Oct. 11, 1932. T. R. HAYES 1,882,585

CHAIR

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FIG. 1.

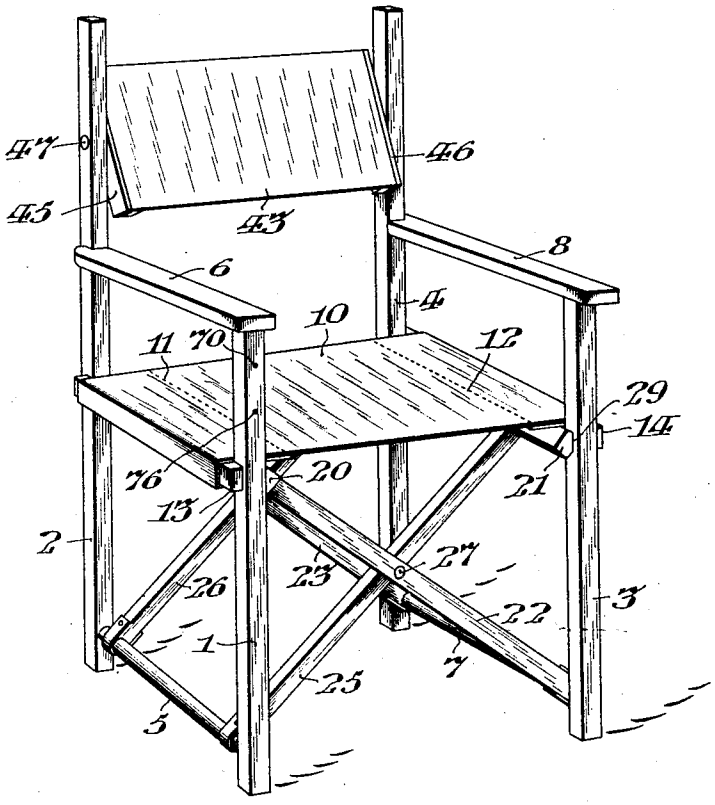


FIG. 2.

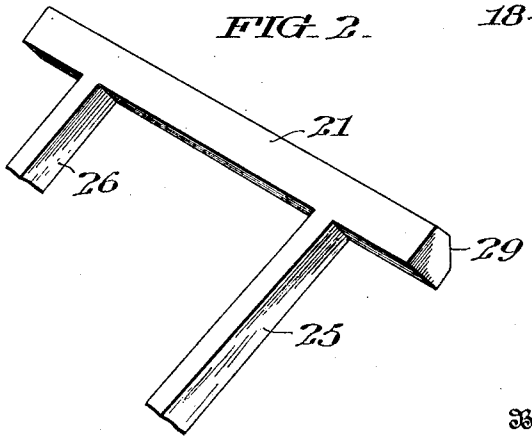
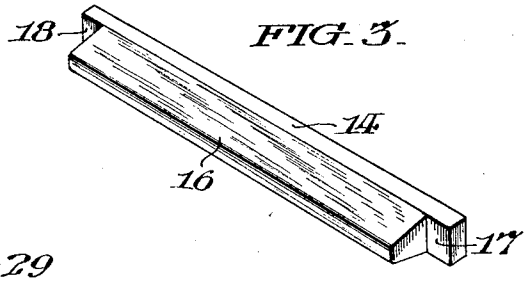


FIG. 3.



Inventor

Thomas R. Hayes,

By Clifton C. Caldwell

Attorney

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CHAIR

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FIG. 4.

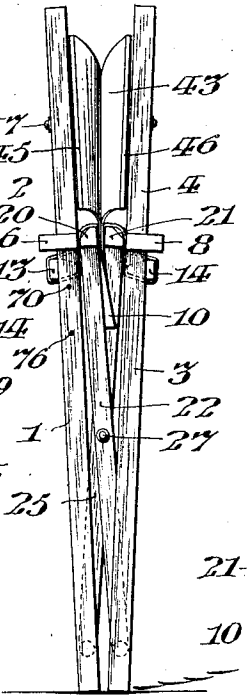


FIG. 5.

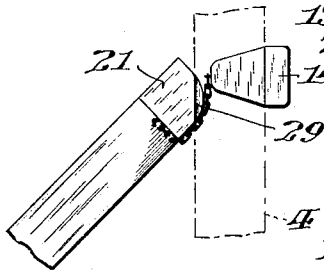


FIG. 7.

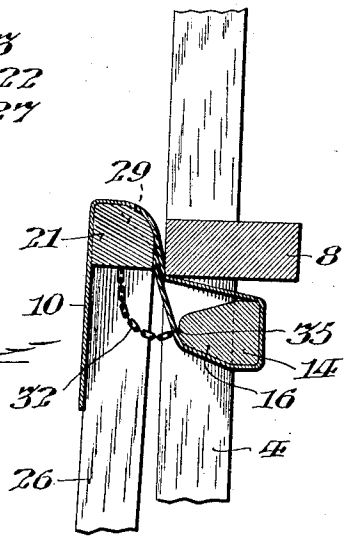


FIG. 6.

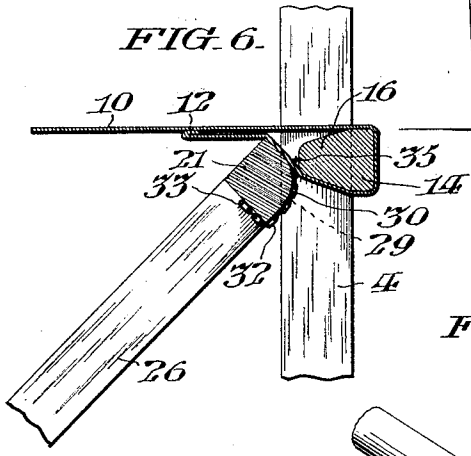
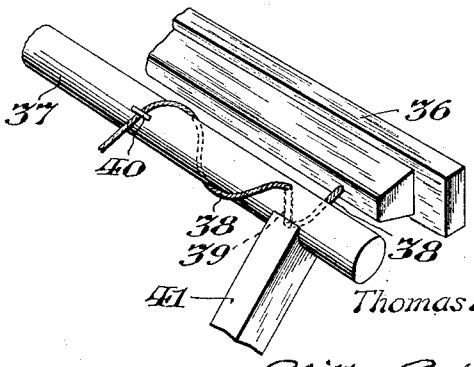


FIG. 8.



Inventor

Thomas R. Hayes,

By Clifton C. Hazlewood

Attorney

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CHAIR

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FIG. 9.

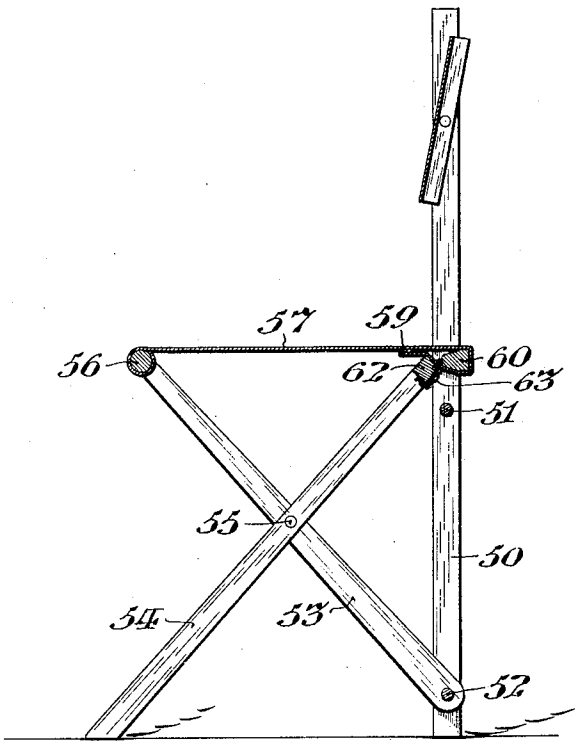


FIG. 10.

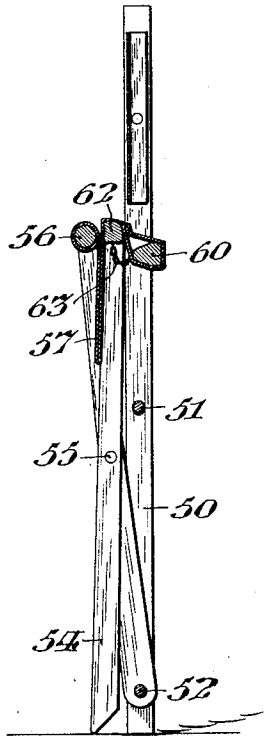


FIG. 11.

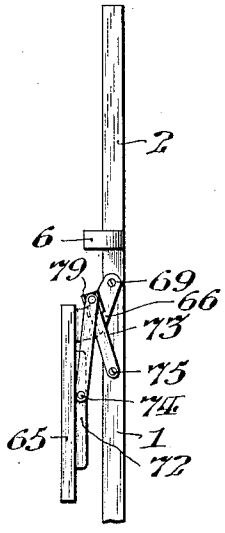


FIG. 13.

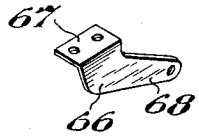


FIG. 14.

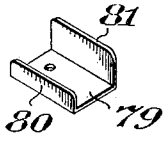
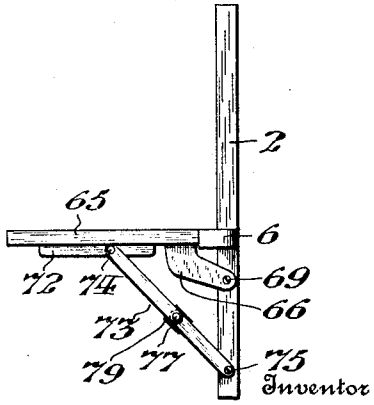


FIG. 12.



Inventor

Thomas R. Hayes,

By Clifton C. Galloway

Attorney

Patented Oct. 11, 1932 1,882,585

UNITED STATES PATENT OFFICE

THOMAS R. HAYES, OF MONROVIA, CALIFORNIA

CHAIR

Application filed March 23, 1929. Serial No. 349,338.

My invention relates particularly to collapsible or folding chairs of the class in which the seat is composed of flexible material such as a woven fabric, and is especially directed to the means whereby the seat may be connected with its supporting frame members.

The principal objects of my invention are to provide a folding chair with seat supporting means so constructed and arranged as to tend to relieve the seat from the usual tensile strains incident, in chairs of this type, to the spreading action of the chair frame.

Other objects of my invention are to provide a folding chair of the type contemplated, with cooperative locking means arranged to positively determine the relative height of the chair seat with respect to the floor upon which the chair rests, and also the maximum width between the distended side frames.

My invention comprehends such an arrangement of the clamping means as to insure that the chair seat supports and locking elements will be maintained relatively parallel and normal to the legs of the chair frame structure, irrespective of any stretching of the fabric or material of which the chair seat may be formed.

My invention further includes a table-leaf removably attached to the leg stiles of the chair frame and having such a jointed support as to avoid interference with the elements comprising the locking means as they are adjusted up and down the leg stiles in collapsing or distending the frames.

My invention is equally applicable to chair frame members that approach and separate laterally toward and from each other and those that fold forward and back with respect to the chair.

The form of my invention as hereinafter described, comprises a chair having side frames each being provided with leg stiles, upon the opposite sides of which a seat supporting rail and a locking bar are arranged to slide, said seat supporting rail and locking bar being so yieldingly connected as to freely slide on said leg stiles until the frames are distended to sufficiently rotate the locking bar as to render the yielding connection taut and thereby cause said seat rail and locking bar to bind the leg stile between them to provide a rigid chair structure.

My invention also includes all of the various novel features of construction and arrangement as hereinafter more definitely specified.

In the accompanying drawings, Figure 1 is a perspective view of a folding or collapsible chair conveniently embodying my invention; Fig. 2 is an enlarged perspective view of one of the seat supporting rails; Fig. 3 is an enlarged perspective view of one of the locking bars; Fig. 4 is a front elevational view of the chair in collapsed or folded condition; Fig. 5 is an enlarged fragmentary front elevational view showing the forward ends of the left seat rail and associated locking bar including their means of attachment and showing the forward left leg stile in phantom or dot-and-dash lines for convenience of illustration; Fig. 6 is an enlarged fragmentary vertical sectional view taken transversely intermediate of the front and rear leg stiles and showing the seat and its supporting members distended into operative position; Fig. 7 is an enlarged transverse vertical sectional view similar to Fig. 6 but showing the cooperative parts collapsed or folded and corresponding to the relative positions of the parts as illustrated in Fig. 4; Fig. 8 is a fragmentary perspective view showing slight modifications in the form of the seat rail and locking bar and their means of attachment; Fig. 9 is a central vertical longitudinal sectional view illustrating a convenient form of my invention as applied to a chair which is adapted to fold forward and back, and showing the frame and seat distended and in operative position; Fig. 10 is a view similar to that shown in Fig. 9 but showing the chair illustrated in said figure in collapsed or folded condition; Fig. 11 is a fragmentary front elevational view showing a table-leaf removably attached to the right-hand frame of the type of chair illustrated in Figs. 1 to 8 inclusive, said table-leaf being shown dropped into depending or inoperative position; Fig. 12 is a view sim-

ilar to Fig. 11, but showing the table-leaf raised into operative position and rigidly supported in a horizontal plane; Fig. 13 is a perspective view of one of the table-leaf hinge brackets shown in Figs. 11 and 12; and Fig. 14 is a perspective view of one of the stop plates, preferably bent into channel form, and serving to limit the relative movement of the pivoted members of the jointed table-leaf supporting strut shown in Figs. 11 and 12.

In said figures, the right side frame of the chair comprises the front leg stile 1 and the back leg stile 2, and the left side frame comprises the front leg stile 3 and the back leg stile 4, the stiles 1 and 2 being connected by the rung 5 and arm 6, and the leg stiles 3 and 4 being connected by the rung 7 and arm 8.

The seat 10 is formed of flexible web material, such as woven fabric, and may preferably have its ends engaged by stitching 11 and 12, as best shown in Fig. 1, to provide laterally disposed terminal hems through which the seat supporting rails 13 and 14 may extend. Said seat supporting rails 13 and 14 are arranged to bear, in slidable relation, against the outer surfaces of the leg stiles of the right and left frames respectively.

As best shown in Fig. 3, the seat supporting rails 13 and 14, which are identical in form and therefore are interchangeable, are chamfered to afford the inwardly tapered structure 16 about which the seat web may best conform,—see Figs. 6 and 7. The terminal regions of said seat supporting rails are recessed to provide flat surfaces 17 and 18 which slidingly bear against the outer plane surfaces of the leg stiles 1 and 2 respectively, or against the leg stiles 3 and 4 as may be.

Associated in cooperative relation with the seat supporting rails 13 and 14 are the locking bars 20 and 21 respectively, the locking bar 20 being secured to the upper ends of the trellis braces 22 and 23, which are pivotally connected with the rung 7 of the left side frame, and the locking bar 21 being secured to the upper ends of the trellis braces 25 and 26 which are pivotally connected with the rung 5 of the right side frame, said trellis braces 22 and 25 and the trellis braces 23 and 26 being also pivotally connected intermediate of their ends or at their region of crossing, as at 27.

Each of the locking bars 20 and 21 has its outer edge flattened at its terminal regions to provide surfaces 29 which are arranged to bear squarely against the inner plane surfaces of the leg stiles 1 and 2 of the right frame or the leg stiles 3 and 4 of the left frame, and has the intermediate region of its outer edge rounded to provide the surface 30 about which the seat 10 and flexible connectors 32 may best conform, as shown in Figs. 6 and 7.

The flexible connector 32, which is best shown in Figs. 6 and 7, is formed of a predetermined length of chain secured at one end to the locking bar at 33, and at the other end to the seat supporting rail at 35 by any convenient means, so, as will be obvious, when the locking bars are rotated from the relative position shown in Fig. 7 to the position shown in Fig. 6, the flexible connectors 32 will be drawn taut and consequently the associated seat supporting bar 13 or 14 will be rigidly held thereby with its flattened surfaces 17 and 18 jammed against the outer plane surfaces of the stiles of its associated frame.

As shown in Fig. 8, the seat supporting rail 36 may be associated with a locking bar 37 which is cylindrical in form and which is connected by a flexible connector comprising a cord or cable 38 formed of hemp, wire or any suitable material that may be extended through the aperture 39 and conveniently engaged by the anchor 40, said locking bar being secured to the trellis brace 41.

The back leg stiles 2 and 4 of the respective side frames of the chair are extended upwardly to support the back-rest which may preferably be composed of a web 43 of flexible material having its ends clamped between the bars of the back-rest stays 45 and 46 which are pivoted to the leg stiles 2 and 4, as at 47.

My invention may be applied with equal facility to the form of folding chair shown in Figs. 9 and 10, which folds forward and back, and which comprises the rear leg stiles 50 connected by the rungs 51 and 52 and the trellis braces 53 and 54 pivoted intermediate of their ends at 55, the trellis braces 53 being also pivoted to the rung 52 at its lower end and having the forward seat supporting bar 56 at its upper end, to which the forward end of the seat 57 is attached.

Said seat 57 is formed of flexible web material, such as woven fabric, and is looped to form a hem by the stitching 59, through which hem the rear seat supporting rail 60 extends with its terminal regions slidably engaged with the rear plane surfaces of the leg stiles 50.

The trellis braces 54 provide the forward legs of the chair and carry at their upper ends the locking bar 62 which is attached to the seat supporting rail 60 by the flexible connectors 63, it being noted that the hem of the seat 57, the locking bar 62 with its trellis brace 54, the seat supporting rail 60 and leg stile 50 are similar in form and action to the seat, the seat supporting rail, the locking bar, the flexible connector, and the rear leg stiles of the form of chair illustrated in Figs. 1 to 7 inclusive.

The chair illustrated in Figs. 1 and 4 may be provided with the folding table-leaf or drop-leaf illustrated in Figs. 11 and 12, which

may be readily attached and removed and employed without interfering with the folding or distending action of the chair frames.

As shown in Figs. 11 and 12, the table-leaf 65 is provided with the hinge brackets 66 each having the wing 67 attached to the under surface of the table-leaf 65, and the hinge lug 68 pivotally engaged with the leg stiles 1 and 2 by screws 69 engaged in the apertures 70 in said leg stiles.

The table leaf 65 may preferably be provided with the cleats 72 to which the jointed leaf supporting strut 73 is pivotally attached at one end by the pivot 74, the other end being pivotally attached to the leg stile 1 by the screw 75 engaged in the aperture 76 in said leg stile 1.

The leaf supporting strut 73 is pivoted intermediate of its ends at 77 and is provided with the stop plate 79, best shown in perspective in Fig. 14, being of channel formation arranged to embrace one of the jointed parts of the brace bar 73 and secured thereto, and being provided with the lateral walls 80 and 81, the latter projecting to form a stop for the other of said jointed parts of said brace bar to maintain said parts in alinement, as shown in Fig. 12.

Although I have shown the seat 10 looped and stitched to form lateral hems through which the seat supporting rails extend, said seat may as well be formed of a continuous web looped around the seat supporting rails and affording a double web throughout its extent, such as is illustrated in my prior Patent No. 1,627,388.

My invention is advantageous in that the seat supporting rail and the locking bar are cooperative to so clamp the leg stiles as to form a rigid chair structure without bringing to bear any undue strains upon the seat web. Furthermore, the weight of a person in the chair tends to draw the seat supporting rails into increased frictional engagement with the leg stiles to effect increased rigidity of the chair structure. The greater the weight on the seat of the chair, the more rigid it becomes, thereby making it at such times as solid and firm as a permanent chair. Such construction conveniently lends itself to freedom of adjustment without interfering with the table-leaf and its associated parts.

I do not desire to limit my invention to the precise details of construction and arrangement as herein set forth, as it is obvious that various modifications may be made therein without departing from the essential features of my invention as defined in the appended claims.

Having thus described my invention, I claim:

1. A collapsible chair comprising relatively movable frames having leg stiles, seat supporting rails slidably engaging the leg stiles of the respective frames, a seat supported by said rails, locking bars slidably engaging said leg stiles in opposition to said seat supporting rails, means pivotally connecting each of said locking bars with the frame opposite to the frame upon which it slides, and flexible means connecting said rails with said bars.

2. A collapsible chair comprising relatively movable frames having leg stiles, seat supporting rails slidably engaging the leg stiles of the respective frames, a flexible seat supported by said rails, locking bars pivotally connected with the leg stiles of one of said frames and slidably engaged with the leg stiles of the other frame in opposition to the adjacent seat supporting rails, and flexible means connecting the adjacent rails and bars arranged to limit the rotation of said bars and the consequent relative separation of said frames.

3. A collapsible chair comprising relatively movable frames, seat supporting rails slidably engaging said frames, a flexible seat connecting said rails, locking bars each pivotally connected with one of said frames and slidably engaged with the other frame in opposition to the adjacent seat supporting rails, and flexible means connecting the adjacent rails and bars arranged to effect jamming of said rails against said frames upon rotation of said bars.

4. A collapsible chair comprising relatively movable frames, seat supporting rails slidably engaging the outer surfaces of said frames, a flexible seat connecting said rails, locking bars pivotally connected with opposite frames to be rotated in slidable engagement with the inner surfaces of said frames, and flexible means connecting the adjacent rails and bars to draw them toward each other when said frames are distended and said bars are rotated, said rails and bars being disposed upon opposite sides of the respective leg stiles and effective to clamp the frames between said bars and rails to afford a rigid chair structure when distended to draw the flexible seat taut.

5. A collapsible chair comprising relatively movable frames having leg stiles, seat supporting rails slidably engaging the outer surfaces of said leg stiles, a flexible seat connecting said rails, locking bars slidably engaging the inner surfaces of said leg stiles, trellis braces pivotally connecting said bars with the opposing frames to effect rotation of said bars upon approach or distension of said frames, and flexible means connecting the adjacent rails and bars arranged to be drawn taut by the rotation of said bars when sad frames are distended, to clamp said stiles between said rails and bars.

6. A collapsible chair comprising relatively movable frames having leg stiles, seat supporting rails tapering inwardly, and having terminal recesses affording flat surfaces

slidably engaging said stiles, a flexible seat looped around said tapering rails, locking bars having flattened terminal regions slidably engaging said stiles in opposition to said rails, and having a rounded edge intermediate said terminal regions, flexible connectors attaching said rails to said bars, and means arranged to effect rotation of said bars by distending said frames to draw said bars and rails against the opposite surfaces of said leg stiles.

In witness whereof, I have hereunto set my hand this 15th day of March, A. D., 1929.

THOMAS R. HAYES.