A prefabricated seat and back assembly is provided for a kit of components to be assembled to form an item of furniture. The prefabricated seat and back assembly includes a pair of frame elements and multiple slats each of which is attached at opposite ends to the frame elements so that the slats are interconnected by the frame elements to collectively form an upwardly extending back portion adjoined to a generally horizontal seat portion. Each of the frame elements includes at least two components connected to each other by a hinge that is located at the base of the back portion, so that the seat and back portions may be folded over each other for compact packing. The remainder of the kit includes at least a pair of end frames adapted to be attached to the frame elements of the prefabricated seat and back assembly, and multiple fastening elements to attach the end frames to the frame elements of the seat and back assembly.
FURNITURE KIT WITH PREFABRICATED FOLDABLE SEAT AND BACK ASSEMBLY

FIELD OF THE INVENTION

[0001] The present invention relates generally to kit furniture that is typically manufactured, packaged, shipped and sold as collections of components that are assembled by the end user.

SUMMARY OF THE INVENTION

[0002] In accordance with one embodiment of the present invention, a prefabricated seat and back assembly is provided for a kit of components to be assembled to form an item of furniture. The prefabricated seat and back assembly includes a pair of frame elements and multiple slats each of which is attached at opposite ends to the frame elements so that the slats are interconnected by the frame elements to collectively form an upwardly extending back portion adjacent to the generally horizontal seat portion. Each of the frame elements includes at least two components connected to each other by a hinge that is located at the base of the back portion, so that the seat and back portions may be folded over each other for compact packing. The remainder of the kit includes at least a pair of end frames adapted to be attached to the frame elements of the prefabricated seat and back assembly, and multiple fastening elements to attach the end frames to the frame elements of the seat and back assembly.

BRIEF DESCRIPTION OF THE DRAWINGS

[0003] FIG. 1 is a front perspective view of a glider chair embodying the present invention;
[0004] FIG. 2 is an enlarged perspective view of the prefabricated seat-and-back assembly that forms part of the glider chair shown in FIG. 1, in its folded condition in which it is packaged;
[0005] FIG. 3 is an enlarged perspective view of the prefabricated seat-and-back assembly shown in FIG. 2, but in its unfolded condition in which it is used when the glider chair is assembled;
[0006] FIG. 4 is an exploded perspective view of a kit containing all the components needed to assemble the glider chair shown in FIG. 1;
[0007] FIG. 5 is an enlarged perspective view of one of the hinges in the prefabricated seat and back assembly of FIGS. 14; and
[0008] FIG. 6 is an exploded perspective view of the prefabricated seat and back assembly, one of the end frames and the back brace of the glider chair of FIGS. 1-4, along with the fastening components used to assemble these components.

DETAILED DESCRIPTION OF ILLUSTRATED EMBODIMENT

[0009] Although the invention will be described in connection with a certain preferred embodiment, it will be understood that the invention is not limited to that particular embodiment. On the contrary, the invention is intended to cover all alternatives, modifications, and equivalent arrangements as may be included within the spirit and scope of the invention as defined by the appended claims.

[0010] Turning now to the drawings, a glider chair 10 has been assembled from a kit of components that can be compactly packaged, shipped and stored to reduce distribution costs. The glider chair 10 includes a seat-and-back assembly 11 pivotally mounted for rocking movement on a stationary base frame formed by a pair of base frame members 12 and 13 that are connected to each other by a pair of stretchers 14 and 15. Each of the base frame members 12 and 13 forms a pair of legs 12a, 12b or 13a, 13b that rest on the ground, and an elevated cross member 12c or 13c that is an integral part of the legs. A stop protrudes laterally from the outboard side of the cross member 12c or 13c to limit pivoting movement of the seat-and-back assembly 11 relative to the base frame.

[0011] The seat-and-back assembly 11 includes a pair of frame elements 16 and 17 which are rigidly attached to a corresponding pair of end frames 18 and 19, respectively. The end frames 18 and 19 also carry respective arms 20 and 21 which move with the end frames, to provide supports for the arms of the during use of the glider chair. In the illustrative embodiment, the arms 20 and 21 are attached to the respective end frames 18 and 19 by welding at the lower front ends of the arms, and by screws at the upper rear ends of the arms 20 and 21.

[0012] Two pairs of suspension straps 22, 23 and 24, 25 connect the end frames 18 and 19 to the respective base frame members 12 and 13. Each of the suspension straps 22-25 carries a pair of bearings at opposite ends thereof, such as 22a and 22b in the strap 22 (see FIG. 4), to allow relative pivoting or rocking movement of the end frames 18 and 19, and thus the seat-and-back assembly 11, relative to the stationary base frame, as is typical of glider chairs. A bolt 26 is passed through each bearing, and then on through the adjacent frame member to which the strap is attached, and is held in place by a nut threaded onto the bolt and against the inner surface of the frame member. Plastic spacers 27 carried by the bolts 26 are located between each strap bearing and the adjacent frame member to which the strap is attached, to allow smooth relative movement between the straps and the frame members with binding or abrasion.

[0013] In the illustrative embodiment, the base frame, the end frames and the frame elements of the seat-and-back assembly are all made of hollow metal tubing, which has the advantage of a high strength/weight ratio. The arms on the end frames are made of relatively wide metal, to provide comfortable support for the user's arms. It will be understood, however, that alternative materials may be employed, such as using solid metal bar stock for the frame elements 16 and 17, or plastic or wood for the arms 20 and 21.

[0014] The seat-and-back assembly 11 is prefabricated by attaching multiple slats 30 to the frame elements 16 and 17. The slats 30 are preferably attached to the frame elements 16 and 17 by rivets, although other fastening elements such as screws or bolts and nuts may be used if desired. The slats 30 are preferably made of wood, although slats made of plastic, metal or fabric may be used if desired. When the glider chair is assembled, the entire seat-and-back assembly 11 is rigidly attached to the two end frames 18 and 19. A back brace 31 is also attached to the two end frames 18 and 19, and extends across the back portion of the assembly 11, as can be seen
in FIGS. 1 and 6. Both the seat-and-back assembly 11 and the brace 31 are attached to the end frames 18 and 19 by multiple bolts 32 and mating nuts (see FIG. 6), with plastic spacers 34 fitted over the bolts that attach the assembly 11 to the end frames. To permit the seat-and-back assembly 11 to be folded flat for compact packaging of the kit, each of the frame elements 16 and 17 is formed of two parts, such as parts 16a and 16b of element 16, which are hinged together at the base of the back portion, i.e., at the rear edge of the seat portion. Thus, parts 16a and 17a form frame elements for the back portion of the assembly, and parts 16b and 17b form frame element for the seat portion. In the illustrative embodiment, the hinge for each of the frame elements 16 and 17 is formed by two metal links 35 and 36, which are welded at their lower ends to the seat part 16b or 17b of their respective frame element. The upper ends of each pair of links 35 and 36 are journaled to the back part 16a or 17a of their frame element by a rivet 37 that passes through both links 35 and 36 and the frame part 16a or 17a, thus forming an axis of rotation X-X illustrated in FIG. 3. Alternatively, any other type of hinge may be used. The hinge is used primarily during packing and unpacking of the kit, and perhaps during seasonal storage of the glider, and thus is not typically subjected to frequent use.

As can be seen in FIGS. 2 and 4, the hinged frame elements 16 and 17 permit the prefabricated seat-and-back assembly to be folded flat for insertion into a box 40 in which the entire glider chair kit is packaged, shipped, stored and displayed in a retail store. All the other components of the kit are also relatively flat when disassembled from each other, and thus the box for the entire kit can be relatively thin. And yet, the prefabrication of the seat-and-back assembly saves the vast majority of the time required for a consumer to assemble the glider chair when the seat and back are sold as disassembled slats and frame elements.

To assemble the glider chair kit, the base frame is assembled by attaching each of the two stretchers 14 and 15 to both base frame end members 12 and 13 by two pairs of bolts 41 and mating nuts for the rear stretcher 14, and a single pair of bolts 41 and mating nuts for the front stretcher 15. Bolts 26 are used to attach both the front stretcher 15 and the front suspension straps 22 and 24 to the base frame members 12 and 13, and each bolt is secured by a mating nut threaded onto the inner end of the bolt. The two rear suspension straps 23 and 25 are secured to the base frame members 12 and 13 in the same manner, but without passing through a stretcher. Two pairs of the plastic spacers 27 are carried by the bolts 26 and positioned between the end members 12, 13 and the suspension straps 22-25.

Each of the end frames 18 and 19, including the arm 20 or 21, is attached to the unfolded seat-and-back assembly 11 by four bolts 32, two of which are passed through the vertical rear portions of the end frame 18 or 19 and then the back frame part 16a or 17a. The other two bolts 32 are passed through the arm 20 or 21 and then the frame parts 16a, 16b or 17a, 17b, respectively. All the bolts 32 are secured by mating nuts threaded onto the exposed inner ends of the bolts. Plastic spacers 34 are carried by the bolts 32 and positioned between the end frames 18, 19 and the frame elements 16 and 17. A back brace 31 is also attached to the two end frames 18 and 19 by means of two pairs of bolts 46 secured by mating nuts. This back brace 31 extends across the rear side of the back portion of the back portion of the seat-and-back assembly 11, bearing against the two upper parts 16a and 17a of the frame elements 16 and 17.

After the seat-and-back assembly 11, the brace 45 and the two end frames 18 and 19 have been assembled, this entire sub-assembly is placed over the base frame sub-assembly, and the lower ends of the suspension straps 22-25 are attached to the horizontal lower portions of the end frames 18 and 19 with four bolts 26, spacers 27 and mating nuts. The glider chair is then complete and ready for use.

While particular embodiments and applications of the present invention have been illustrated and described, it is to be understood that the invention is not limited to the precise construction and compositions disclosed herein and that various modifications, changes, and variations may be apparent from the foregoing descriptions without departing from the spirit and scope of the invention as defined in the appended claims.

1. A kit of components to be assembled to form an item of furniture, comprising

- a prefabricated seat and back assembly including a pair of frame elements and multiple slats each of which is attached at opposite ends to said frame elements so that said slats are interconnected by said frame elements,
- said slats collectively forming an upwardly extending back portion and a generally horizontal seat portion,
- each of said frame elements including at least two components connected to each other by a hinge that is located at the base of said back portion when said frame elements and said slats are fastened together, so that said seat and back portions may be folded over each other for compact packing,
- a pair of end frames adapted to be attached to said frame elements of said seat and back assembly,
- at least one stretcher for connecting said end frames to each other, and
- multiple fastening elements to attach said end frames to said frame elements of said seat and back assembly.

2. The furniture kit of claim 1 wherein said slats are fastened to said frame elements of said seat and back assembly.

3. The furniture kit of claim 1 wherein said item of furniture is a glider, and said multiple fastening elements include a pair of straps for attaching each of said end frames to said seat and back assembly, the ends of said straps being adapted for pivoting movement relative to both journaled to both said end frames and said seat and back assembly to allow rocking movement of said seat and back assembly relative to said end frames.

4. The furniture kit of claim 1 wherein said frame elements of said seat and back assembly are made of tubular metal.

5. A prefabricated seat and back assembly for an item of kit furniture, comprising

- a pair of frame elements and multiple slats each of which is attached at opposite ends to said frame elements so that said slats are interconnected by said frame elements, said slats collectively forming an upwardly extending back portion adjoined to a generally horizontal seat portion,
each of said frame elements including at least two components connected to each other by a hinge that is located at the base of said back portion when said frame elements and said slats are fastened together, so that said seat and back portions may be folded over each other for compact packing.

6. The prefabricated seat and back assembly of claim 5 wherein said slats are fastened to said frame elements of said seat and back assembly by rivets.

7. The prefabricated seat and back assembly of claim 5 wherein said frame elements are made of tubular metal.

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