July 4, 1950 L. H. BURLIN 2,514,309

FOLDING CHAIR

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Fig. 1

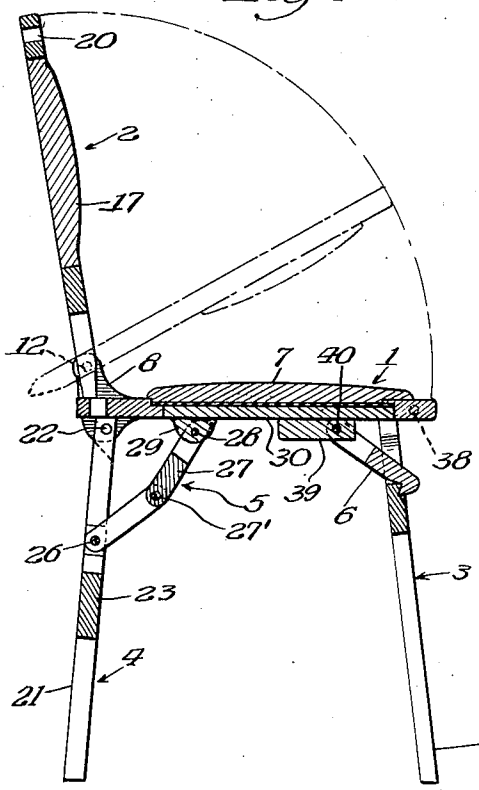


Fig. 2

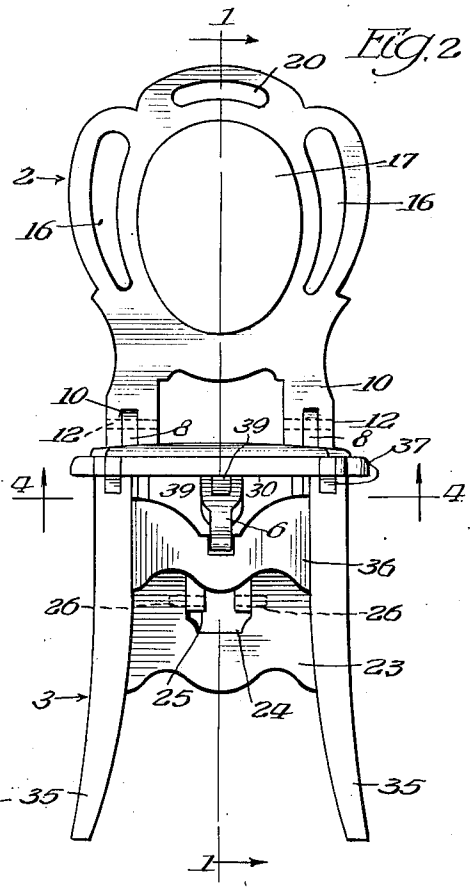


Fig. 3

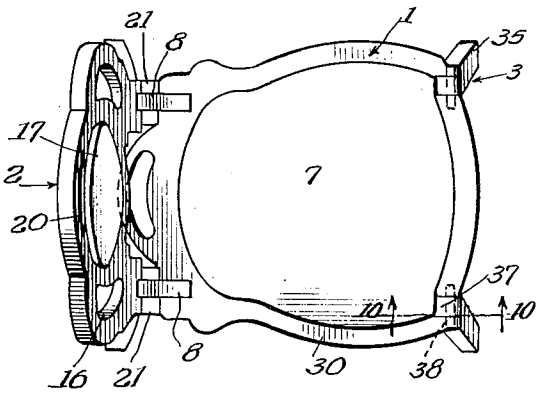
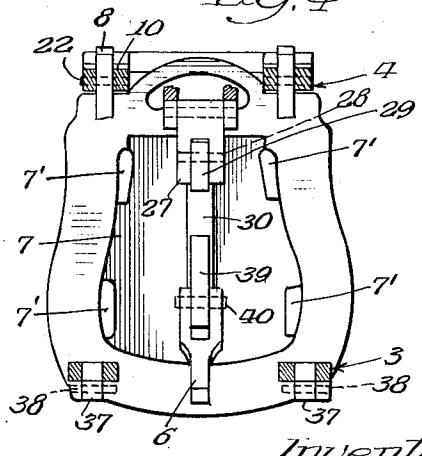


Fig. 4



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Fig. 5

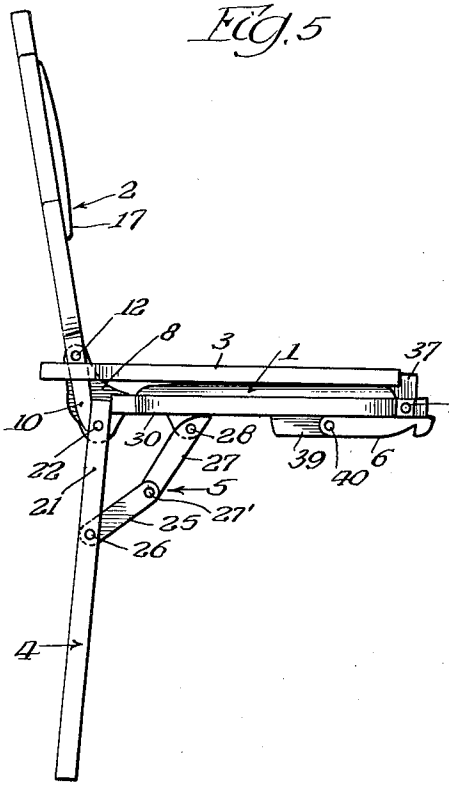


Fig. 6

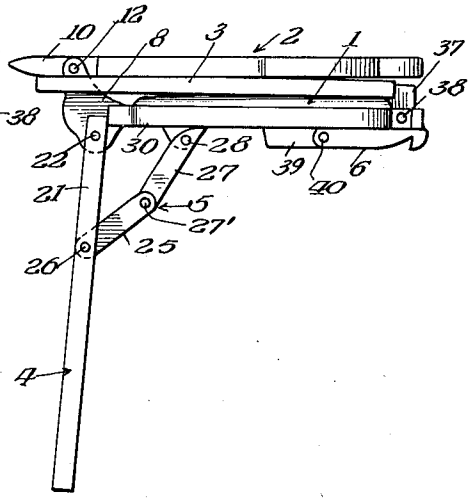


Fig. 7

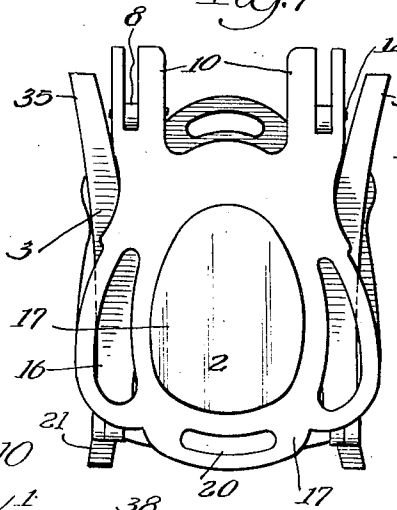


Fig. 8

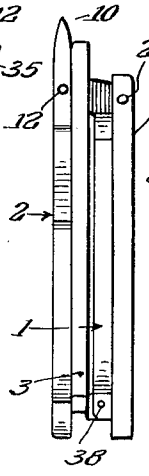


Fig. 9

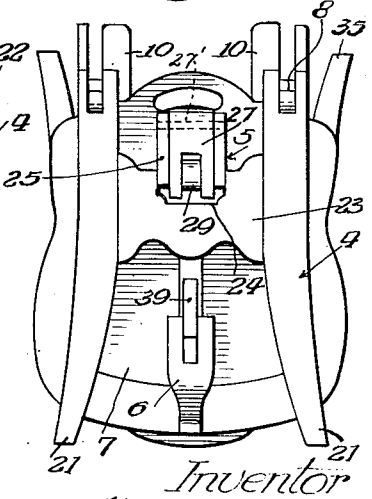
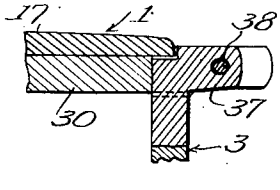


Fig. 10



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2,514,309

UNITED STATES PATENT OFFICE

2,514,309

FOLDING CHAIR

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Application December 10, 1945, Serial No. 633,974

5 Claims. (Cl. 155—148)

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This invention relates to folding chairs in general and more particularly to folding chairs of the type shown in my Patent No. 2,350,013, issued May 30, 1944.

The folding chair of the present invention comprises a seat to which is pivoted a front leg frame, a rear leg frame, and a back rest. The back leg frame and the back rest are swingable to a folded position overlying, respectively, the bottom and top of the seat. It is one of the objects of the present invention to provide a folding chair of the above mentioned character wherein folding of the rear leg frame towards its folded position necessarily holds the back of the chair towards its folded position. It is a further object of the present invention to provide a folding chair of the above mentioned character with a simple toggle for holding the rear leg frame in its unfolded position. When the rear leg frame is unfolded to its operative position the holding toggle links pass their toggle position just as the rear leg frame reaches its fully unfolded position, which is also the limiting position of the toggle. The toggle thereby holds the rear leg frame in the chair unfolded position.

It is a further object of the present invention to provide a chair of the above mentioned character with a pivoted front leg frame which is swingable to a folded position overlying the chair seat and held in position by the folded position of the back rest and wherein the front leg frame is of a substantial width at its base, even wider than the width of the base of the back rest, thereby giving great stability to the chair in its unfolded position.

It is a still further object of the present invention to provide a chair of the above mentioned character with an automatic spring ratching means for holding the front leg frame in its unfolded position.

The attainment of the above and further objects of the present invention will be apparent from the following specification taken in conjunction with the accompanying drawings forming a part thereof.

In the drawings:

Figure 1 is a central longitudinal sectional view of a folded chair embodying the present invention;

Figure 2 is a front view of the chair of Figure 1;

Figure 3 is a top view of the chair of Figure 1;

Figure 4 is a bottom view taken along the line 4—4 of Figure 2;

Figure 5 is a side view of the chair of Figure 1 in its partially folded position;

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Figure 6 is a view similar to Figure 5 showing the chair further folded;

Figures 7 and 9 are opposite side views of the folded chair;

Figure 8 is an end view of the folded chair; and

Figure 10 is a fragmentary sectional view taken on the line 10—10 of Figure 3 and looking in the direction of the arrows.

Reference may now be had more particularly to the drawings wherein like reference numerals designate like parts throughout. The chair of the present invention is made of wood. The chair consists of a flat seat 1, a back member 2, a front leg frame 3, a back leg frame 4, fittings for hinging these four members together, and a toggle 5 and a latch 6 for holding the rear and front legs in their unfolded position. The seat 1 consists of a rectangular open frame the opening of which is overlaid by a padded cushion structure 7, which cushion structure consists of a board padded on top and secured to lugs 7' that are nailed or otherwise secured to the open frame of the seat. The seat 1 is notched at the back to receive a pair of similar brackets 8—8 made of plywood or the like, and nailed or otherwise rigidly secured in the notches of the seat so as to be rigid with respect to the seat. The lower portion of the back 2 has a pair of bifurcated projections 10—10 each of which embraces one of the brackets 8 and is pivoted to the bracket by a dowel pin 12, the two dowel pins 12—12 being in alignment. Each pin fits snugly in its associated bracket 8 and constitutes a pivot support for the bifurcated arms 10—10 of the back 2.

The back frame 2 is suitably ornamented as by having cut-out portions 16—16. It has a central cut-out portion, oval-shaped for ornamentation, and closed by a padded structure 17. This may consist of a board padded and overlaid by upholstering at the exposed front surface thereof. At its top the back 2 has a cut-out portion 20 forming a handle for carrying the chair in its unfolded position.

The back leg frame 4 consists of a pair of leg members 21 bifurcated at their upper ends to embrace the respective brackets 8, and pivoted thereto by aligned dowel pins 22. The leg members 21 are permanently joined together by a wooden cross member 23 which is cut out as at 24 to receive two links 25—25 of the toggle 5, said links being pivoted to the board 23 as by aligned dowel pins 26—26. The two links 25—25 receive the lower end of a link 27 between them and are pivoted thereto as by a dowel pin 27'.

The upper end of the link 27 is pivoted by a dowel pin 28 to a tongue 29 that is secured to a wooden board 30 that is rigidly secured to the frame of the seat 1. To that effect the upper end of the link 27 is bifurcated to receive the tongue 29. The board 30 acts as a limiting stop to limit the counter-clockwise turning of the link 27 about its pivot pin 28 to the limiting position illustrated in Figure 1. In that position the toggle pivot 27' of the links 25—27 has just passed its toggle or dead center position.

When the back leg frame 4 is in its unfolded or usable position the tops of the back legs 21 bear against the rear edge of the seat at opposite ends thereof, as may be seen from Figures 3 and 5, so that the seat acts as a stop limiting the extent of unfolding of the rear legs or of the rear leg frame. The bottom portions 10 of the back bear against the tops of the leg members 21, as illustrated in Figure 5. This not only serves as a stop for limiting the amount of rearward tilting of the back but, furthermore, if the occupant of the seat should lean backwardly thereon and tilt the entire chair backward so that substantially the entire weight of the occupant is borne by the rear leg frame, there would be no possibility for the rear leg frame to collapse towards the bottom of the seat because any such collapse would be resisted by the lower portion 10 of the back bearing against the upper portion of the rear leg frame above the pivot 22. The chair back thus serves to prevent the collapse of the chair by the application of rearward force on the back rest even if in the unfolding of the chair the user inadvertently forgot to force the toggle 5 past its dead center position.

The front leg frame 3 consists of two legs 35—35 permanently secured together adjacent their top by a board 36. The upper parts of each leg 35—35 is bifurcated to receive one arm of a substantially L-shaped bracket 37 which is rigid with respect to the legs. The other arm of the L-shaped bracket extends into a slot formed at the front of the seat 1 and is pivoted to the seat as by a dowel pin 38, the dowel pins of the two brackets 37—37 being in alignment. When the front leg frame is in its lowermost position the top of the leg frame abuts against the bottom of the seat 1 to limit its extent of turning in a direction clockwise as seen in Figure 1. The latch 6 is bifurcated at its upper end to embrace a tongue 39 secured to the board 30 and is pivoted to the tongue 39 as by a dowel pin 40. When the latch 6 is pivoted into the position of Figure 1 it holds the front leg 3 against counter-clockwise turning about the pivot 37.

An explanation will now be given of the manner of folding the chair. The latch 6 is first manually swung upwardly to release the front leg frame 3. The front leg frame is then swung counter-clockwise about the pins 38 as a center until the front leg frame reaches a position overlying the top of the seat 1, as illustrated in Figure 5. It is to be noted that the two legs 35—35 are spaced apart at their lower ends a distance slightly greater than the outside distance of the parts 10—10 of the back rest. Therefore when the front leg frame is in its folded position the legs 35—35 embrace the bottom of the back rest. Thereafter the back rest is swung downwardly about its pivots 12—12 to a position overlying the front leg frame 3. The chair is now in the partially folded condition illustrated in Figure

6. To complete the folding operation the rear leg 4 must be folded. This leg is held in its normal position by the toggle 5 which has just slightly passed dead center. The toggle is broken by moving the knuckle or pivot 27' of the toggle upwardly, that is, towards the brackets 8. This first results in a slight straining of the toggle so that the leg frame 4 is first pushed slightly outwardly. After the knuckle 27' of the toggle passes beyond a straight line joining the pivots 26 and 28, further upward movement of the knuckle 27 permits or causes the rear leg frame 4 to swing about its pivot to its fully folded position. This is the position illustrated in Figures 7, 8 and 9.

It is to be noted from Figures 7, 8 and 9 that when the chair is in its folded position the opposite surfaces thereof are as indicated in Figure 8, so that a number of such folded chairs can be stacked into a small space. Furthermore, the folded chair may be stood on the floor vertically, as illustrated in Figure 8, at which time it will be supported by a three point support consisting of the bottoms of the legs 21 of the rear leg frame and by what was formerly the top of the handle of the back. The center of gravity of the folded chair is within the confines of the three point support so that the folded chair will stand upright. When the chair is in the position of Figure 8 the seat with its integral brackets 8—8 is suspended vertically from the pivots 12—12 which are now at the top of the back rest and the pivots 22 which are at the top of the rear leg frame. The front leg frame extends upwardly from its pivot support 38 and is held in position by reason of the fact that it is overlaid by the depending back rest 2, as illustrated in Figure 8. By reason of the fact that in its folded position the individual legs 35—35 of the front leg frame reach on the outside of the pivoted end of the back it is possible to make a back rest without a central opening for the front leg to pass therethrough and it is possible to have a wide base front leg so that the chair in its unfolded position is supported at four widely spaced points.

In compliance with the requirements of the patent statutes I have here shown and described a preferred embodiment of my invention. It is, however, to be understood that the invention is not limited to the precise construction here shown, the same being merely illustrative of the principles of the invention.

What I consider new and desire to secure by Letters Patent is:

1. A folding chair comprising a seat, a back rest and a rear leg frame pivotally connected together, the chair having a front leg frame pivoted to the front part of the seat and swingable to a folding position between the seat and the folded position of the back rest, the portion of the back rest that overlies the front part of the seat being of a width greater than and covering the subjacent portion of the front leg frame and said front leg frame including two legs spaced apart at the bottom a distance greater than the width of the back rest at the bottom thereof whereby said legs are spaced laterally outwardly of the pivoted end of the back rest when the chair is in its folded position.

2. A folding chair comprising a seat, a back rest and a rear leg frame pivotally connected together, the frame being swingable to a folded position against the bottom side of the seat, the back rest being foldable to a position over-

lying the top side of the seat and substantially parallel to the folded rear leg frame, the chair having a front leg frame pivoted to the front part of the seat and swingable to a folding position between the seat and the folded position of the back rest, the portion of the back rest that overlies the front part of the seat being of a width greater than and covering the subjacent portion of the front leg frame and said front leg frame including two legs spaced apart at the bottom a distance greater than the width of the back rest at the bottom thereof whereby said legs are spaced laterally outwardly of the pivoted end of the back rest when the chair is in its folded position.

3. A folding chair comprising a seat, a pivoted back rest, a pivoted rear leg frame, means for releasably holding the rear leg frame in the chair unfolded position, the frame being swingable to a folded position against the bottom side of the seat, the back rest being foldable to a position overlying the top side of the seat and substantially parallel to the folded rear leg frame, the lengths of the back rest and of the rear leg frame being such that upon positioning the seat of the folded chair vertically with the back edge of the seat uppermost the back rest and the rear leg frame extend vertically and terminate below the seat and at the same level to constitute supports for the folded chair and with the center of gravity of the folded chair lying between such supports, the chair having a front leg frame pivoted to the front part of the seat and swingable to a folding position between the seat and the folded position of the back rest, the portion of the back rest that overlies the front part of the seat being of a width greater than and covering the subjacent portion of the front leg frame and said front leg frame having at the bottom thereof a pair of legs spaced apart a distance greater than the width of the back rest at the bottom thereof whereby said legs embrace the pivoted end of the back rest when the chair is in its folded position.

4. A folding chair comprising a seat, a back rest member and a rear leg frame member pivotally connected together, the members being swingable to folded positions on opposite sides of the seat, the lengths of the two members being such that upon positioning the seat of the folded chair vertically with the back edge of the seat uppermost the two members extend vertically and terminate below the seat and at the same level to constitute supports for the folded chair and with the center of gravity of the folded chair lying between such supports, the chair having a front leg frame pivoted to the front part of the seat and swingable to a folding position between the seat and the folded position of said back rest member and with the legs of the front leg frame positioned outwardly of the bottom of the back rest member, the back rest member including a back support at the longitudinal center of the back rest member and extending substantially

the full height of the back rest member to the proximity of the seat.

5. A folding chair comprising a seat, a rear leg frame pivoted to the seat and having a part thereof bearing against the rear edge of the seat above the rear leg pivots to limit the rearward pivoting of the rear leg frame, a back rest pivoted to the seat and having a part bearing against the rear edge of the portion of the rear leg frame that bears against the rear edge of the seat whereby the back holds the rear leg frame against forward pivoting while the back is in its upright position, a rear leg holding toggle connecting the rear leg frame with the bottom of the seat for releasably holding the rear leg frame in its chair unfolded position said toggle comprising a pair of links which pass through toggle position as the rear leg reaches its fully unfolded position, the back rest being swingable to a position overlying the top side of the seat and substantially parallel to the seat and the rear leg being swingable to a position overlying the bottom side of the seat and substantially parallel therewith, the lengths of the back rest and of the rear leg being such that upon positioning the seat of the folded chair substantially vertically with the back end thereof uppermost the back rest and the rear leg frame extend vertically and terminate below the seat and at the same level to constitute supports for the folded chair and with the center of gravity of the folded chair lying between such supports, and said chair having a front leg frame pivoted to the front part of the seat and swingable to a folded position between the seat and the folded position of the back rest, the front leg frame including two legs spaced apart at their bottoms an amount exceeding the spacing between the pivots of the back rest, the folded chair being free of projections extending outwardly of the back and free of projections extending outwardly from the rear leg frame, and the back and rear leg frame being substantially parallel to one another in their chair folded positions to facilitate stacking of such folded chairs one upon another.

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