Aug. 14, 1945. R. W. DICK 2,382,300

FOLDING CHAIR

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Fig. 3.

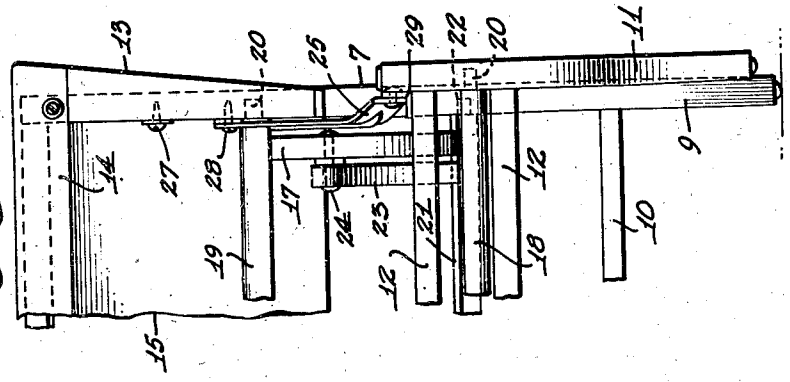


Fig. 2.

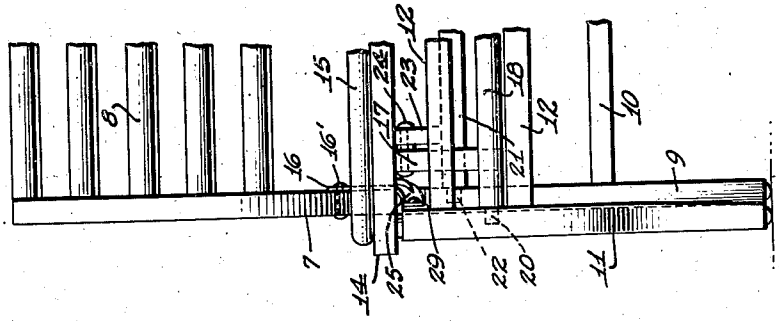
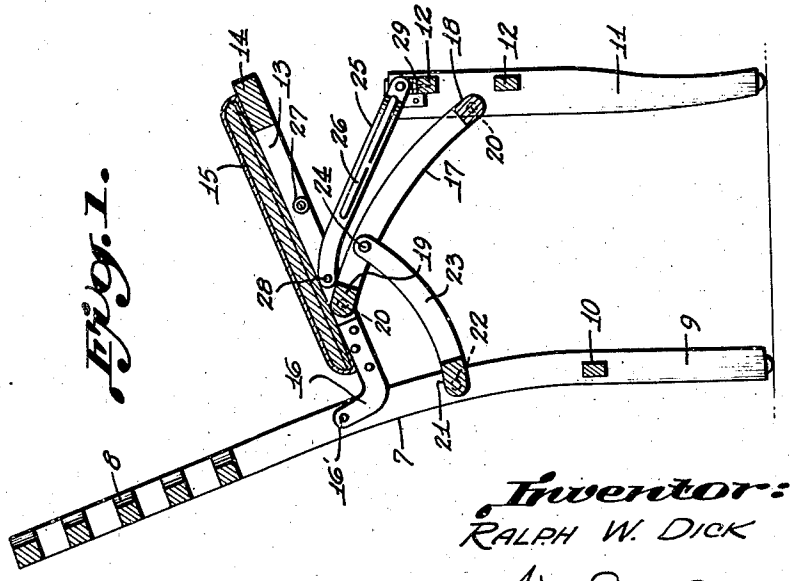


Fig. 1.



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Fig. 4.

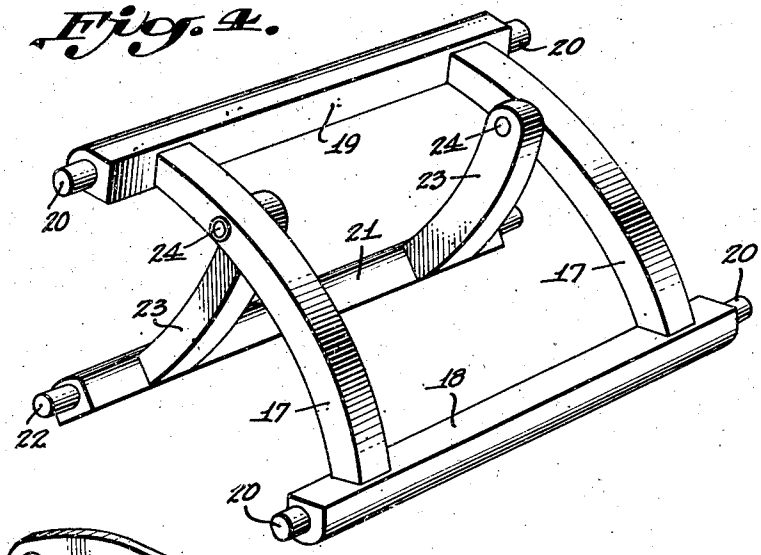


Fig. 5.

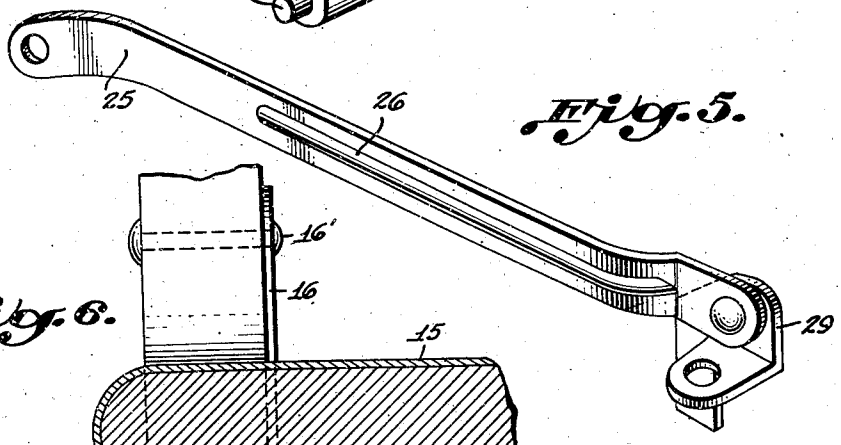


Fig. 6.

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FOLDING CHAIR

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Application March 15, 1943, Serial No. 479,201

4 Claims. (Cl. 155—141)

This invention relates to improvements in folding chairs of that type where the seat, when the chair is folded, rests with its upper face against the back-rest and the forelegs rest against the rear legs beneath the folded seat.

Structures of this character generally have many parts formed of materials such as steel, that have become scarce and their use is necessarily restricted now because of the prevailing conditions of belligerency. In order to continue production of such structures for general use it is highly desirable to afford a structure so designed as requires less or at least no more of the restricted materials than the established tolerance.

An object of the instant invention is to provide a chair structure so made that it requires only such proportion of the restricted materials as conforms with the tolerance permitted.

Another object of the invention is to construct a folding chair with its various parts made for the most part of more available unrestricted materials without impairment in either the stability or operation of the chair.

Other objects and advantages of the invention appear in the following description.

An illustrative embodiment of the invention is shown in the accompanying drawings, in which—

Fig. 1 is a side elevational view of a folding chair in which the invention is incorporated, the view being in vertical section, and the chair in partially collapsed position;

Fig. 2 is a fragmentary front elevational view of the chair in extended position for use;

Fig. 3 is another fragmentary front elevational view of the chair in collapsed position;

Fig. 4 is a perspective view of pivoted swinging frame members for connecting the folding seat of the chair with the foreleg and rear leg structures thereof;

Fig. 5 is a perspective view of a link and bracket pivoted together for connecting the chair seat and the foreleg structure; and

Fig. 6 is a detail view in transverse section showing the relative arrangement of the parts when the chair is extended for use.

Figs. 4, 5 and 6 are drawn to enlarged scales.

The illustrative embodiment of the invention consists of a rigid main frame, constituting the back-rest and rear legs of the chair, a foreleg structure, a folding seat connected to the main frame, a pivoted swinging frame structure connecting the seat with the main frame and foreleg structure, and links connecting the upper end of the foreleg structure and the seat.

The main frame is formed of upright side members 7, between the upper portions of which are secured transversely disposed parts 8 to provide a back-rest for the chairs. The lower portions of the side members constitute rear legs 9, and preferably are connected together by a cross-piece 10 for stability.

The foreleg structure includes forelegs 11 and other cross-pieces 12 secured therebetween, suitably spaced apart, to hold them definitely in relative positions with respect to each other.

The seat preferably consists of a seat frame having side members 13 connected at their forward ends by a cross-piece 14, and a cover 15 superimposed thereon. The side members are provided with hinge brackets 16 secured to their inner faces and pivotally connected to the corresponding inner faces of the side members 7 of the main frame, as indicated by 16', so the seat folds upwardly against the back-rest 8.

The pivoted swinging frame structure consists of two elements, one of which is a rectangular frame having side bars 17, the opposite ends of which are secured respectively to corresponding end bars 18—19 transversely disposed, and which are provided at each of their ends with a trunnion 20. The other element is a U shaped frame consisting of a rock-bar 21 provided with a trunnion 22 at each end thereof, and having forwardly extending arms 23 that are pivoted correspondingly at their forward ends to the side bars 17 of the other element at points located between the ends thereof as indicated by 24. When the swinging frame structure is positioned in place, the trunnions 20 on the end bar 18 extend into and have axial angular turning movement in the corresponding forelegs, the trunnions on the bar 19 likewise extend into and have axial angular movement in the side members 13 of the seat frame, and the trunnions 22 on the rock bar 21 extend into and have similar movement in the side members 7 of the main frame. Thus arranged, there is established toggle action by the swinging frame structure between the main frame and foreleg structure and also between the main frame and the seat frame.

The links 25 each consist of a bent bar of metal having shaped therein an elongated rib 26 that has the dual purpose of strengthening the link and affording reception of a latch member 27 located and projecting from the inner face of the corresponding side member 13 of the seat frame when the chair is in extended position for use, thus to yieldingly sustain the movable parts in their extended positions. The rear ends of

the links are pivotally connected to the side members of the seat frame as indicated by 28, and the opposite end of the link has pivoted thereon an anchor bracket 29 that is secured to the uppermost cross-piece 12 and adjacent foreleg of the foreleg structure so there is established coordination of movement with respect to the seat and the foreleg structure during folding and unfolding of the movable parts of the chair.

In use, the chair is folded or unfolded by manipulation of the seat and foreleg structure in opposite directions. When fully extended for use, the seat rests upon the top of the foreleg structure (Fig. 2) and is latched in such position, and when folded (Fig. 3) the upper face of the seat bears against the back-rest and the foreleg structure rests against the rear legs beneath the seat.

The unit composed of the rectangular frame and the U-shaped frame is connected, by way of trunnions on the end bars 18—19 and the rock-bar 21, with the foreleg structure, the seat and rear legs with which the unit has pivotal relation with each of those parts of the chair, thus the movements of the foreleg structure and seat relative to the main frame are definitely restricted to pivotal action.

Variations from the particular construction above disclosed may be resorted to by the exercise of skill in the art, without departure from the scope of the invention, and the following claims are intended to be inclusive of such variations.

What I claim is:

1. In a folding chair, a rigid main frame constituting a back-rest and rear legs, a foreleg structure, a seat having pivotal connection with said main frame for upward folding movement thereon, a swinging frame element having side bars and transverse end bars provided with trunnions that extend respectively into the seat and foreleg structure for turning movement therein, another swinging frame element having a transverse rock-bar provided with trunnions that extend into the corresponding side members of said main frame for turning movement therein and provided with forwardly extending arms that have pivotal connections respectively with the side bars of the other element at points between the end bars thereof, and links having pivotal connections at their opposite ends respectively with the seat and the foreleg structure, each provided with a rib, and latch members in the seat disposed to have latching engagement in said ribs, the arrangement of the swinging frame elements, and their connections with each other and with the main frame, seat and foreleg structure, and the connections of the links with the seat and foreleg structure being such that when the chair is fully extended for use, the seat rests upon the top of the foreleg structure and is latched in such position, and when folded the top face of the seat bears against the back-rest and the foreleg structure rests against the rear legs beneath the seat and relative lateral sway of the main frame, seat and foreleg structure is prevented.

2. In a folding chair, a rigid main frame constituting a back-rest and rear legs, a foreleg structure, a seat having pivotal connection with said main frame for upward folding movement thereon, a swinging frame element having side bars and transverse end bars provided with trunnions that extend respectively into the seat and foreleg structure for turning movement therein, another swinging frame element having a transverse rock-bar provided with trunnions that extend into the corresponding side members of said main frame for turning movement therein and provided with forwardly extending arms that have pivotal connections respectively with the side bars of the other element at points between the end bars thereof, and links having pivotal connections at their opposite ends respectively with the seat and the foreleg structure, the arrangement of the swinging frame elements, and their connections with each other and with the main frame, seat and foreleg structure, and the connections of the links with the seat and foreleg structure being such that when the chair is fully extended for use, the seat rests upon the top of the foreleg structure, and when folded the top face of the seat bears against the back-rest and the foreleg structure rests against the rear legs beneath the seat and relative lateral sway of the main frame, seat and foreleg structure is prevented.

3. A folding chair consisting of a main frame constituting a back-rest and rear legs, a seat the frame of which has hinged connections with the main frame for folding movement thereon, a foreleg structure, links pivoted at their opposite ends to said seat and foreleg structure respectively, and swinging frame elements, one of which has side bars and transverse end bars, said end bars having pivotal connections respectively with the seat frame and foreleg structure, the other element having a transverse rock-bar pivoted in the main frame and provided with forwardly extending arms pivoted respectively at their forward ends to said side bars, the arrangement of said elements and said links in the chair structure being such that upon folding of the seat against the back-rest the foreleg structure is automatically moved to closed position against the rear legs and relative lateral sway of said foreleg structure with respect to the seat is circumvented.

4. In a folding chair structure of the type having a main frame constituting a back-rest and rear legs, a seat pivoted to the back-rest, and a foreleg structure foldingly connected to the seat, whereby the seat folds upwardly onto said back-rest and said foreleg structure folds against said rear legs, link connections between said seat and foreleg structure, and a swinging frame structure having two pivotally connected elements one of which has a transverse rock-bar pivoted in the main frame, and the other element having transverse end bars pivoted respectively in said seat and foreleg structure, wherefore, during folding and unfolding of the chair, movements of said seat and foreleg structure are concurrent and relative lateral sway thereof circumvented.

RALPH W. DICK.