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(54) **FURNITURE KIT WITH PREFABRICATED FOLDABLE SEAT AND BACK ASSEMBLY**

(75) Inventors: **Charles Pomeroy**, South Bend, IN (US); **John T. Bycraft**, South Bend, IN (US)

Correspondence Address:
JENKENS & GILCHRIST, P.C.
225 WEST WASHINGTON
SUITE 2600
CHICAGO, IL 60606 (US)

(73) Assignee: **JACK-POST CORPORATION**

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(57) **ABSTRACT**

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.

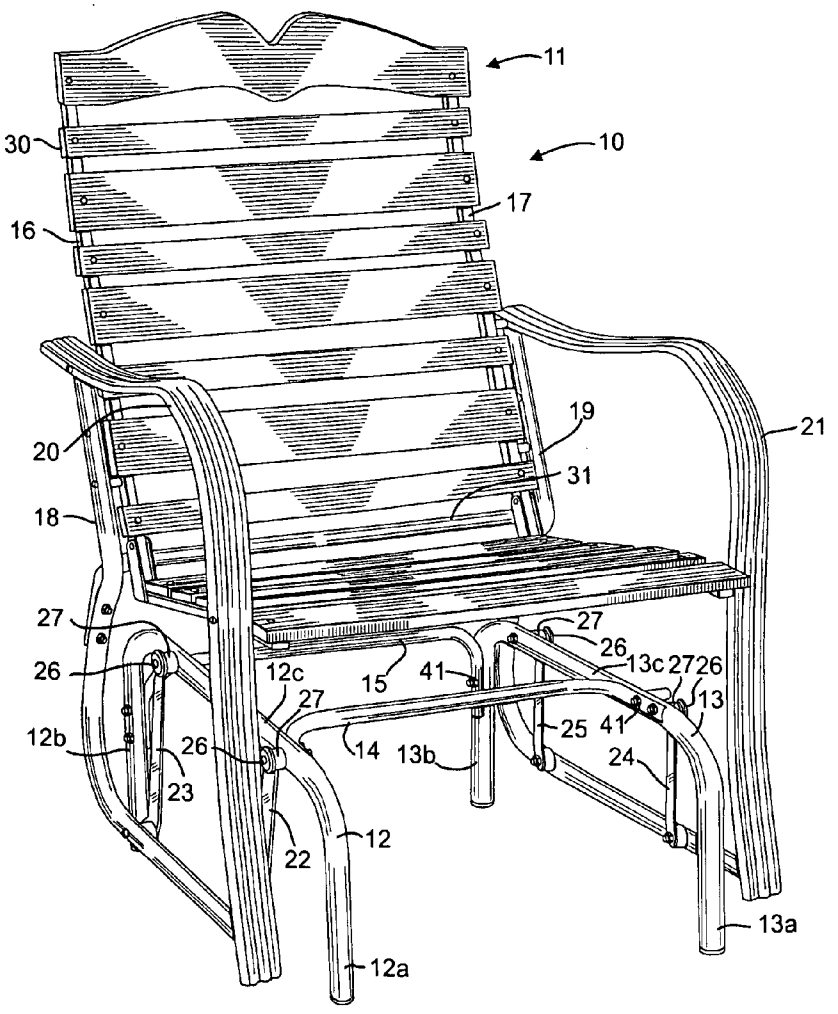
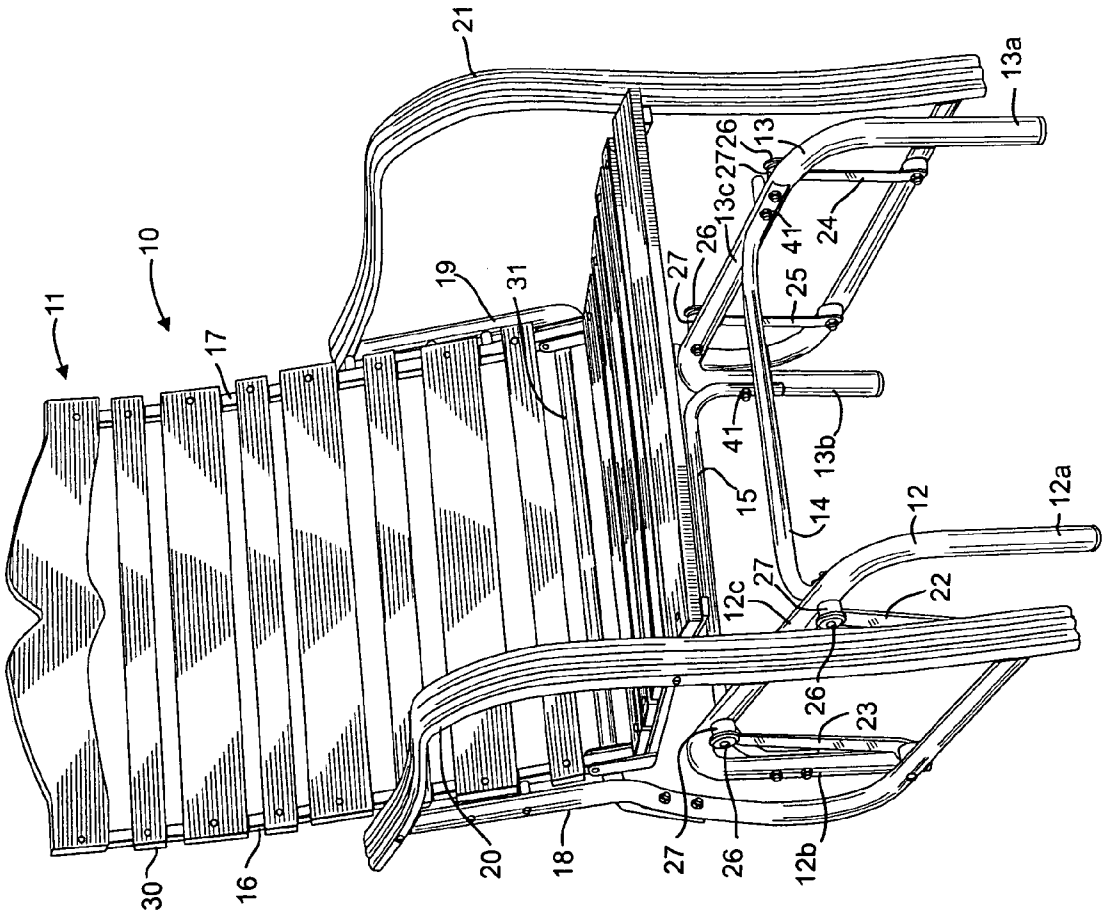


FIG. 1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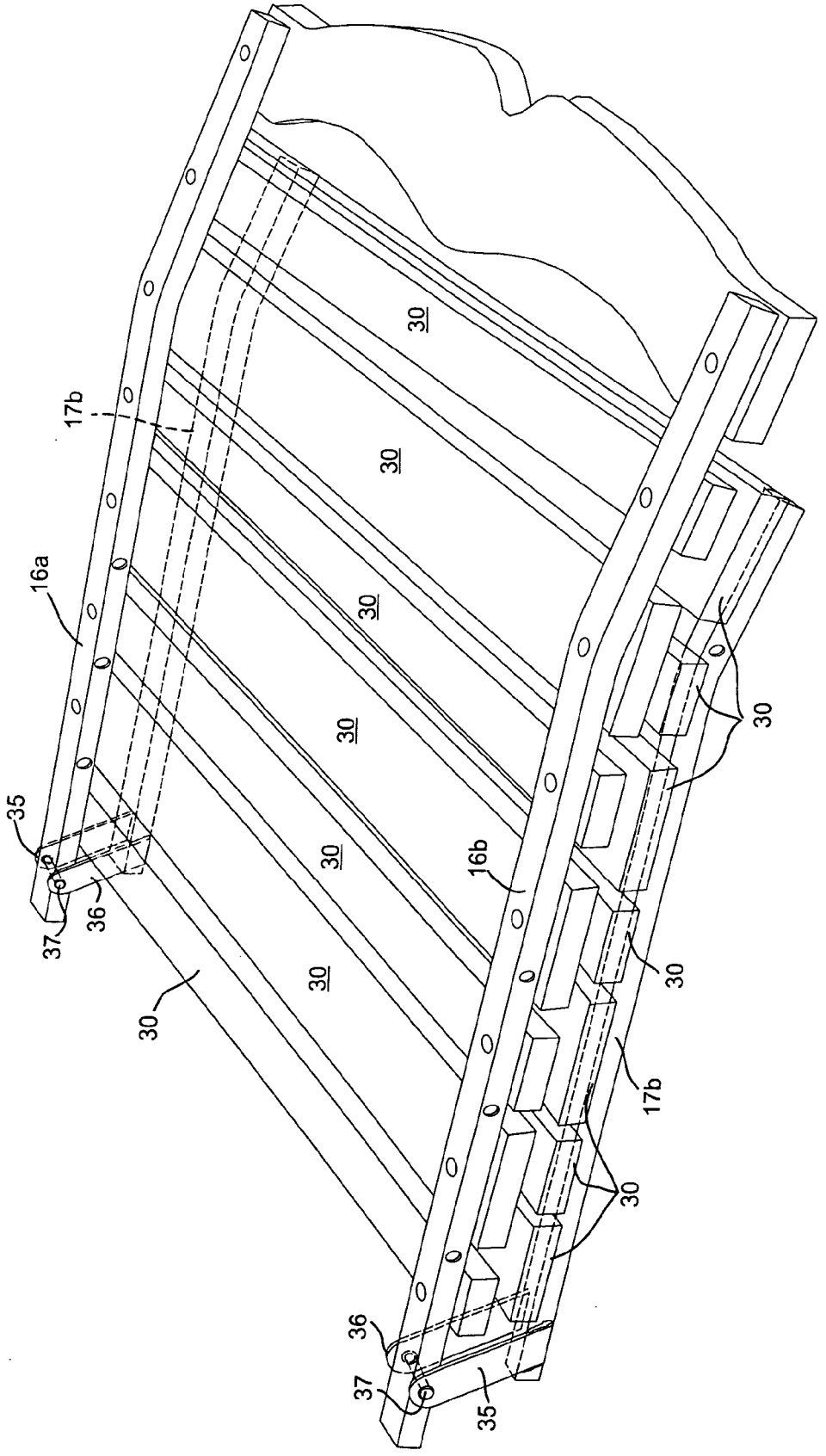

FIG. 2

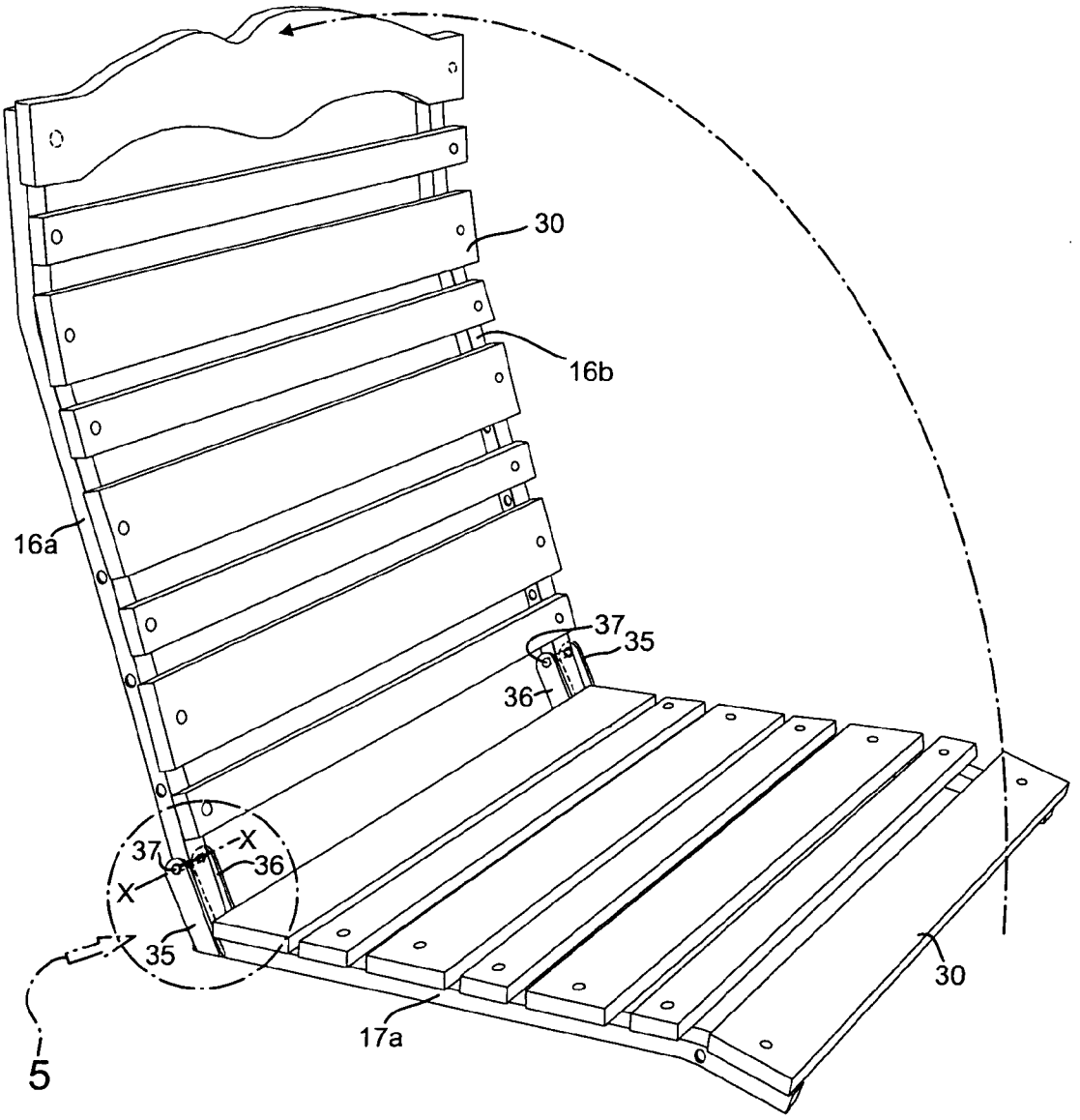

FIG. 3

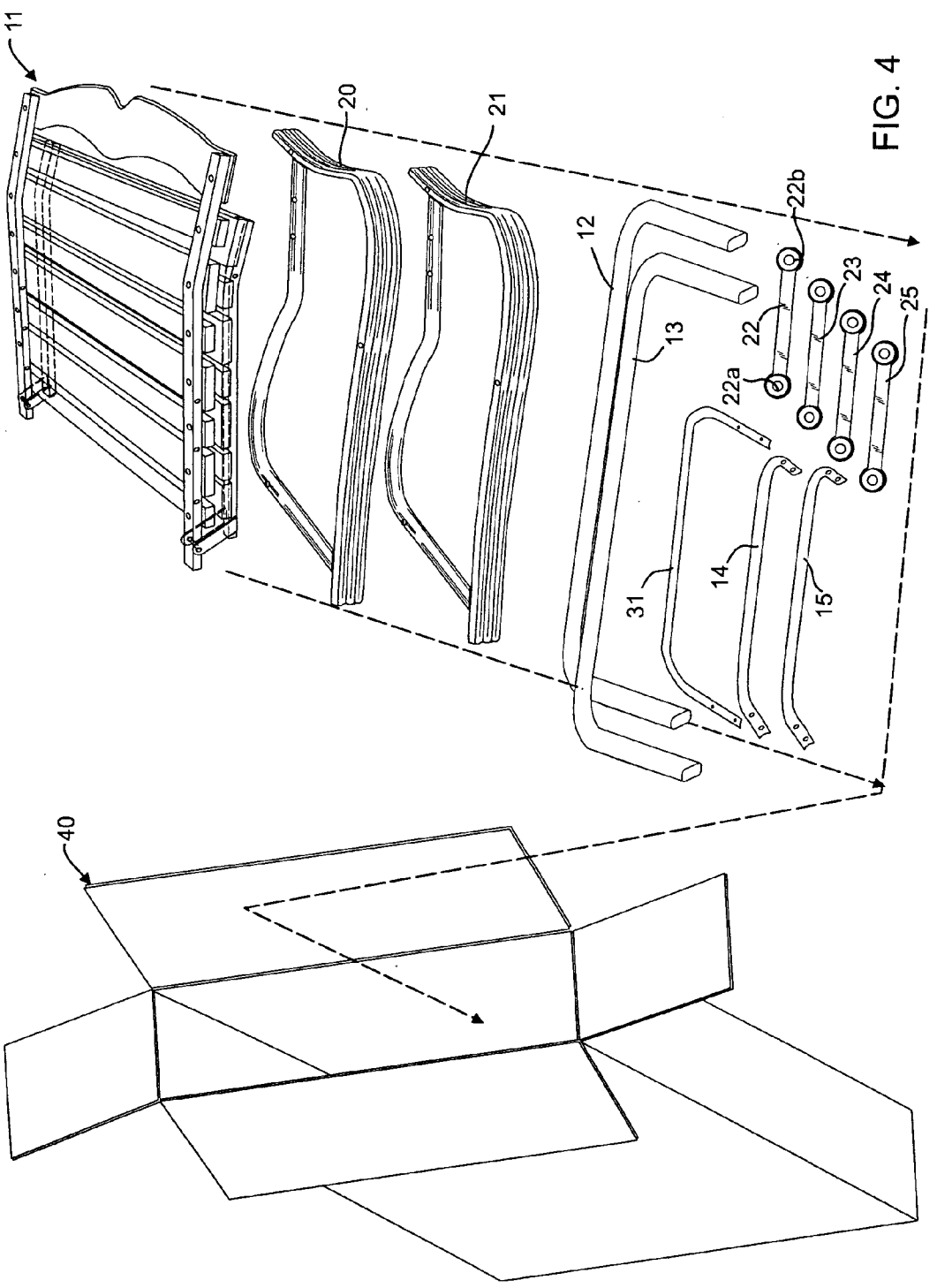

FIG. 4

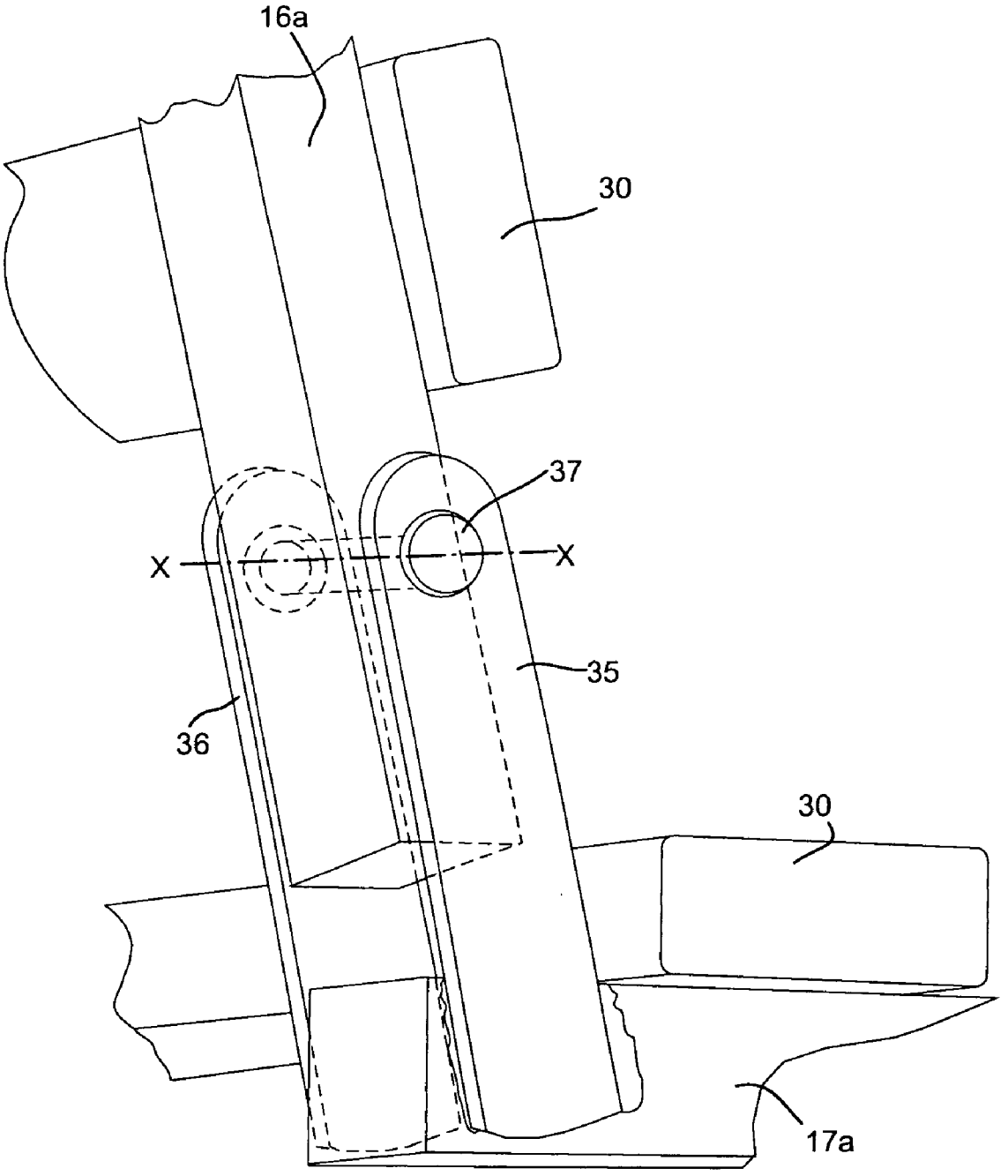

FIG. 5

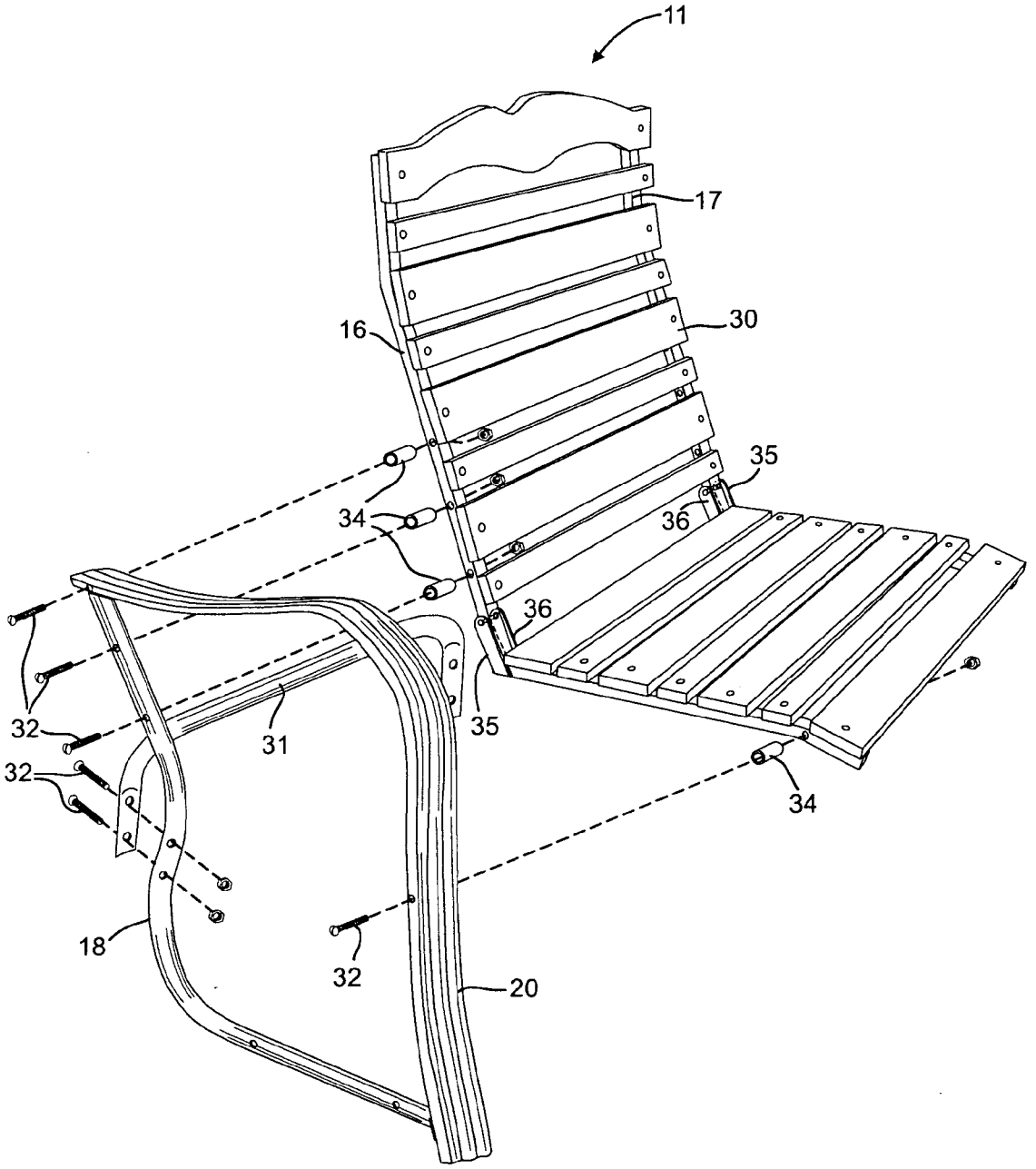

FIG. 6

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 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.

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 sued 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 **12***a*, **12***b* or **13***a*, **13***b* that rest on the ground, and an elevated cross member **12***c* or **13***c* that is an integral part of the legs. A stop protrudes laterally from the outboard side of the cross member **13***c* 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 **22***a* and **22***b* 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 **16***a* and **16***b* 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 **16***a* and **17***a* form frame elements for the back portion of the assembly, and parts **16***b* and **17***b* 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 **16***b* or **17***b* of their respective frame element. The upper ends of each pair of links **35** and **36** are journaled to the back part **16***a* or **17***a* of their frame element by a rivet **37** that passes through both links **35** and **36** and the frame part **16***a* or **17***a*, 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.

[**0015**] 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.

[**0016**] 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**.

[**0017**] 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 **16***a* or **17***a*. The other two bolts **32** are passed through the arm **20** or **21** and then the frame parts **16***a*, **16***b* or **17***a*, **17***b*, 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 **16***a* and **17***a* of the frame elements **16** and **17**.

[**0018**] 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.

[**0019**] 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 by rivets.

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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