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Nii

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[54] **COLLAPSIBLE CHAIR**

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[52] **U.S. Cl.** **297/45,** 297/457

[51] **Int. Cl.** **A47c 4/28**

[58] **Field of Search** 297/45, 42, 457, 458, 16, 297/35, 36, 19, 351, 350; 5/116, 112; 248/164

[56] **References Cited**

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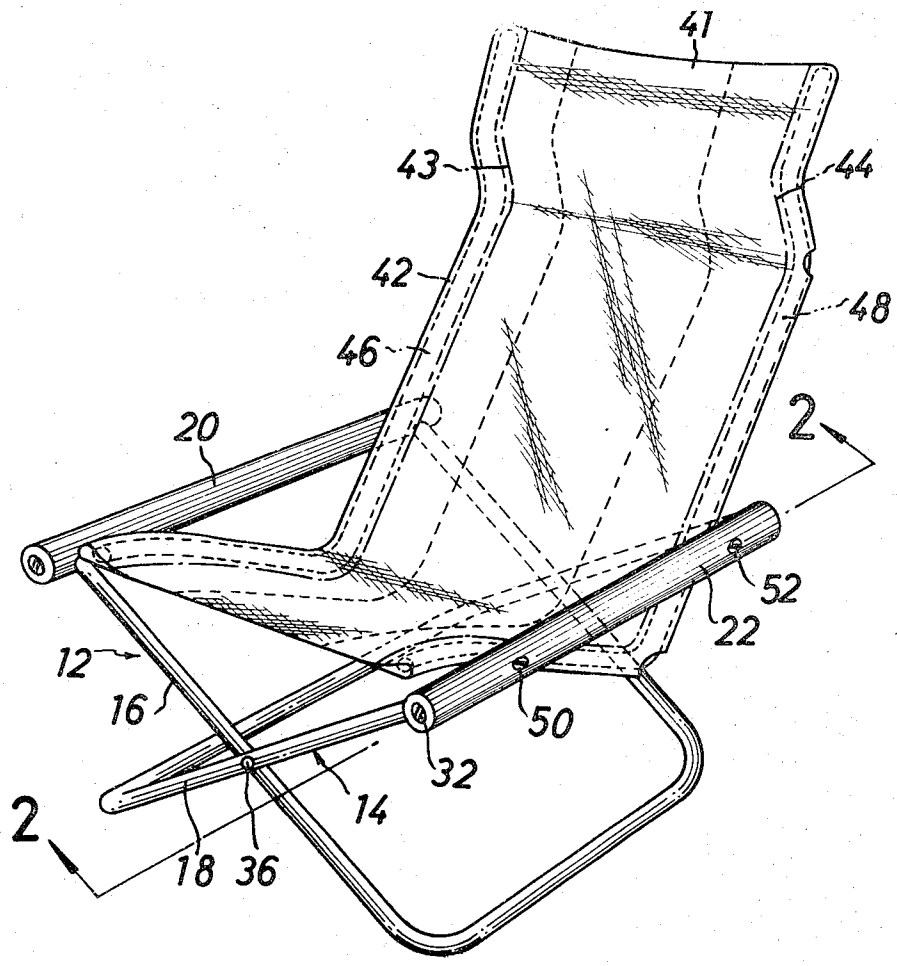
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Attorney, Agent, or Firm—Oblon, Fisher, Spivak, McClelland & Maier

[57] **ABSTRACT**

A collapsible chair having a pair of frameworks pivotally coupled together so as to be able to fold inwardly along the center line of the chair and a flexible membrane carried by a pair of rods which are fixed to the inside of the frameworks for holding the membrane in proper position for supporting a person when the chair is erected, or unfolded, for use.

6 Claims, 8 Drawing Figures



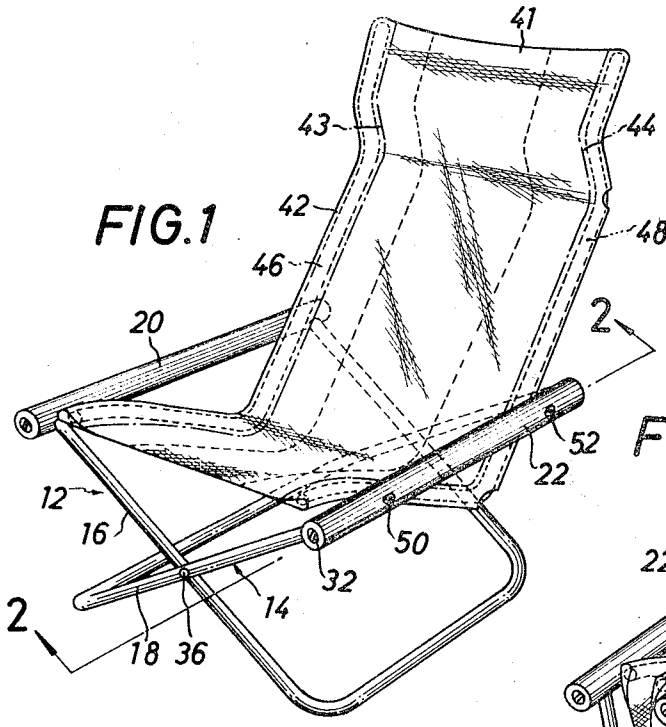


FIG. 1

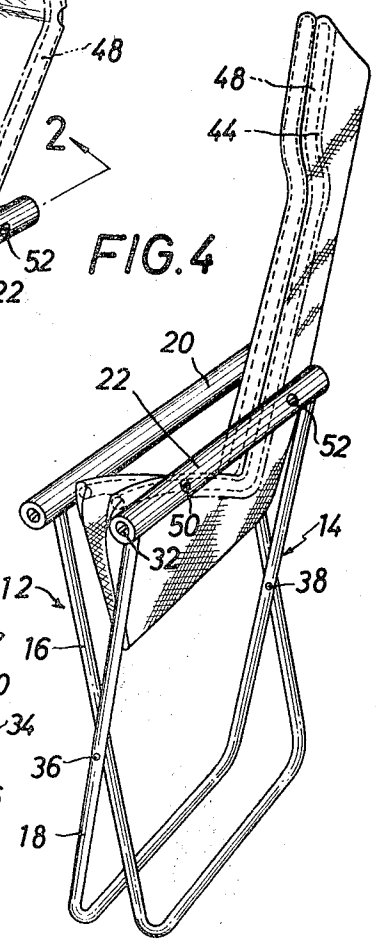
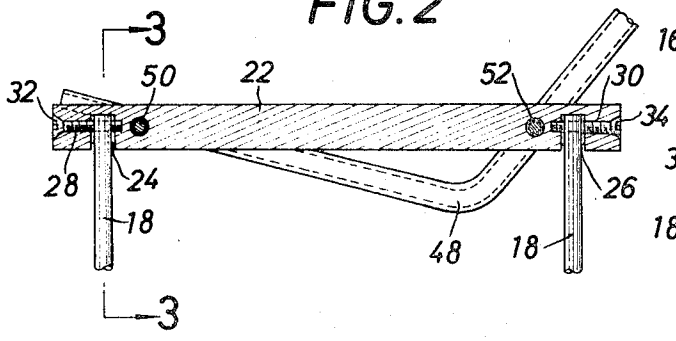


FIG. 4

FIG. 2



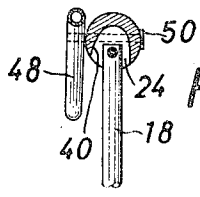


FIG. 3

FIG. 5

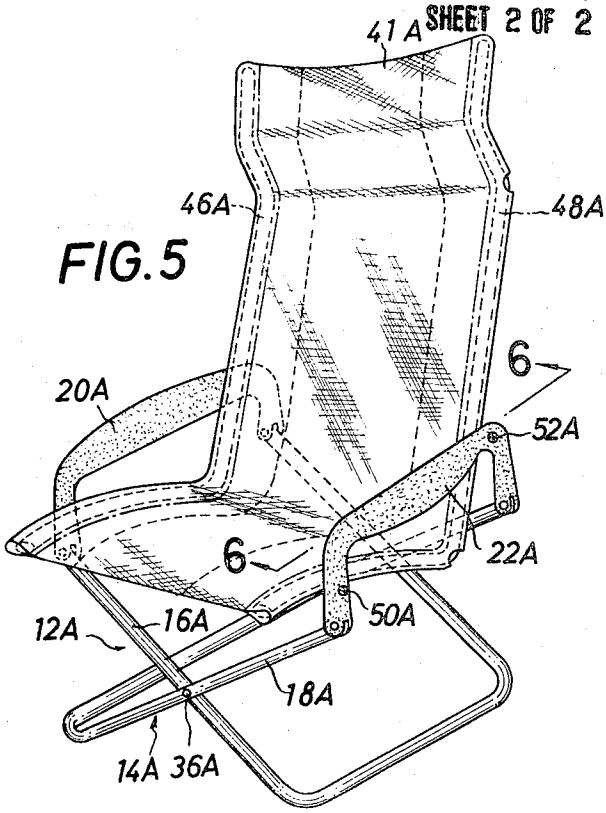


FIG. 6

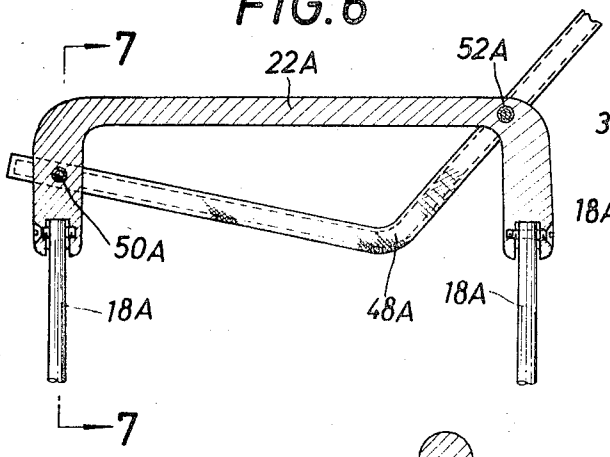


FIG. 7

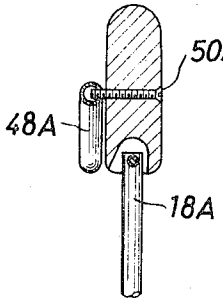
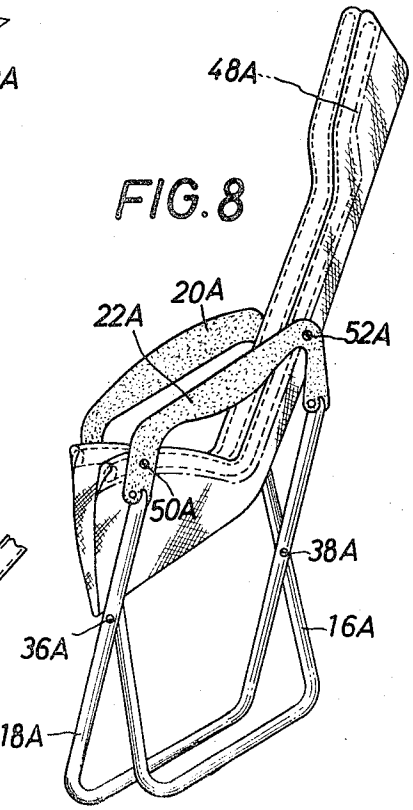


FIG. 8



COLLAPSIBLE CHAIR

BACKGROUND OF THE INVENTION

1. Field Of The Invention

The present invention relates generally to a chair and more particularly to a collapsible chair which can be easily erected so as to be ready for use, and can be compacted in a conveniently small and folded form when it is not used.

2. Description Of The Prior Art

Collapsible chairs have been widely used at conference rooms, living rooms, patios, beaches and other recreation areas because of ready hand portability, storage and transportation features thereof. In conventional collapsible chairs, the chairs may be collapsed into a compact size either by folding a backrest or a seat of the chair which is generally pivotally mounted on a framework of the chair by pivot pins so as to be able to swing upwardly or downwardly. It is also conventional in collapsible chairs that a pair of frameworks or legs which may be substantially rectangular in shape are pivotally coupled together by pivot pins, as for example in an X-shaped configuration, so as to be able to fold inwardly along a center line of the chair, and a flexible membrane, such as a plastic or fabric, on which a user may sit when the chair is in an erected support position, is retained between the frameworks of the chair.

In collapsible chairs having frameworks assembled in an X-shaped configuration, the flexible membrane forming a seat of the chair is held on a pair of horizontal upper sides of each of the frameworks in parallel fashion with respect to a floor or the ground upon which the chair is placed, and a backrest, which may be also made of a flexible membrane of a suitable plastic or fabric separate from the flexible seat membrane, is carried by backrest supporting poles extending upwardly from the rear corners of the X-shaped framework of the chair so that the backrest may be partitioned in a plane which lies substantially perpendicular to a plane of the seat. Thus, in collapsible chairs of this type, inclination of the seat and the backrest indispensable for insuring comfort and relaxation of the chair could not be obtained.

Also, collapsible chairs of this kind are inferior as to stability because the seat is horizontally formed on a top plane of the assembled frameworks separate from the backrest and being too far above the surface on which the chair is placed.

SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide a collapsible chair which may be folded by moving right and left arms of the chair inwardly along a center line of the chair, on which a flexible membrane making support contact with the body of a user is carried.

Another object of the present invention is to provide a collapsible chair, the seat and the backrest of which may be made of a sheet of flexible membrane and is held to be inclined for insuring maximum comfort and relaxation to the user.

Still another object of the present invention is to provide a collapsible chair which is stable and reliable in its operation, and only the flexible membrane thereof makes contact with the body of the user.

Yet another object of the present invention is to provide a collapsible chair which is comprised of very simple components and can be packed in a box in a knocked-down condition for transportation and shipment so that it can be assembled by simple operation at the point of use.

Briefly, the foregoing and other objects, features and advantages are attained in accordance with the present invention by the provision of a pair of frameworks coupled together so as to be able to be folded inwardly, having rods curved at a suitable angle to insure maximum comfort and relaxation to the user and secured to the inside of the frameworks, respectively, and a flexible membrane being carried by the rods.

Each of the frameworks may be pivotally coupled together by pivot pins at the middle of the longitudinal side portions of the frameworks in an X-shaped configuration, or they may be coupled by a foldable cross bracing structure fixed to both the front and rear legs of the frameworks for holding it in support when the chair is erected for use. A ground support member of the chair may be straight bottom sides of the frameworks bent in a U-shape, or it may be formed in the shape of longitudinal legs or it may have an arcuate shape so as to be rockable in backward and forward directions.

Each of the rods carrying the flexible membrane on which the user may sit when occupying the erected collapsible chair is fixed to each of the frameworks of the chair at least by two bolts or screws, and the seat is inclined backward so that the innermost portion thereof is positioned below these bolts or screws.

BRIEF DESCRIPTION OF THE DRAWINGS

Various other objects, features and attendant advantages of the present invention will be more fully appreciated as the same become better understood by reference to the following detailed description when considered in connection with the accompanying drawings, wherein, like reference numerals designate like or corresponding parts throughout the several views, and in which:

FIG. 1 is a perspective view of a completely erected collapsible chair in its support or position of use in accordance with one embodiment of the present invention;

FIG. 2 is a partial sectional view taken along the line 2—2 of FIG. 1;

FIG. 3 is a fragmentary sectional view taken along the line 3—3 of FIG. 2;

FIG. 4 is a perspective view of the collapsible chair shown in FIG. 1 being in a collapsed condition for storage;

FIG. 5 is a perspective view of a completely erected collapsible chair in its support or position of use in accordance with another embodiment of the present invention;

FIG. 6 is a partial sectional view taken along the line 6—6 of FIG. 5;

FIG. 7 is a fragmentary sectional view taken along the line 7—7 of FIG. 6; and

FIG. 8 is a perspective view of the collapsible chair shown in FIG. 5 being in a collapsed condition for storage.

DESCRIPTION OF THE ILLUSTRATED EMBODIMENTS

Referring now to the drawings and more particularly to FIGS. 1–4 thereof, there is shown a collapsible chair constructed in accordance with the present invention which includes a pair of frameworks generally indicated by reference numerals 12 and 14, both being of substantially similar construction, and respectively having substantially U-shaped legs 16 and 18, preferably of such strong, rigid material as aluminum, alloy or steel and cylindrical arms 20 and 22, preferably of wood or plastic being pivotally mounted on the upper free ends of each of the U-shaped legs 16 and 18 for disposition in use in parallel relation with the surface on which the chair is to be placed.

The U-shaped legs 16 and 18 are mounted to the cylindrical arms 20 and 22 in such a manner that the free ends of the legs are inserted into arcuate channels 24 and 26 formed in the underside of each of the cylindrical arms 20 and 22 which register with longitudinal or axial slots 28 and 30 provided respectively in the opposite end surfaces of the cylindrical arms 20 and 22. The U-shaped legs 16 and 18 are pivotally held within the arcuate channels 24 and 26 by screws 32 and 34 threaded into the longitudinal slots 28 and 30 respectively and passing through diametrical holes provided near the ends of the legs 16 and 18, as shown in FIGS. 2 and 3.

The two frameworks 12 and 14 are pivotally coupled together by pivot pins 36 and 38 near the middle of the longitudinal side portions of the frameworks, or of the leg portions of the U-shaped legs 16 and 18, the resulting configuration being substantially X-shaped when viewed from the front or rear of the chair or along a line parallel to the axes of the arms 20 and 22, so that the frameworks 12 and 14 can be erected into a support position or folded into a storable position, as shown in FIGS. 1 and 4, respectively. When the collapsible chair is in the erected support position shown in FIG. 1, the pivotal swinging movement of the frameworks 12 and 14 will come to a halt and further movement beyond the fully extended position of the frameworks will be prevented by contacting the end of the legs to a wall 40 of the arcuate channels 24 and 26.

A thin flexible membrane 41 of a suitable plastic or woven fabric, such as, for example, canvas, has overlapped sides fastened by stitching 43 or other suitable fastening means, to form elongated tubular formations 42 and 44 along both sides thereof. Fitted inside the elongated tubular formations 42 and 44 are rods 46 and 48 for holding the flexible membrane 41 in place on the arms 20 and 22 of the frameworks 12 and 14, respectively, by means of at least two screws 50 and 52, or bolts, as shown in FIGS. 1 and 2.

The rods 46 and 48 may be made of the same material as the U-shaped legs 16 and 18, and readily inserted into the elongated tubular formations 42 and 44, of the membrane 41. These rods 46 and 48 are bent at an angle so as to form a supporting surface for the body of the user on the flexible membrane 41, which insures maximum comfort and relaxation to the user when the collapsible chair is erected ino its support position. According to the embodiment shown in FIGS. 1–4, the seat and the backrest are inclined backward like a reclining chair, and the innermost or rear portion of the seat is located below the screws 50 and 52 holding the flexible membrane 41 on the arms 20 and 22, so that steady support action of the chair may be achieved.

In FIGS. 5 through 8, another embodiment of the present invention is illustrated wherein the shape of the chair is like that of a lounge chair. This embodiment is otherwise almost the same as the embodiment shown in FIGS. 1–4. Here, the collapsible chair comprises a pair of frameworks generally indicated by reference numerals 12*a* and 14*a* having substantially U-shaped legs 16*a* and 18*a* and inverted U-shaped arms 20*a* and 22*a* pivotally mounted on the upper ends of each of the U-shaped legs 16*a* and 18*a* in similar manner as the preceding embodiment. The frameworks 12*a* and 14*a* are pivotally coupled together by pivot pins 36*a* and 38*a* so that the frameworks 12*a* and 14*a* can be erected or folded as shown in FIGS. 5–8, respectively. In this embodiment, the flexible membrane 41*a* is carried by a pair of rods 46*a* and 48*a* which are fixed to the inverted U-shaped arms 20*a* and 22*a* by means of at least two bolts or screws 50*a* and 52*a*, one of which supports the backrest portion of the membrane at the rear side corner of the arms 20*a* and 22*a*, while the other supports the seat portion of the membrane at the front side of the arms, as shown best in FIGS. 5 and 6.

Although only two types of the collapsible chair have been illustrated herein, it is contempleted that the collapsible chair may take on many other forms, such as, by way of example, upright, rocking chairs and the like.

Obviously, many modifications and variations of the present invention are possible in light of the above teachings. It is therefore to be understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described herein.

What is claimed as new and desired to be secured by Letters Patent of the United States is:

1. A collapsible chair comprising: a pair of frameworks each having legs and an arm pivotally mounted on the upper end of said legs, said frameworks being coupled together by a connecting means so as to permit folding of the frameworks inwardly along the center line of said chair;

a thin flexible membrane having folds at each of its sides defining elongated tubular formations; and

a pair of rods inserted into said elongated tubular formations to carry said flexible membrane therebetween, said rods being curved at an angle to form integral seat and backrest portions with said flexible membrane stretched therebetween and being fixed to the inside of said arms of said frameworks in at least two places.

2. A collapsible chair according to claim 1, wherein the legs of each of said frameworks are substantially U-shaped in configuration and said frameworks are pivotally coupled together by pivot pins near the middle of the respective longitudinal side portions of said framework legs in a generally X-shaped coupling.

3. A collapsible chair according to claim 1, wherein said arms of said frameowrks include arcuate channels formed on the underside thereof which register with longitudinal slots provided in both end surfaces of each of said arms and extending into the inside of said arms, and said arms are pivotally mounted on said upper ends of said legs.

4. A collapsible chair according to claim 1, wherein said seat and backrest portions of the chair are inclined

backward, and the rear most portion of said seat is positioned below said places where said flexible membrane is fixed on said arms through said rods.

5. A collapsible chair according to claim **2,** wherein said arms are cylindrical in configuration.

6. A collapsible chair according to claim **2,** wherein said arms have an inverted U-shaped configuration.

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