Sept. 17, 1940. R. K. MERRILL 2,215,127

SEAT PIVOT

Filed Sept. 8, 1939 2 Sheets-Sheet 1

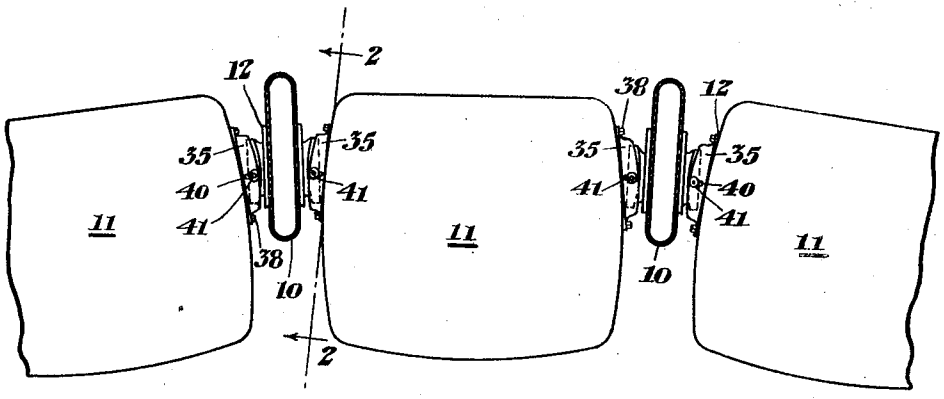


Fig. 1

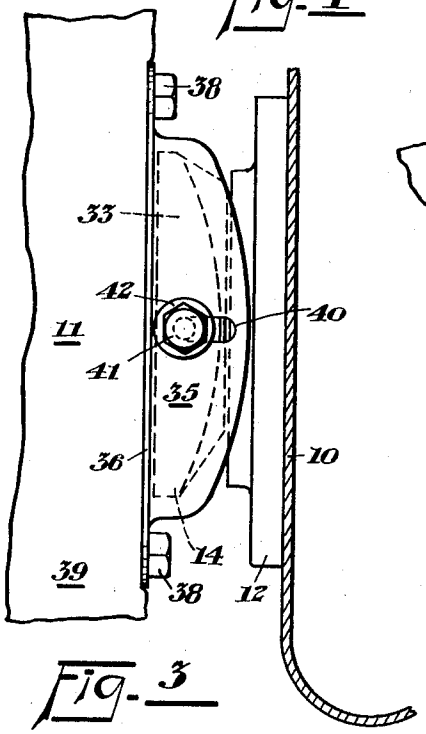


Fig. 3

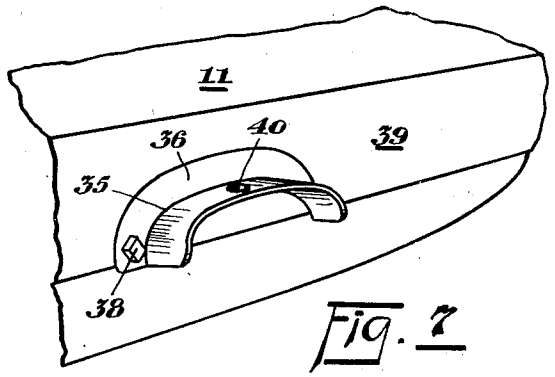


Fig. 7

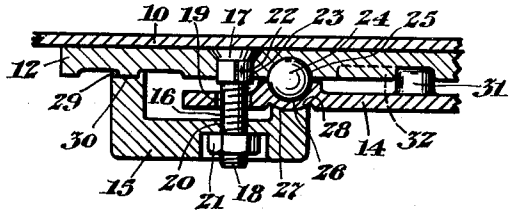


Fig. 8

Witness:
Geo L. Chapel

Inventor
Ralph K. Merrill

By Rice and Rice

Attorney

Sept. 17, 1940. R. K. MERRILL 2,215,127

SEAT PIVOT

Filed Sept. 8, 1939 2 Sheets-Sheet 2

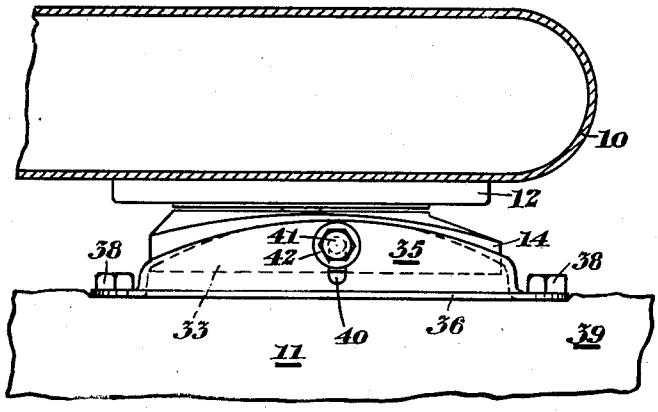


Fig. 4

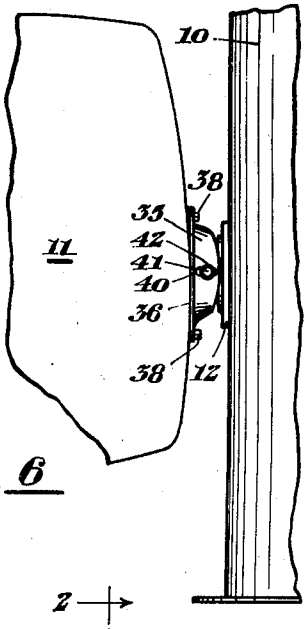


Fig. 6

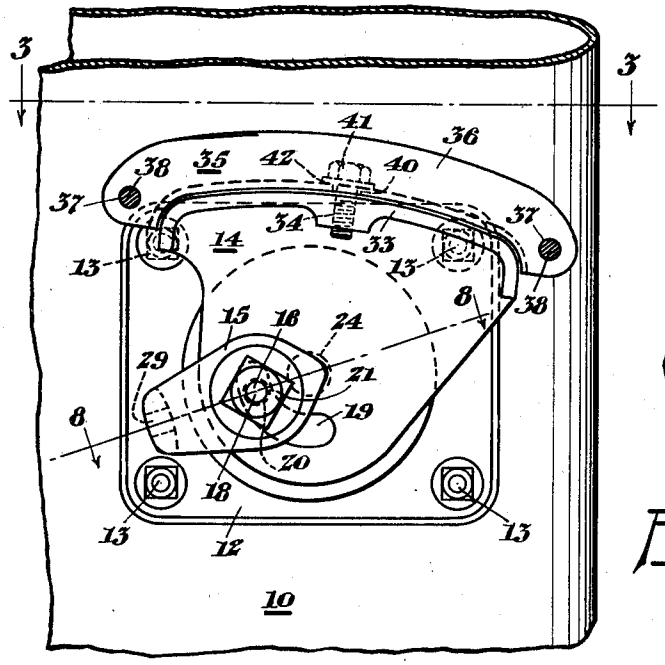


Fig. 2

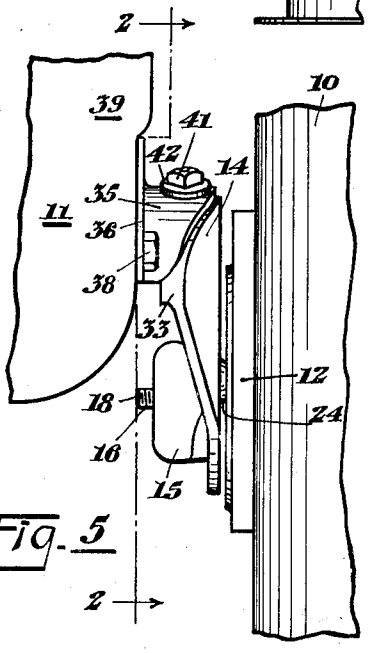


Fig. 5

Witness:
Geo. L. Chapel

Inventor
Ralph K. Merrill

By Rice and Rice

Attorney

Patented Sept. 17, 1940

2,215,127

UNITED STATES PATENT OFFICE

2,215,127

SEAT PIVOT

Ralph K. Merrill, Grand Rapids, Mich., assignor to American Seating Company, Grand Rapids, Mich., a corporation of New Jersey

Application September 8, 1939, Serial No. 293,876

6 Claims. (Cl. 155—86)

The present invention relates to seat pivots and more particularly to pivotal mountings by means of which the foldable seats of chairs of the opera type are pivotally mounted on spaced vertical chair standards.

The primary objects of the instant invention are to provide improved seat pivot mountings, each of which includes a yoke secured to the seat and adapted for ready and convenient attachment to or detachment from a seat pivot arm pivotally secured to the adjacent chair standard; to provide a slidable connection between each yoke and its seat pivot arm to compensate for variations in distances between the vertical chair standards; to provide an angularly adjustable connection between each yoke and its seat pivot arm to thus adapt the seat for installation on relatively angularly disposed standards such as occur in curved rows of seats; and, to provide such seat pivot mountings which are efficient in use, rugged and sturdy in construction, and reasonably economical in manufacture.

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

Figure 1 is a fragmentary top plan view of an arcuate row of these adjacent theatre chair seats in their unfolded positions mounted by the means of the present invention between spaced vertical chair standards here shown in horizontal section above the seats, the chair backs not being shown in this view or in any of the other views since they constitute no part of the present invention;

Figure 2 is an enlarged inside elevational view of a seat pivot mounting, certain screws for securing the yoke to the seat being shown in section on lines 2—2 of Figures 1 and 5;

Figure 3 is a sectional view thereof on line 3—3 of Figure 2 showing the seat in one adjusted position relative to an adjacent chair standard, the rear edge of the standard being shown at the bottom of this view;

Figure 4 is a sectional view of the same showing the seat in another adjusted position relative to the adjacent chair standard, the rear edge of the standard being shown on the right in this view;

Figure 5 is a rear elevational view of the same;

Figure 6 is a rear elevational view of the same on a reduced scale showing the seat in its raised position of non-use;

Figure 7 is a fragmentary perspective view of a seat and showing the yoke of the present invention secured thereto; and

Figure 8 is a sectional view on line 8—8 of Figure 2.

Referring to these drawings in which like parts of the structure are designated by the same numerals in the several views, spaced vertical chair standards 10 are secured in any suitable manner to the floor of a theatre or the like, said standards being adapted to support chair backs (not shown) and to pivotally support chair seats 11 mounted for turning movement to lowered positions of use or raised positions of non-use.

Each seat pivot mounting comprises a plate 12 secured to an inner face of a standard 10 as by bolts 13 and a seat pivot arm 14 pivotally secured to the plate 12 by means of a clamping member 15 secured to the plate 12 as by means of a bolt 16 whose head 17 is countersunk in the plate 12 adjacent the standard 10 and whose shank 18 extends through an arcuate slot 19 in the seat pivot arm 14 and through a bolt receiving aperture 20 in the clamping member 15, the inner end of the bolt being provided with a nut 21, all as best seen in Figure 8. The bolt 16 is preferably provided with a squared portion 22 seated in a squared recess 23 in the plate 12 to thus prevent turning of the bolt.

A ball bearing 24 is disposed in semispherical recesses 25, 26 in the plate 12 and seat pivot arm 14 respectively, said ball bearing 24 forming the central pivot for the seat pivot arm 14. The clamping member 15 has a concave recess 27 engaging a convex surface 28 on the seat pivot arm 14 in axial alignment with the ball bearing 24 and a notch 29 on the clamping member 15 engages a boss 30 on the plate 12 to prevent turning movement of the clamping member 15. A projection 31 on the seat pivot arm 14 extends into an arcuate groove 32 in the plate 12 and said projection 31 travels in said arcuate groove 32 during turning movement of the seat pivot arm 14 It will be seen that these parts are all maintained in assembly by means of the nut 21 threaded on the inner end of the bolt 16.

The seat is thus limited in its turning movement to a lowered position of use or to a raised position of non-use by engagement of the bolt 16 with an end of the arcuate slot 19 in the seat pivot arm 14 and/or by engagement of the projection 31 on the seat pivot arm 14 with an end of the arcuate groove 32 in the plate 12.

The structure above described is of conventional form and it has been the usual practice to secure a seat 11 directly onto the seat pivot

arms 14 pivotally mounted on the adjacent chair standards 10, the seat pivot arms having been cast in suitable form to accommodate a particular seat formation.

In the present invention, each seat pivot arm 14 is provided with an inwardly extending flange 33 of inverted U-shaped formation in vertical cross-section, said flange 33 being tapped intermediate the ends thereof to provide an internally threaded screw-receiving opening 34.

A seat mounting member here shown in the form of a yoke 35 likewise of inverted U-shaped formation substantially conforming in shape to the flange 33 on the seat pivot arm 14, is provided with a laterally extending flange 36 having bolt-receiving apertures 37 therein for receiving the shanks of bolts 38 by means of which the yoke 35 is secured to the outside of the seat 11, outside the upholstery covering 39 on the seat. A horizontally elongated slot 40 is provided in the yoke 35 intermediate the ends thereof.

The seats 11 are installed on the seat pivot arms 14 by passing a machine screw 41 through the slot 40 in each yoke 35 and turning the screw into the threaded opening 34 in the adjacent seat pivot arm 14. A lock washer 42 is desirably interposed between the yoke 35 and the head of the screw 41.

It will readily be seen that the horizontally elongated slots 40 in the yokes 35 permit a limited horizontal adjustment of the seats 11 relative to their supporting standards 10 to thus compensate for variations in the distances between pairs of standards at the time of installation.

It will further be seen that by virtue of the single connection, the screw 41, between each yoke 35 and its seat pivot arm 14, a limited angular adjustment between the seat 11 and its supporting standards 10 is made possible to thus compensate for the relative angular disposition of each pair of standards in a curved row of chairs.

Figure 3 is illustrative of an installation in which the seat is installed very close to its supporting standard and parallel thereto whereas Figure 4 is illustrative of an installation in which the seat is installed more spacedly from its supporting standard but likewise parallel thereto. Figure 1 illustrates the relative angular disposition of the seats on their supporting standards in a curved row of chairs.

It will thus be seen that the present invention provides means for ready and convenient installation of the seats on their supporting standards and that said means are such as to compensate for variations in distance between, and relative angular disposition of, pairs of supporting standards, and while but one specific embodiment of the invention has been herein shown and described, it will be understood that certain 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.

I claim:

1. In a chair structure comprising spaced chair supporting standards and a seat supported thereby and therebetween, a seat pivot arm pivotally mounted on one of the standards, a seat mounting member secured to the side of the seat adjacent said standard and having a horizontally elongated slot therein, and fastening means passing through said slot and engaging the seat pivot arm.

2. In a chair structure comprising spaced chair supporting standards and a seat supported thereby and therebetween, a seat pivot arm pivotally mounted on one of the standards, a seat mounting member secured to the side of the seat adjacent said standard and having a horizontally elongated slot therein, and a single screw passing through said slot and threadedly engaging the seat pivot arm.

3. In a chair structure comprising spaced chair supporting standards and a seat supported thereby and therebetween, a seat pivot arm pivotally mounted on one of the standards and having an inwardly extending flange, a seat mounting member secured to the side of the seat adjacent said standard and having a horizontally elongated slot therein, and fastening means passing through said slot and engaging the flange on the seat pivot arm.

4. In a chair structure comprising spaced chair supporting standards and a seat supported thereby and therebetween, a seat pivot arm pivotally mounted on one of the standards and having an inwardly extending flange, a seat mounting member secured to the side of the seat adjacent said standard and having a horizontally elongated slot therein, and a single screw passing through said slot and threadedly engaging the flange on the seat pivot arm.

5. In a chair structure comprising spaced chair supporting standards and a seat supported thereby and therebetween, a seat pivot arm pivotally mounted on one of the standards and having an inwardly extending flange of inverted U-shape in vertical cross-section, a yoke secured to the side of the seat adjacent said standard and substantially conforming in shape with and embracing said inwardly extending U-shaped flange, said yoke having a horizontally elongated slot therein intermediate the ends thereof, and fastening means passing through said slot and engaging the flange on the seat pivot arm.

6. In a chair structure comprising spaced chair supporting standards and a seat supported thereby and therebetween, a seat pivot arm pivotally mounted on one of the standards and having an inwardly extending flange of inverted U-shape in vertical cross-section, a yoke secured to the side of the seat adjacent said standard and substantially conforming in shape with and embracing said inwardly extending U-shaped flange, said yoke having a horizontally elongated slot therein intermediate the ends thereof, and a single screw passing through said slot and threadedly engaging the flange on the seat pivot arm.

RALPH K. MERRILL.