March 23, 1937. A. KAUFMAN 2,074,998

COLLAPSIBLE CHAIR

Filed Jan. 10, 1933

Fig. 1.

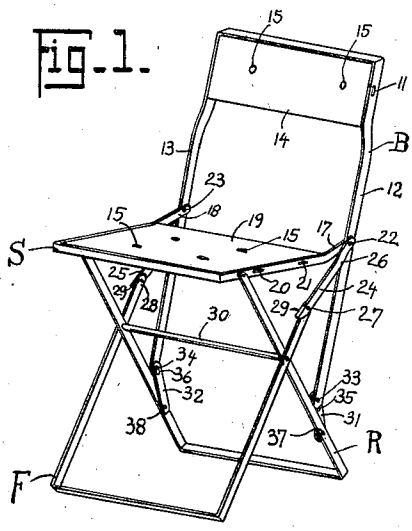


Fig. 2.

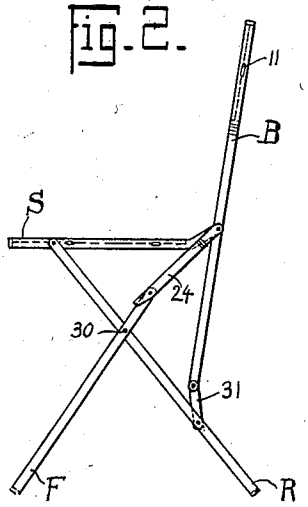


Fig. 3.

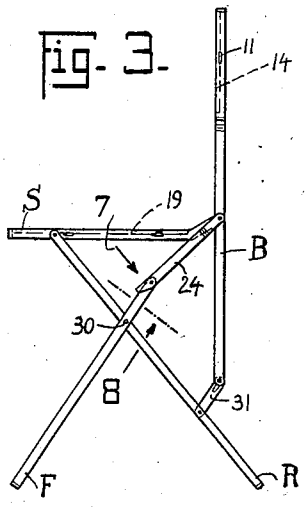


Fig. 4.

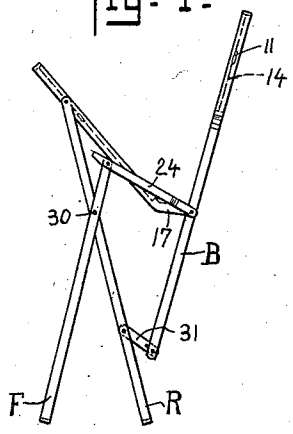


Fig. 5.

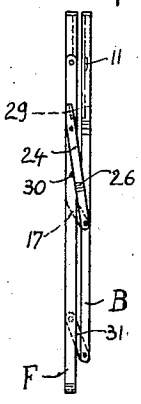


Fig. 6.

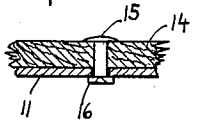


Fig. 7.

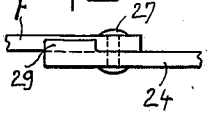
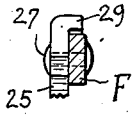


Fig. 8.



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COLLAPSIBLE CHAIR

Abraham Kaufman, Bronx, N. Y.

Application January 10, 1933, Serial No. 651,019

6 Claims. (Cl. 155—147)

This invention relates to collapsible furniture and more particularly it has reference to folding chairs, commonly used where comfortable solid seating accommodations are required for special occasions, but where such chairs are to be collapsed from such a pitched state into a minimum space for storage purposes, when not in use.

Folding chairs are commonly executed in metal, wood, or other material; this invention will therefore be described exemplarily in a metal execution of the frame, metal of structural profiles being bent into the desired shape, it being however understood that it may be executed in another material and assembled in various manners to structural unit resembling the folding chair presently to be described.

One object of this invention is to provide a chair which is not only collapsed from a pitched state into a flat state in which it is substantially disposed in a single plane, but also to collapse the chair lengthwise so that the folded unit is shorter in length than the height of the pitched chair.

In order to offer a comfortable seat it is desirable to have the back of a folding chair reclined. On the other hand, where such chairs are pitched in fairly closely arranged rows in a limited space, the reclining back is very often a disagreeable impediment for the passage of people between rows of pitched chairs. The backs of folding chairs are ordinarily associated with such chairs in such a manner that the seat and its supports are collapsed incidental to a frontward shifting or bending of the back,—unless the whole chair is tilted forward.

It is another object of applicant's invention to provide a chair in which a certain amount of play for swinging the back rest frontwardly or backwardly is provided for without collapsing the chair by such shifting; at the same time the shifting of the back beyond a certain limited range of play will serve positively to collapse the chair into a folded state, in the manner customary in the art of folding chairs.

Another object of this invention is to provide means which allow the back of the folding chair to be used for the collapsing manipulation, said back playing however a positive part in the collapsing operation only after it has assumed the position in which the force of manipulation applied thereto is most sufficiently propagated for collapsing the pitched remaining parts of the chair.

Other objectives have been guiding factors in the invention of this chair, which are either incidental to the aforementioned objects or independent thereof and which will become apparent and shall be readily understood from the following description and the appended drawing in which:—

Fig. 1 shows a perspective view of a chair of my invention in a pitched position.

Figs. 2 and 3 show side views of said chair in which the back rest thereof has been shifted less or more from a backwardly reclined position.

These two views represent positions which may be assumedly the chair preparatory to a collapsing thereof from a pitched position. The consecutive stages of actual collapsing are illustrated in the two next figures where:

Fig. 4 shows a side view of a chair which is partly folded up, and

Fig. 5 shows the fully folded up chair.

Fig. 6 illustrates in a sectional detail view the manner in which the seat and back rest are attached to the respective supporting members.

Fig. 7 shows another detail of the contraction of my invention in a part view taken in the direction indicated in Fig. 3.

Fig. 8 shows a corresponding end view on the other side of the chair.

Similar numerals refer to similar parts throughout the various views.

The frame of the chair comprises four U-bent structural profiles or frames (flat iron for instance) B, S, F and R.

The frame B of the back rest has a flat cross-member 11, the ends of which are riveted into the legs 12 and 13 of said frame. A board 14, which represents the back rest proper, is fastened upon the member 11 by rivets 15. The said rivets are driven through the solid material of the board 14 into suitable holes in the cross member 11, and are riveted over in back of said member 11 (Fig. 6). The board 14 is substantially flush with the front of the frame B and the legs of said frame extending around said board are set apart at about the distance between the legs of the frame S; but the legs 12 and 13 are outwardly offset below said board, so that they extend down at a distance at which the free ends 17 and 18 of the frame S are accommodated therebetween. A seat 19 is accommodated in the frame S in the same manner in which the board 14 is accommodated in the frame B. In this instance two cross members 20 and 21 support the seat 19.

The ends 17 and 18 are tilted up out of the plane of the U-shaped frame S, so that the rest

of said frame is disposed alongside of the frame B, when those frames are swung together around pivots 22 and 23 (Fig. 5).

The said pivots 22 and 23 also hingedly retain the links 24 and 25. The links 24 are outwardly offset at 26 below the pivots 22 and 23 in order to clear the frame F, particularly when collapsed (Fig. 5). Near their lower ends the links 24 and 25 are hinged by pivots 27 and 28 upon the free ends of the frame F. But the said links extend for a short distance below said pivots and are bent over at the said point, forming hooks 29. These hooks 29 serve as stops and prevent links 24 and 25 from swinging in respect to the frame F beyond the obtuse angle indicated in Fig. 1.

The transverse sections at the lower ends of the U-bent frames F and R may be suitably shaped in order firmly to grip the ground. These frames F and R are hingedly connected to each other by a rod 30 which at the same time serves as a tie rod reenforcing the legs of the chair. The lower free ends of the frame B are hingedly connected to the sides of the back frame R by links 31 and 32. The pivots 33 and 34, by which the frame B is connected to the links 31 and 32 are fastened upon the frame B and are slidably disposed in slots 35 and 36 near the upper ends of links 31 and 32. By reason of this, the slots 35 and 36, at the upper ends of which the rivets 33 and 34 are disposed in the various positions of the chair shown in Figs. 1, 3, 4 and 5, allow a swinging of the frame B, from a position of rest against the rear frame R in Fig. 1, to the frontwardly tilted position of Fig. 3. The rivets 33 and 34 slide down and up in slots 35 and 36 while the profile B is being tilted. It should be noted that during such tilting, in agreement with the premises set forth at the beginning of the description, the seat proper and the frames F and R thereof have not been changed from the position of Fig. 1. But by being swung from the position of Fig. 1 into the position of Fig. 3, the frame B has assumed a position more normal to the links 24 and 25. The chair being ordinarily closed by manually gripping the frames B and S, where they transversely contact with boards 14 and 19, and the frame B being fulcrumed in its collapsing lever action at the pivots 33 and 34, the component of the collapsing force exerted in the direction of links 24 and 25 is comparatively large so that the links 24 and 25 and frame F collapse with great ease from the almost aligned position of Fig. 3 through the position of Fig. 4 into the position of Fig. 5.

It will be further noticed that during such collapsing the frame B of the back rest is lowered, the links 31 and 32 being eventually downwardly disposed from the pivots 37 and 38 by means of which they are hinged upon the frame F, by way of contrast with the upward disposition of the said hinges on the pitched chair. This entails a shortening of the frame of the chair in the collapsed position, as compared with the height thereof when pitched as shown in Fig. 1.

The front leg is articulated at 27 and 28 so that the upper triangles formed by the frame F and the links 24 and 25 constituting said leg, and the frames R and S may be collapsed. But it will be noticed that the frame B, when reclined, prevents accidental collapsing when the chair is pitched, so that the chair may be collapsed only after the backrest has been swung to the front.

Although I have shown and described one form of embodiment of my invention in detail, yet I do not wish to be limited thereby, except as the state of the art and the appended claims may require, for it is obvious that various modifications and changes may be made in the form of embodiment of my invention, without departing from the spirit and scope thereof.

What I claim is:—

1. A chair comprising a seat, legs hinged upon each other at a crossing point and hinged at their upper ends upon said seat, a pair of said legs being hingedly articulated above said crossing point, so that said legs may be folded onto said seat, a normally reclined back rest hingedly fulcrumed upon said seat and swingable thereon, and slotted and substantially vertical links connected at their upper ends to the backrest and at their lower ends to the rear pair of said legs, and limiting the distances to which said back rest may be swung to the front and to the back on the pitched chair, said links folding down along said rear legs when the chair is collapsed.

2. A chair comprising a seat, legs hinged upon each other at a crossing point and hinged at their upper ends upon said seat, a pair of said legs being hingedly articulated above said crossing point, so that said legs may be folded onto said seat, a normally reclined back rest hingedly fulcrumed upon said seat and swingable thereon, and slotted substantially vertical links connected at their upper ends to the back rest and at their lower ends upon the rear pair of said legs at a point removed from the front pair of said legs, and predeterminedly stopping said back rest, when it is swung frontwardly on said pitched chair.

3. A chair comprising a seat, pairs of legs collapsibly supporting said seat, said pairs of legs being hinged upon said seat and crossedly hinged upon each other, links comprised in one of said pairs of legs and hinged upon the back of said seat, a normally reclined back rest hingedly fulcrumed upon said seat and independently swingable thereon, and loose means connecting said back rest with the other pair of said legs and intercepting the frontward swinging of said back rest, said means vertically retaining said back rest in fixed endwise abutment relatively to said other pair of legs when said back rest is reclined, said back rest then being comprised as a stabilizing member in the structure of said chair.

4. A chair comprising a seat pivotally connected, crossed legs pivoted to and collapsibly supporting said seat, one pair of said legs comprising hinged sections, a normally reclined back rest hingedly fulcrumed upon said seat and swingable thereon, and a loose means connecting said back rest with another pair of said legs, intercepting the frontward swinging of said back rest on the pitched chair, and allocating one end of said back rest spacedly relatively to said one pair of legs on said other pair of legs when said rest is reclined, thus stabilizing said hinged sections.

5. A chair comprising a seat, a pair of rear legs hinged upon said seat and extending to the back of said chair, a pair of front legs hingedly crossing said rear legs, a back rest hinged at a fulcrum upon said seat, a set of links connecting the upper ends of said front legs with said fulcrum, and a second set of slotted, substantially vertical links connected at their upper ends to said back rest and at their lower ends with said rear legs, so that said back rest may swing on the pitched chair from a frontward position into a rear position in which its lower ends abut upon said rear legs, said first set of links being under tensile stress and pulled into alignment with said front legs

when said seat is under load at the front, and being reinforced by said reclined back rest, when said seat is under load in the back.

6. A chair comprising a seat, legs crossingly hinged upon each other and hinged upon said seat, so that parts of said seat and legs form a triangle at the corners of which they are hinged together, one of said parts being hingedly articulated between its hinged ends, so that said triangle may be collapsed and said parts may be folded onto each other, a normally reclined backrest hingedly fulcrumed upon said seat and swingable thereon, and slotted, substantially vertical links connected at their upper ends to the back rest and at their lower ends upon the rear pair of said legs at a point removed from the front pair of said legs, so that said back rest may swing within the range of play of said links independently between back and frontwardly inclined positions on the pitched chair, forms the side of a second triangle with parts of said legs in said back position, said second triangle reinforcing said first triangle on the pitched chair, but said backrest forcibly collapsing said first triangle when swung beyond said frontwardly inclined position.

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