards in position with the plates 15 flush against the risers 11.

The tubular standards 14 are bent in such a way that

they extend from the risers 11 in a forwardly-upwardly direction to the approximate level of the seat, and thence in a rearwardly-upwardly direction. Arm rests 17 are secured by screws 18 to metal plates 19 secured as by welding to the upper ends of the standards. As seen in Figures 2 and 3, each standard 14 serves as a common support for adjoining chairs in a row of connected seating, and the arm rests 17 are therefore made wide to accommodate both occupants of adjoining chairs.

A horizontal supporting bar 20 of rectangular or square cross-section extends between and is rigidly connected to the spaced standards 14 by means of bolts 21 passing downwardly through aligned apertures in the bar 20 and in lugs 22 secured as by welding to the standards, and having nuts 23 threaded on their lower ends. The bar 20 is secured to the standards 14 in their forward regions near the seat level. A pair of horizontally spaced pivot members 24 of molded polyamide resin (nylon) is rigidly mounted on the bar 20, and each pivot member 24 has an outer disc-shaped portion and cylindrically contoured pivot segments 25 extending inwardly on the opposite top and bottom sides of the bar 20.

A unitary chair seat and back element, generally designated 26 in Figures 1–4, is desirably made of molded, fiber glass reinforced plastic material, and comprises a contoured seat 27, back 28 and a peripheral flange 29 extending continuously around the seat and back. This flange 29 encloses and is secured at spaced points therealong to a tubular metal frame 30 as by means of rivets 31.

Spaced bearing members 32 are secured as by welding 33 (see Figures 5 and 10) to the lower side portions of the chair elements' tubular frame 30, and depend therefrom. Openings 34 (see Figures 6 and 9) through the bearing members 32 provide cylindrically contoured upper and lower bearing segments 35 which are journalled on the pivot segments 25 of the pivot members 24, so that the unitary chair seat and back element 26 is mounted on the supporting bar 20 for rocking movement. The openings 34 also define sloping surfaces providing stops 36 and 37 (see Figures 6 and 9) which contact bar 20 for limiting rocking movement of the chair element 26 in both directions. As designated, the stops 36 limit counter-clockwise movement of the chair element, as viewed in the drawing, to an upright position as indicated in full lines in Figure 1, and in Figure 6. Stops 37 limit clockwise rocking movement of the chair element 26 to a rearwardly reclined position indicated in dotted lines in Figure 1, and in Figure 9.

Spring means urge the chair element 26 in a counterclockwise direction, as shown, toward its upright position so that the unitary seat and back are resiliently supported to increase the comfort of the occupant. These spring means comprise spaced sets of leaf springs 38 secured at their forward ends to the bar 20 by means of bolts 39 passing downwardly through aligned apertures in the springs 38 and bar 20 and provided with nuts 40 threaded on their lower ends. The rearward ends of the springs bear upwardly against the rearward underside of the chair seat 27, and are slidably enclosed in channel brackets 41 depending from the rearward underside of the seat 27. These channel brackets 41 are secured as by welding 42 (see Figures 5 and 10) to a metal bar or strap 43 which spans the tubular frame 30 adjacent the seat 27 and which has its opposite ends secured as by welding to the side seat portions of said tubular frame 30.

In appropriate installations, indoors, the unitary chair seat and back element may be provided with an upholstery pad 44 as shown, secured thereto by any suitable means (not shown) for the added comfort of the chair occupant.

It will thus be seen that the invention provides a novel, attractive and comfortable chair for installation in theaters and the like, and while but one specific embodiment of the invention has been herein shown and described it will be understood that the invention is not to be limited to or by the details of said embodiment but comprehends all such modifications thereof as fall within the scope of the following claims.

We claim:

1. In a chair: spaced upright supporting standards; a supporting bar of rectangular cross-section extending between and rigidly connected to said standards near the seat level; horizontally spaced pivot members having rectangular openings through which pass the supporting bar for the non-rotatable support of said pivot members on said bar; a unitary chair seat and back element having bearing members depending from the chair seat and journalled on said pivot members whereby the chair seat and back element is mounted on the supporting bar for rocking movement between upright and rearwardly reclined positions; and stop means for limiting said rocking movement in both directions.

2. A chair according to claim 1 in which horizontally spaced leaf springs have their forward ends rigidly secured to the supporting bar and have their rearward ends bearing upwardly against the rearward underside of the chair seat.

3. A chair according to claim 1 in which the pivot members have cylindrically contoured pivot segments on two opposite sides of the supporting bar, and in which the bearing members have cylindrically contoured bearing segments journalled on said pivot segments, and stop segments adapted to contact the other two opposite sides of the supporting bar to limit turning movements of said bearing members in both directions.

4. A chair according to claim 1 in which the supporting standards are of tubular metal and have their lower ends adapted for attachment to a riser, said standards extending from the riser in a forwardly-upwardly direction to the approximate level of the seat and thence in a rearwardly-upwardly direction, and said supporting bar being connected to said standards in their forward regions near the seat level; and arm rests mounted on the upper ends of said standards.

References Cited in the file of this patent

UNITED STATES PATENTS

163,705	Waters	May 25, 1875
321,816	Housley	July 7, 1885
1,960,436	Finn	May 29, 1934
2,046,858	Walenta	July 7, 1936
2,362,746	De Vries	Nov. 14, 1944
2,522,394	Myers	Sept. 12, 1950
2,568,896	Morgan et al.	Sept. 25, 1951
2,633,897	Moore	Apr. 7, 1953
2,808,875	Bargen	Oct. 8, 1957

FOREIGN PATENTS

1,131,978	France	Oct. 29, 1956