Dec. 18, 1934. H. DUJARDIN 1,984,786

CHAIR

Filed Sept. 2, 1930

Fig. 1.

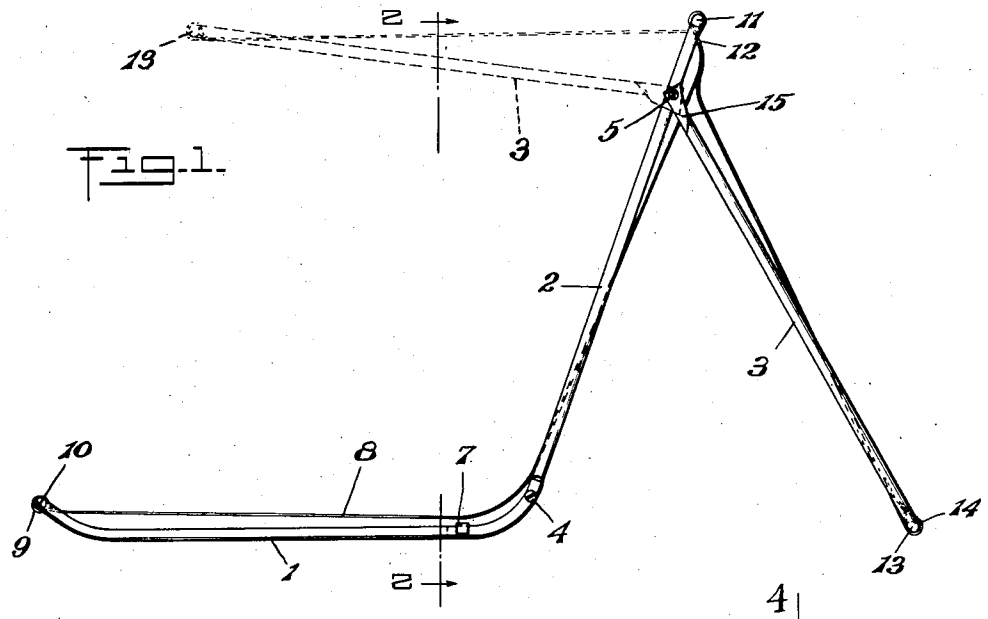

Fig. 2.

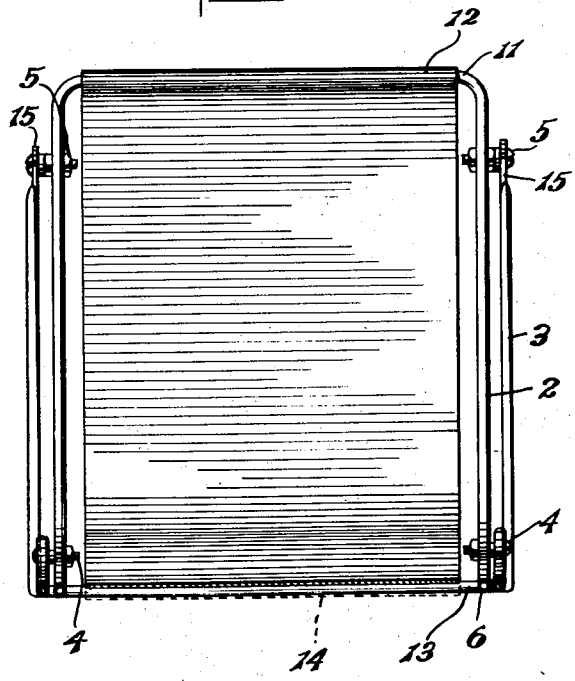

Fig. 3.

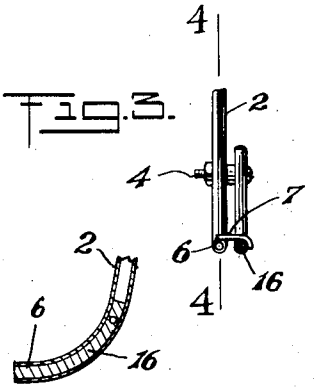

Fig. 4.

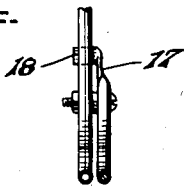

Fig. 5.

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UNITED STATES PATENT OFFICE

1,984,786

CHAIR

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Application September 2, 1930, Serial No. 479,279

6 Claims. (Cl. 155—154)

This invention relates to chairs, and more particularly to folding chairs.

The objects of the invention are to provide a chair which is not only flexible, foldable and portable, but one which is comfortable to sit in, one that is light to carry, and one that is simple to open and arrange for sitting in when desired.

Further objects of the invention are to provide a canopy which is easily swung into shading position or out of shading position without necessitating the user arising or other inconvenience; to provide a canopy which is self sustaining so as to require no attention to prevent it from falling or otherwise inconveniencing the user while in use; and to enable the canopy frame to be utilized as a prop for the chair back when desired.

Still further objects of the invention are to provide a chair of this character which will retain itself in proper open position with minimum mechanism; to avoid a swinging action between the parts when the user tilts back; and to prevent the back from tilting forward as the user becomes seated.

The invention likewise contemplates means for utilizing metal tubing including prevention of material distortion of the tubing where secured or pivoted together.

Yet other objects of the invention are to obtain simplicity of construction and operation, economy of material, minimum number of parts and joints, and to secure other advantages and results as may be brought out in the following description.

Referring to the accompanying drawing in which like numerals of reference indicate similar parts throughout the several views:—

Figure 1 is a side elevation of a chair embodying my invention;

Figure 2 is a sectional view on line 2—2 of Fig. 1, showing the lower edge of the canopy in dotted lines around its supporting cross-member so as to illustrate the continuity of said cross-member.

Figure 3 is a fragmentary sectional view similar to Fig. 2, showing the stop for limiting relative opening swing of the seat and back;

Figure 4 is a sectional view on line 4—4 of Fig. 3; and

Figure 5 is a fragmentary sectional view similar to Fig. 3, and showing a modified construction of stop.

In the specific embodiment of the invention illustrated in said drawing, and referring initially to the construction shown in Figures 1 to 4, the reference numeral 1 indicates a seat frame to which is pivoted a back frame 2, and near the upper part of the back frame, if desired, may be pivoted a canopy frame 3. Any suitable pivots may be used, the present drawing illustrating bolts 4 joining the seat and back frames, and other bolts 5 joining the canopy to the back frame.

All of said frames are preferably tubular and of proper stock so as to be strong, durable and yet reasonably light in weight so the chair will not be unhandy or too heavy for conveniently carrying from place to place. As shown, the seat frame is preferably a single piece of tubing bent into U-shape with the open side of the U toward the rear of the seat and the closed side or cross member at the front. Similarly the back frame is U-shaped with the closed part or cross member at the top and with the ends of the tubing pivoted to the ends of the tubing forming the seat frame. The canopy frame is also a single piece of tubing bent into U-shape with its ends pivoted to the back member and with its cross member at the opposite end of the canopy frame from said pivoted ends.

By virtue of the pivotal connection between the seat frame and the back frame, the two parts may be swung together, and similarly the canopy frame can be swung into flatwise and juxtaposed relation to the seat and back, so that the chair is folded into small compass and is of a size and character then to be readily transported. To use the chair, these parts are very conveniently swung to open position as illustrated in Figure 1, a suitable stop being provided to limit the amount of swing of the seat and back frames with respect to each other. Stops of various types may be employed, and as an example of a preferable stop, I have shown the lower end of the back frame, considered in open position, as extending downwardly forward from the pivotal attachment of the seat and back frames, and have also shown the rear end of the seat frame similarly shaped, but terminating substantially at the point of pivoting. For convenience in reference, this forwardly projecting end of the back member will be separately designated with reference numeral 6. Near the forward part of this end 6, with the chair still considered in open position, is shown a transverse plate 7 constituting the said stop. This transverse plate is fixed to one of the tubings and adapted to be engaged by the other as the parts come to open position. Preferably the said plate is on the upper sides of said tubings, in which event it is

made fast, by riveting, welding or otherwise, to the seat frame and projects over the path of movement of the ends 6.

A strip of fabric 8 is secured, as by a hem or loop 9 to the cross member 10 of the seat frame, and extends rearwardly and upwardly to the cross member 11 at the top of the back frame. An intermediate loop 12 is formed transversely of the material at this position, the depth of the loop being less than the distance from the cross member 11 to the line of pivoting at bolt 5 of the canopy frame. The fabric then extends to the cross member 13 of the canopy frame, to which it is held by another end loop or hem 14. The length of the fabric from the intermediate loop to the end loop attached to the canopy frame is short enough to prevent the canopy frame from swinging from its position over the seat frame downwardly an undesirable amount, but if the canopy is not desirable for shade purposes, the frame is readily swung upwardly and rearwardly so that it will be positioned to the rear of the back frame and depend therebehind. The canopy frame is shown in full lines in such rearward depending position in Figure 1, and is shown in shading position by dotted lines. In the rearward position of the canopy frame, the same may be utilized as a prop to prevent tilting back or maintain a certain position of the chair back with respect to the supporting surface.

While the pivoted ends of the tubing may be flattened for obtaining the pivotal attachment, as shown at 15 with respect to the pivoted ends of the canopy frame, it is not desirable nor practical to flatten the tubing away from its ends for pivotal purposes, and yet ordinary tubing is apt to become distorted, compressed or otherwise affected either in use or in manufacture at a point of pivoting, and it has been found difficult to maintain or even procure uniformly satisfactory pivoting of tubing. I have discovered that a length of rattan or other bendable fibrous material 16 may be forced or otherwise inserted in the tubing where the pivoting is to be obtained, and this fibrous material is drilled at the same time as the tube, so that the pivot passes therethrough, and when the pivot is tightened the said fibrous material resists compression and maintains the tubing in substantially its original shape.

If so desired, the bendable fibrous material may also be included in the tubing at such bends thereof as found expedient for assisting in obtaining a smooth bend and increased rigidity. As shown in Figure 4, the length of fibrous material extends from the otherwise open end of the tubing around the bend to a position above the pivoting. The fibrous material has the characteristic that it may be forced into the tubing and be compressed at those parts of the material which are normally too great in diameter, and thus fit the tubing quite perfectly. Furthermore, the fibrous material is such that it does not split or crack when bent or when pierced, as by the pivot.

Referring now to Figure 5, there is shown a modified construction of stop. Instead of providing the stop along the seat frame, it is provided behind the back frame. In this showing, the upper end of the tubing forming the seat frame is extended above the pivot, as at 17, and flattened and then twisted to project behind the back frame, as at 18. Such a stop functions substantially the same as the stop described in connection with the preferred form.

If preferred, the stop may be omitted entirely, and in such instance, the forwardly bent ends 6 of the back member function to prevent the weight of the user of the chair from pulling the back frame forward from the normal upright position, since the person's weight operates to keep the seat member on the ground, and therefore said forward ends can swing no further than to a horizontal position. The stops are advantageous in event the pivoting is loose, so the chair will not normally be outstretched, and are also advantageous in preventing the said ends from opening and closing like scissors when a user sways back and forth. The chair is such that it may be readily tilted back with the user maintaining a perfect balance in upright and reclined positions. The general construction of the chair makes it especially desirable for beach use.

Other detail changes and modifications may be made in the construction and use of my improved chair without departing from the spirit or scope of the invention, and I do not wish to be understood as limiting myself to the exact constructions shown and described, except as set forth in the following claims when construed in the light of the prior art.

Having thus described the invention, I claim:—

1. A chair comprising a seat frame, a back frame and a canopy frame, all of said frames being pivotally connected, and a flexible member attached at its ends to the seat frame and to the canopy frame and attached intermediate its ends with a limited amount of slack to the upper part of the back frame whereby a portion of said flexible member forms a canopy and the effective length of said member from the upper part of the back frame to its attachment to the front of the seat frame being less than the combined lengths of the seat and back frames from the said points of attachment of said member, whereby said member is tensioned by an occupant sitting in the chair upon another portion of said member.

2. A chair comprising a seat frame, a back frame pivoted to the seat frame so as to be adjustable as to inclination, and a third frame pivoted to the back frame and free to swing from a position over the seat frame to a position behind the back frame, and a flexible member carried by said several frames from end to end thereof, the effective length of said member from the upper part of the back frame to its attachment to the front of the seat frame being less than the combined lengths of the seat and back frames from the points of attachment of said member, whereby said member is tensioned by an occupant sitting in the chair, and whereby said third frame may be utilized as a prop for the back frame or as a canopy support, said chair including means limiting backward swing of the back frame in use with respect to the seat frame.

3. A chair comprising a seat frame, a back frame pivoted to the seat frame so as to be adjustable as to inclination, a third frame pivoted to the back frame at a distance from the upper end of said back frame, said third frame being free to swing from a position over the seat frame to a position behind the back frame, and a flexible member attached at its ends to the seat frame and to the third frame, and attached intermediate its ends with a limited amount of slack to the upper part of the back frame, the effective length of said member from the upper

part of the back frame to its attachment to the front of the seat frame being less than the combined lengths of the seat and back frames from the said points of attachment of said member, whereby an occupant sitting in the chair will tension the member when the third frame is over the seat frame and at the same time affords freedom of movement of the third frame to swing to a position behind the back frame.

4. A chair comprising a seat frame, a back frame and a canopy frame, all of said frames being pivotally connected, a flexible member attached at a forward part of the seat frame and to an upper part of the back frame so as to hang down and form a flexible seat and back the effective length of which is less than the combined lengths of the seat and back frames from the points of attachment of the said member to said frames, and a canopy extending from the said flexible member and attached at its outer end to the outer end of the canopy frame, said canopy having an attachment to the back side of said flexible member at a distance below the attachment of the flexible member to the back frame, whereby said canopy when used as such will be tensioned by a user applying weight to said flexible member.

5. A chair comprising a seat frame and a back frame pivoted together, a flexible member attached to the upper part of the back frame and to the forward part of the seat frame of less length than the combined lengths of the seat and back frames between the points of attachment of the said member, the back frame having a portion extending forwardly of the seat frame contiguous and parallel to the said frame and beyond the pivotal connection and the forward part of the forwardly extending portion adapted to rest upon the same surface used to support the seat portion, whereby the back portion will be caused to assume a relatively upright position under influence of the user's weight acting upon said seat frame and forwardly extending portion of the back frame.

6. A chair comprising a seat frame and a back frame pivoted together, a flexible member attached to the upper part of the back frame and to the forward part of the seat frame of less length than the combined lengths of the seat and back frames between the points of attachment of the said member, the back frame having a portion extending forwardly of the seat frame contiguous and parallel to the said frame and beyond the pivotal connection and the forward part of the forwardly extending portion adapted to rest upon the same surface used to support the seat portion, whereby the back portion will be caused to assume a relatively upright position under influence of the user's weight acting upon said seat frame and forwardly extending portion of the back frame and a stop for preventing the back frame from tilting to a greater angle with respect to the seat frame.

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