

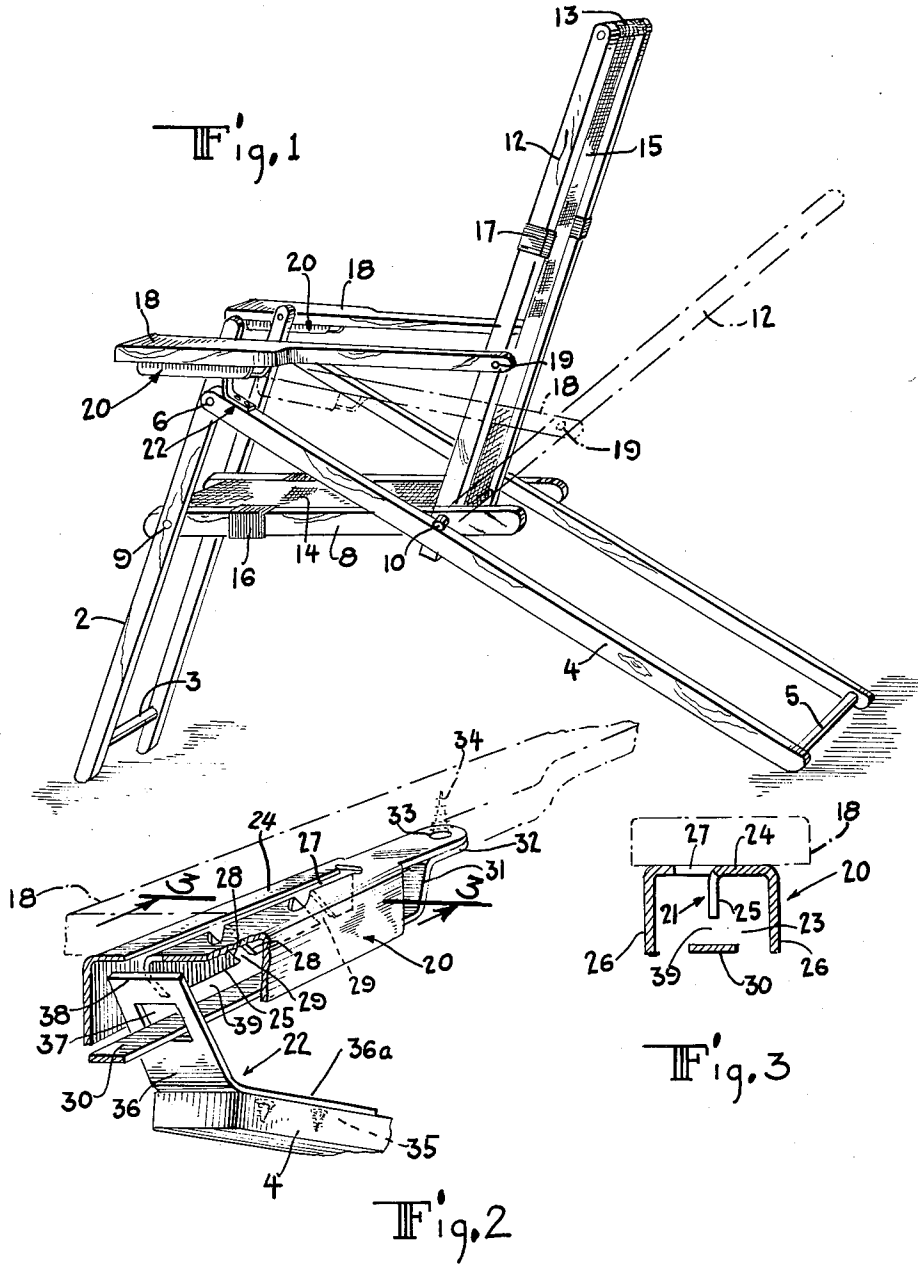
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R. D. VANDERMINDEN

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COLLAPSIBLE CHAIR

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INVENTOR  
Robert D. Vanderminden  
BY  
*Kennyon Kenyon*  
ATTORNEYS

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**COLLAPSIBLE CHAIR**

Robert D. Vanderminde, Granville, N.Y., assignor to  
The Telescope Folding Furniture Co., Inc., Granville,  
N.Y., a corporation of New York

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1 Claim. (Cl. 297-28)

This invention relates to collapsible chairs and more particularly to an improved device for adjusting the position of the back portion relative to the seat portion of such a chair.

In a chair embodying this invention, the front and rear legs have their upper ends pivotally connected together. The back rest and seat portion are pivotally connected by means which rest on the rear legs. Arms are provided which are pivotally mounted on the back rest on one end and are each provided with an adjustable connection on the other end. Means are positioned on the rear legs which cooperate with the adjustable connections on the arms to make possible the adjustment of the relative position of the back rest and seat. The adjustable connections are of the type which require only the lifting of the front ends of the arms to change the position of the back rest and seat from upright to prone and intermediate positions.

Other similar devices have incurred the danger that when shifting the position of the back rest the fingers become entrapped within the adjustable connections and injury results. Also the means used heretofore have not insured a complete locking without danger of accidental release of the connections causing the chair to collapse.

Principal objects and features of this invention are to provide for a collapsible chair which is safer to use and more easily and quickly adjusted.

Further objects and features of the invention are the provision of simple, inexpensive means for accomplishing these results.

Other objects, novel features and advantages of this invention will become apparent from the following specification and accompanying drawings, wherein:

FIG. 1 is side elevation in perspective of a chair embodying this invention.

FIG. 2 is an elevation view in perspective of the adjustable connection of this invention, and

FIG. 3 is a sectional view taken substantially on the line 3-3 of FIG. 2.

The chair illustrated in FIG. 1 is made up of front legs 2 joined by cross bar 3, rear legs 4 joined by cross bar 5 and pivotally mounted to the front legs 2 at their upper ends by pivot pins 6. The seat portion is made up from seat supports 8 which are pivotally mounted by pivots 9 to the front legs 2 and pivotally mounted on a support bar 10 at their rear ends. The support bar 10 also serves as a common pivot for the rearward ends of seat supports 8 and the lower ends of back rest supports 12, also properly spacing the seat supports 8 and back rest supports 12.

Bar 13 serves to space the upper ends of the back rest supports 12 apart. A similar bar (not shown) serves to space the forward ends of the seat supports 8 apart.

The seat and back rest coverings 14 and 15 may be made from any suitable material and may, if desired, be supported additionally by reinforcing webs 16 and 17 as shown in FIG. 1.

Arms 18 are pivotally mounted on the back rest supports 12 by pins 19 at their rear ends. Mounted on under faces of the forward ends of the arms 18 are adjustable connection devices 20. These devices 20 are provided with means 21 which cooperate with brackets 22 mounted on the forward ends of the rear legs 4.

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As may be seen more clearly in FIGS. 2 and 3 the connection devices 20 are constructed from any suitable material, preferably metal which is bent to form an open substantially inverted U-shaped channel 23. The closed end wall 24 of the channel 23 has a plurality of spaced depending flanges 25 extending parallelly with the side walls 26 of said channel 23. The flanges 25 may be formed from struck out portions of the closed end wall 24 of the channel member 23, leaving a longitudinal opening 27 therein as shown in FIGS. 2 and 3. However, it will be understood that flanges 25 may be attached to the inner side of the end wall 24 in any suitable manner and still be within the compass of this invention. The adjacent edges 28, 28 of the flanges 25 are formed so as to provide downwardly and rearwardly extending or slanting positioning notches 29 there-between, the purpose for which is fully set forth below.

An elongated tongue member 30 is positioned in the open end of the channel 23 as shown in FIGS. 2 and 3 its major portion lying parallel with wall 24 of channel 23. The rearward end portion 31 of the tongue member 30 is bent to provide a flat portion 32 which is attached to the rear end of the closed wall 24 of the channel 23. This may be accomplished by providing a hole in the portion 32 which matches with a hole 33 in the rear end of the closed wall 24 of the channel 23 and attaching both members 20 and 30 to the arm 18 in any suitable manner, as by a screw 34. The forward ends of members 20 and 30 are similarly attached to each other and to the arm 18. It will be understood that if the arms 18 are also constructed from metal, the channel 23 and the tongue 34 may be secured thereto as by welding or brazing or soldering or the like instead of by screws.

A bracket 22 is rigidly secured to the forward end portion of each of the rear legs 4 as by screws 35. The bracket 22 is formed preferably from sheet metal material and is bent to form an upwardly and forwardly extending or slanting flange portion 36. The angle between the portion 36a of the bracket 22 that is attached to the rear leg 4 and the flange portion 36 is substantially the same as the angle of the notches 29 between the depending flanges 28 and the closed end wall 24 of the channel 23. An opening 37 is provided in the flange 36. As shown in FIG. 2 the opening 37 is sufficiently large to allow free passage of the tongue 30 therein. Also the opening 37 is large enough to provide for sufficient room for the top end portion 38 of the flange 36 to clear the space 39 between the lower ends of the flanges 25 and the surface of tongue 30 when member 22 is lifted with arm 18, so that longitudinal movement within that space for flange 36 is possible without binding. Alternately the space 39 between the tongue 30 for flange 36 and the lower ends of the flanges 25 may be restricted to be somewhat less than the width of the top end portion 38 of the flange 36. Then, if the tongue 30 is in the form of a cantilever spring, a certain amount of force will be required to displace tongue 30 sufficiently to move the flange 36 along the tongue 30. Thus, when the flange 36 enters a positioning notch 29 between adjacent flanges 25, the tongue 30 will serve to provide an additional securing force to prevent the accidental displacement of the flange 36 from the positioning notches 29.

While the above description relates to a separate channel member 23 and separate bracket 22 which are attached to the arm 18 and the rear leg 4 respectively, it will be understood that the same purpose could be achieved by making the forward part of the arm 18 in the channel form disclosed, and by making the bracket 22 an integral extended portion of the rear leg 4.

In order to adjust the relative position of the back rest and seat portions of the chair of this invention the following steps occur. While seated in the chair or

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otherwise, the arms 18 of the chair are lifted causing the flange portion 36 of the bracket 22 to disengage from a particular positioning notch 29. By maintaining the arms 18 in their raised position and then moving them forward or backward, the back rest supports 12 rotate about the bar 10, thus altering the angle between the seat and the back rest. When the desired degree of angularity is reached the arms 18 are lowered and the flange 36 made to reenter the nearest one of positioning notches 29, thus fixing the relative position of the seat and back rest. If it is desired to collapse the chair completely, all that is required is that the arms 18 be raised and moved in a backwardly direction until the flange 36 moves as far forwardly as possible on the tongue 30, at which time the chair can be completely folded up.

An important feature of this invention lies in the provision of the side walls 26 of the channel member 20. By making the side walls 26 of sufficient width to enclose flanges 25 completely there is no way for the fingers of the person adjusting the position of the chair to become enmeshed or pinched in between the flange portion 36 of the bracket 22 and the flanges 25. This is important since one of the principal difficulties with chairs of this type heretofore has been the hazard of damaged fingers when attempting to change the position of the chair. Further the side walls 26 serve to guide the flange portion 36 of the bracket 22 within the channel 23 during the back position changing operations and the collapse as well as opening of the chair.

While specific embodiments of the invention have been disclosed variations are possible within the scope of the appended claim. There is no intention therefore of limitation to the exact details shown and described.

What is claimed is:

A collapsible chair comprising front and rear legs pivotally connected at their upper ends, seat and back portions, bar means pivotally connecting said portions together and having supporting extensions, said supporting extensions bearing on said rear legs when said chair is in an upright position, arms connected adjacent their

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rear ends to said back portion, cooperating means for adjusting the relative position of said back portion to said seat portion comprising an open substantially inverted U-shaped channel member positioned on the under side of the forward portion of each of said arms, with its side walls and open portion facing downwardly, a plurality of flanges formed from struck out portions from the closed end wall of said channel member, said flange portions lying between said side walls and being spaced apart and their forward and rear edges defining a plurality of downwardly and rearwardly directed positioning notches, a cantilever spring-like tongue member secured to such channel member and lying positioned within the latter and spaced from the flange portions and the side walls of such channel member, bracket members, one rigidly attached to the forward upper end of each of said rear legs adjacent its pivotal connection with said front legs, said bracket members having extension portions extending above the upper side of said rear legs and forming an angle therewith corresponding to the angle of said positioning notches between said flanges, said extension portions having openings formed therein each adapted to receive one of said tongue members, said openings being of sufficient size to permit movement of said extension portions within the space between such tongue members and the lower ends of said flanges upon deformation of such cantilever spring-like tongue members, said extension portions adapted to be engaged in said positioning notches whereby the relative position of the back and seat portion may be adjusted by lifting the front ends of said arms and moving said arms in a forward or rearward direction, said side walls of each channel member preventing access to and injury to a user's fingers by entrapment between the flange portions and bracket members during such adjustment of the back and seat portions.

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