Oct. 20, 1942. J. GOLDSTEIN 2,299,538

CHAIR WITH COMBINED ROCKING AND TILTING ACTION

Filed Nov. 16, 1939 2 Sheets-Sheet 1

FIG. 1.

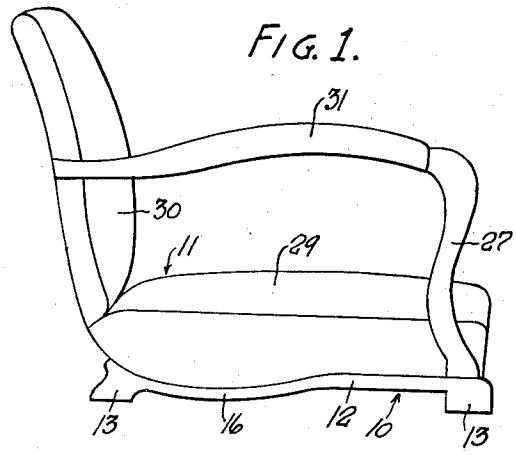
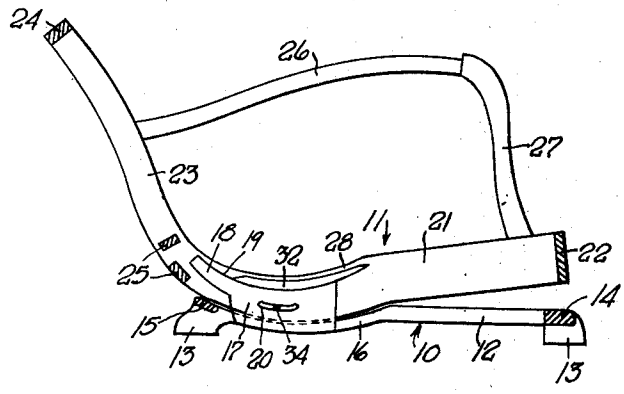


FIG. 2.



INVENTOR.
JACOB GOLDSTEIN.
BY Altsch & Knoblock
ATTORNEYS.

Oct. 20, 1942. J. GOLDSTEIN 2,299,538

CHAIR WITH COMBINED ROCKING AND TILTING ACTION

Filed Nov. 16, 1939 2 Sheets-Sheet 2

FIG. 3.

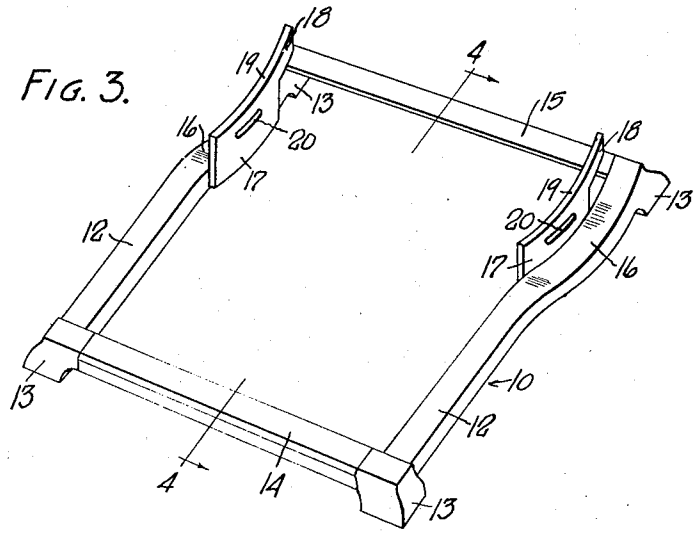


FIG. 4.

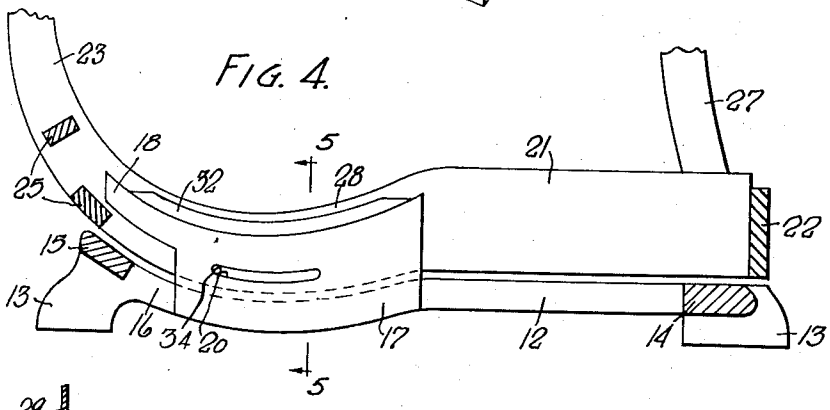


FIG. 5.

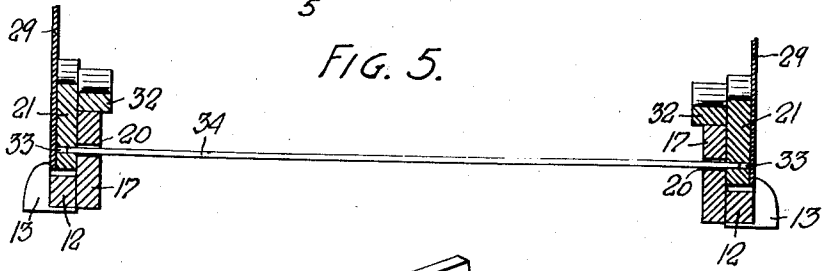
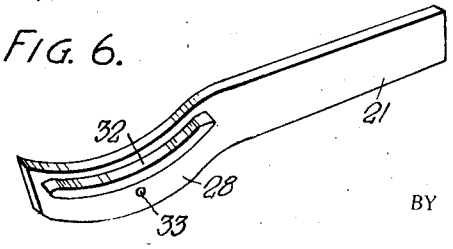


FIG. 6.



INVENTOR.
JACOB GOLDSTEIN.
BY Oltsch & Knoblock
ATTORNEYS.

Patented Oct. 20, 1942

2,299,538

UNITED STATES PATENT OFFICE

2,299,538

CHAIR WITH COMBINED ROCKING AND TILTING ACTION

Jacob Goldstein, Mishawaka, Ind.

Application November 16, 1939, Serial No. 304,647

10 Claims. (Cl. 155—77)

This invention relates to chairs with combined rocking and tilting action.

The primary object of the invention is to provide a chair having a combined rocking and tilting action and which may be adjusted to any desired position by the occupant while seated in the chair.

A further object is to provide a chair of this type having a novel and simple construction which is inexpensive to manufacture.

A further object is to provide a chair of this character having a unitary base upon which the seat and back unit is shiftable in a combined rocking and tilting action, wherein the parts are reduced to a minimum, wherein the parts are arranged in a novel manner, and wherein the cost of manufacture and the time required for manufacture and assembling the parts is very low.

A further object is to provide a chair of this character having a base frame and a seat unit shiftable thereon, wherein said frame and unit carry parts having sliding engagement, said parts being positioned to be completely concealed, and so cooperating with each other and the base and seat unit as to hold the latter in operative relation by the use of a single retaining member.

A further object is top rovide a chair of this character having a unitary base unit with side and end rails extending below the edges of the seat when the chair is in normal position, to give the same appearance as a conventional non-tilting chair.

A further object is to provide a chair of this character wherein the seat and back merge in a curve concentric with the curvature of the path of movement thereof on the base.

A further object is to provide a chair of this character having a base having supporting means which project into the seat frame and which base includes rearwardly projecting portions curved in substantial conformity with the curvature between the seat and back.

Other objects will be apparent from the drawings, description and appended claims.

In the drawings:

Fig. 1 is a side elevation of a chair embodying my invention.

Fig. 2 is a longitudinal vertical cross sectional view of the frame work of a chair wherein the shiftable portion of the chair is in tilted position with respect to the base.

Fig. 3 is a perspective view of the base unit of the chair.

Fig. 4 is an enlarged fragmentary longitudinal sectional view of the chair taken on line 4—4 of Fig. 3.

Fig. 5 is a fragmentary transverse vertical sectional view of the chair taken on line 5—5 of Fig. 4.

Fig. 6 is a fragmentary perspective view of a portion of the frame of the chair.

Referring to the drawings which illustrate the preferred embodiment of the invention, the numeral 10 designates the base of a chair and 11 the shiftable portion of the chair. The base 10 comprises side rails 12 supported on front and rear leg portions 13, and interconnected by a front rail 14 and a back rail 15. Each of the side rails 12 is formed with a concave downwardly curved portion 16 which extends to the rear end of the frame. A vertically extending member 17 is secured to each side rail 12 at its inner face along the curved portion 16. Members 17 project substantially above the side rails 12, and are preferably provided with curved rearward extensions 18 at their upper ends. The upper surface 19 of each member 17 and its extension 18 is curved in substantially complementary relation to the curvature of the portion 16 of the side rail, so that each point thereof is spaced substantially the same distance from the point of portion 16 directly therebelow as every other point thereof. Each of the members 17 is provided with an elongated curved slot 20 extending longitudinally thereof above the upper surface portion 16 of the side rail, and also curved in substantially complementary relation to the curvature of part 16 of the side rail 12 and of face 19 of member 17.

The seat and back unit 11 is preferably formed from a pair of side rails 21 interconnected by a front rail 22. Side rails 21 merge with back rails 23 in a regular curve. The upper ends of rails 23 are connected by a top rail 24. The frame of unit 11 is also provided with cleats 25 intermediate its ends and adjacent the curve between the seat and back rails to reinforce the same. Arm rests 26 are secured to the back rails 23 with their forward ends supported by uprights 27. The rear portion of the seat rails is preferably downwardly curved at 28 is substantial conformity with the curvature of the portion 16 of the base rail, and this curvature forms a part of the curve between the seat and back rails. The seat may be provided with the usual upholstery 29, the back with the upholstery 30, and the arm with upholstery 31. The spacing of the side rails 21 of the seat preferably conforms substantially with the spacing of the base rails 12, so that said rails may be vertically aligned with the base rails. Front rail

22 of the seat frame is also substantially vertically aligned with front rail 14 of the base when the chair is operatively positioned.

Each of the seat rails 21 is provided with an arcuate member 32 secured to its inner face at portion 23 thereof and adjacent the upper edge thereof. These curved members 32 are adapted to rest upon the members 17 carried by the frame in such a manner that the rails 21 of the seat have a slight clearance with the base frame 10 of the chair, as best illustrated in Fig. 4. Openings 33 are formed in the side rails 21 in alignment with the elongated slots of members 17 to snugly receive the ends of a bar or rod 34 which projects loosely through the slots 20. Rod 34 is preferably of a length slightly greater than the spacing between the inner faces of the seat rails 21, for purposes to be hereinafter set forth.

When the two separate units 10 and 11 of the chair have been manufactured independently as aforesaid, they are assembled together in operative relation, as best illustrated in Figs. 2 and 4, with curved member 32 of unit 11 resting upon the member 17 of the base 10 in such a manner as to permit slight clearance between the rails 12 of base 10 and the rails 21 of unit 11 of the chair. Prior to such assembly of the parts the rod 34 is positioned with its opposite ends received in the slots 20 of the opposite members 17. As the chair parts are brought together, one side only of unit 11 is positioned in operative position upon the member 17, and the bar 34 is pushed entirely into the opening 33 in the rail 21 at that side. This then permits the opposite side of the unit 11 to be lowered to rest upon the member 17, whereupon the rod 34 can be threaded partially into the opening 33 in the rail 21 at that side without completely withdrawing the opposite end thereof from the opening 33 in the opposite rail 21. Openings 33 are of a size to snugly receive the ends of rod 34, whereby said rod will remain in operative relation without the use of securing means therefor. Hence it is possible to assemble the chair very simply and easily after the upholstering 29 has been applied to the unit 11 without disturbing said upholstering or puncturing the same.

In its operation, the chair can be tilted to any desired position by a sliding movement of members 32 on members 17, wherein the center of said movement occurs at a point substantially at the hips of the user. The frictional engagement between the members 32 and members 17 is sufficient to hold the chair stationary in any tilted position to which it may be urged by the user. The arrangement with the center of curvature of the two supporting members occurring substantially adjacent the hips of the user gives to the chair a definite rocking action and sensation as opposed to a forward and backward sliding effect and sensation as occurs in other chairs of this general type now on the market.

The clearance of the base 10 and chair frame 11 avoids interference to this tilting and rocking action and affords a smooth operation for the chair. The provision of the narrow extensions 18 on the members 17 permits the supporting surface for the member 32 to be extended rearwardly and upwardly to a position partially between the lower ends of the back rails 23 without interference from the reinforcing members 25 adjacent thereto. This arrangement also avoids obstacles on the base to free movement of the unit 11 whose cleats 25 are positioned adjacent the junction of the seat and back, and which are necessary for the securing of upholstering. Hence the chair has a full rocking motion necessary for successful operation in a unit of this type.

The bar 34, being freely received in the slots 20, serves as the means to limit the forward and backward rocking movement of the upper chair portion 11 on the base 10, and also as the sole means for preventing separation of the units 10 and 11 in a vertical direction. The positioning of members 17 closely adjacent the inner faces of rails 21 of unit 11 prevents lateral displacement of units 10 and 11 relative to each other.

The formation of the base 10 of interconnected and solidly positioned side rails 12 provides a strong unitary supporting structure for the device, and one which is susceptible of such ornamentation as may be necessary and desirable to give the chair a finished appearance and to conceal the tilt feature when the parts are operatively positioned.

The invention is obviously susceptible of other arrangements than herein set out, and it is to be understood that the description and illustrations herein given are illustrative and not restrictive.

I claim:

1. A chair comprising a seat frame having interconnected side and end rails, a bearing member carried by the inner side of each side rail and having a convex lower arcuate surface, a base having interconnected side and end rails, a supporting member secured to the inner side of each base side rail and projecting thereabove and between said seat rails, the upper edges of said supporting members being of concave arcuate form concentric with and supporting said bearing members said bearing members being longitudinally slidable on the upper edges of said supporting members, said seat frame being normally positioned in vertical alignment with and in slightly spaced relation above said base, and means carried by said seat frame and adapted to engage means on said supporting member to limit sliding of said bearing members on said supporting members and to prevent separation of said frames.

2. The construction defined in claim 1, wherein said means comprises a rod whose ends are snugly received in apertures in said frame side rails, and said supporting members have curved elongated slots through which said rods extend freely.

3. A chair comprising a unitary base, and a combined seat and back unit shiftable on said base in a combined tilting and sliding movement, said seat having a downwardly curved rear portion which merges with a curved lower portion of the back, the rear portion of said base being curved in substantially concentric relation to said first named curve, and relatively slidable engaging members having curved engaging edges carried by said base and seat and substantially concentric with the curved portions thereof for supporting said unit for sliding movement relative to said base in a curvilinear path defined by said engaging edges.

4. A chair as defined in claim 3, wherein said engaging members comprise a pair of supporting members carried by opposite sides of said base and projecting into said unit, and bearing members carried by said seat interiorly thereof and bearing on the upper edges of said supporting members.

5. A chair as defined in claim 3, wherein said engaging members comprise a pair of support-

ing members carried by opposite sides of said base and projecting into said unit, bearing members carried by said seat interiorly thereof and bearing on the upper edges of said supporting members, and releasable means interconnecting said supporting members and said seat to accommodate limited, guided, tilting and sliding movement of said unit on the base.

6. A chair as defined in claim 3, wherein said engaging members comprise a supporting member carried by and extending above the rear portion of each side of said base and having a rearward projection at its upper end, the upper surface of said member and projection being curved concentrically with the curvature of said base and seat, and a bearing member carried by each side of said seat and each bearing on one of said supporting members, said seat unit having a cross bar at the lower curved portion of the back and adjacent said bearing member positioned to one side of the rearward projection of said supporting member at one end of the path of movement of said unit relative to said base.

7. A chair as defined in claim 3, wherein said base is coextensive with said seat, and said engaging members are entirely concealed within the frame of said unit.

8. A chair comprising a base frame having interconnected side rails, supporting members carried by the rails at the inner faces thereof and projecting above said rails, said members each having a concave curved upper edge and an elongated slot therein above said rails and curved in concentric relation to said upper edge, a seat unit including a frame having side rails, bearing members secured to said seat rails adjacent the upper edges thereof and having curved lower edges bearing on said supporting members in sliding face engagement, said supporting members extending adjacent the inner faces of said seat rails below said bearing members to prevent relative lateral movement of said seat unit and base, and a rod carried by said seat rails and extending loosely through said slots to hold said seat unit and base against vertical separation and to limit movement of said bearing members on said supporting members.

9. A chair as defined in claim 8, wherein said seat rails are provided with apertures snugly receiving the ends of said rods to hold said rod in operative position.

10. A chair as defined in claim 8, wherein said base frame includes a rear cross rail and said supporting members include a curved rearward projection at its upper end extending above said cross rail.

JACOB GOLDSTEIN.