United States Patent [19]

Ostroff et al.

[11] **3,727,981**

[45] **Apr. 17, 1973**

[54] **KNOCKED-DOWN CHAIR**

[75] Inventors: **Benjamin Ostroff; Melvin George Ostroff,** both of Gardner, Mass.

[73] Assignee: **Standard Chair of Gardner, Inc.,** Gardner, Mass.

[22] Filed: **Apr. 5, 1971**

[21] Appl. No.: **131,264**

[52] **U.S. Cl.** .....**297/440,** 297/416, 297/445, 206/46 FN

[51] **Int. Cl.**.....**A47c 4/02,** A47c 7/54

[58] **Field of Search**.....297/440, 414, 416, 297/445, 452, 378; 206/45

[56] **References Cited**

UNITED STATES PATENTS

3,115,367 12/1963 Gariepy.....297/440

2,678,088 5/1954 Jamison, Jr.....297/416

FOREIGN PATENTS OR APPLICATIONS

237,159 10/1959 Australia.....297/440

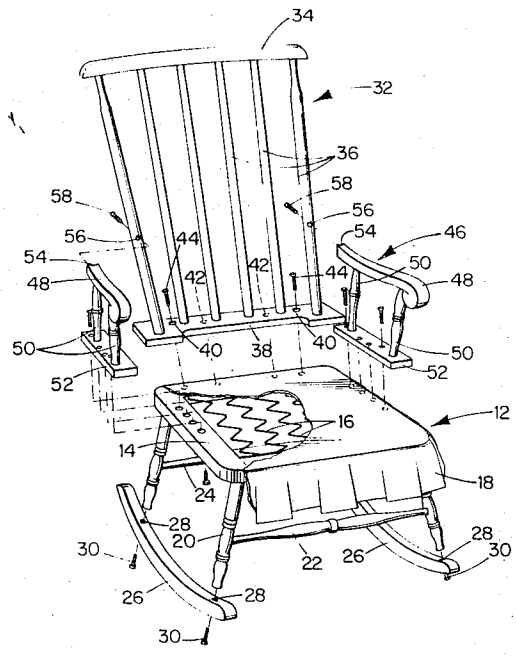
Primary Examiner—Casmir A. Nunberg

Attorney—Chittick, Pfund, Birch, Samuels & Gauthier

[57] **ABSTRACT**

A chair which is shipped disassembled in a small size container and is assembled at destination. The chair has a separate back, arms and seat-leg unit. Optionally, it includes rocking chair runners. The back and arms have cleats fixed to their lower portions which provide a firm foundation and a flush surface to be rigidly fastened to the seat-leg unit. The chair is easily assembled with hand tools and is extremely stable.

6 Claims, 3 Drawing Figures



PATENTED APR 17 1973

3,727,981

SHEET 1 OF 2

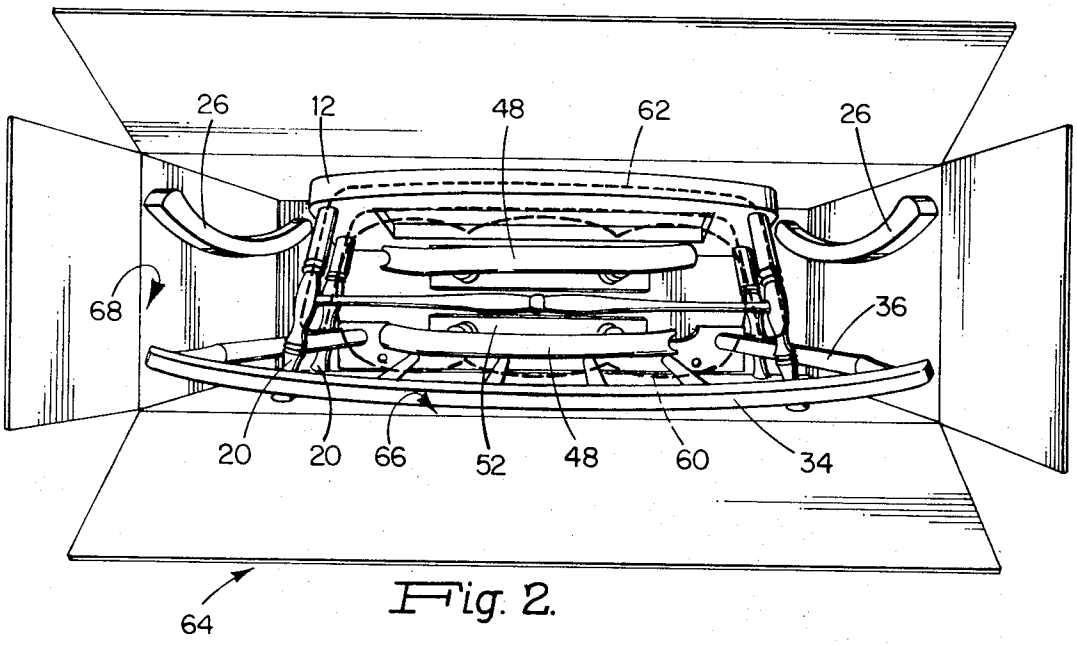


Fig. 2.

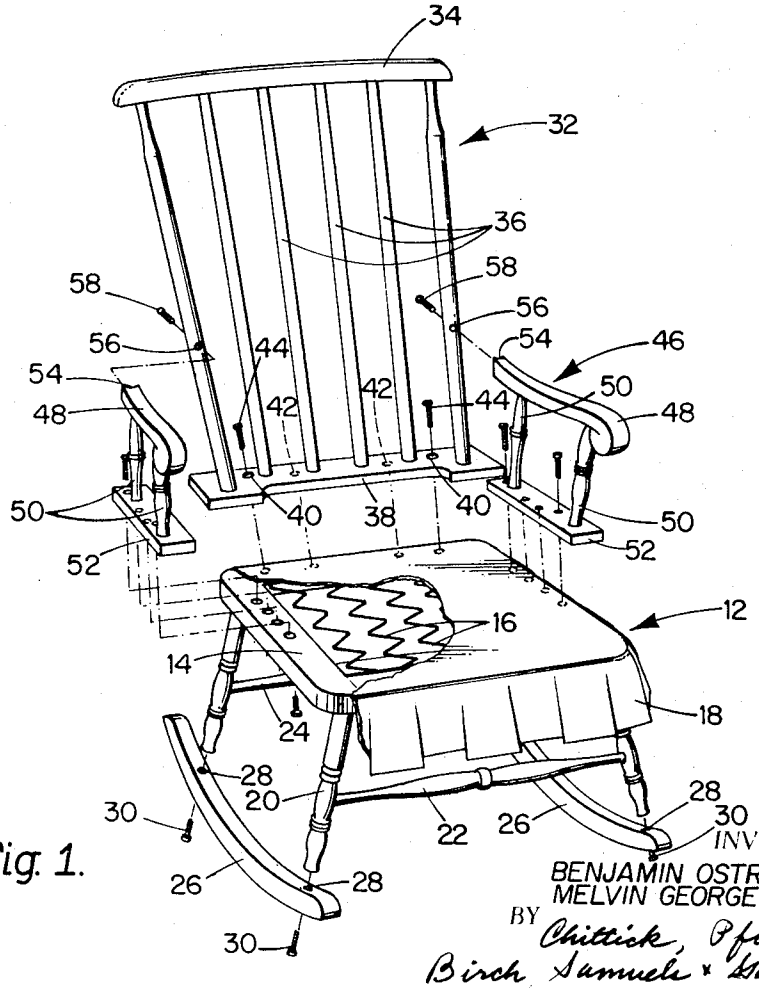


Fig. 1.

INVENTORS
BENJAMIN OSTROFF
MELVIN GEORGE OSTROFF
BY Chittick, Pfund, Birch, Samuels & Gauthier
ATTORNEYS

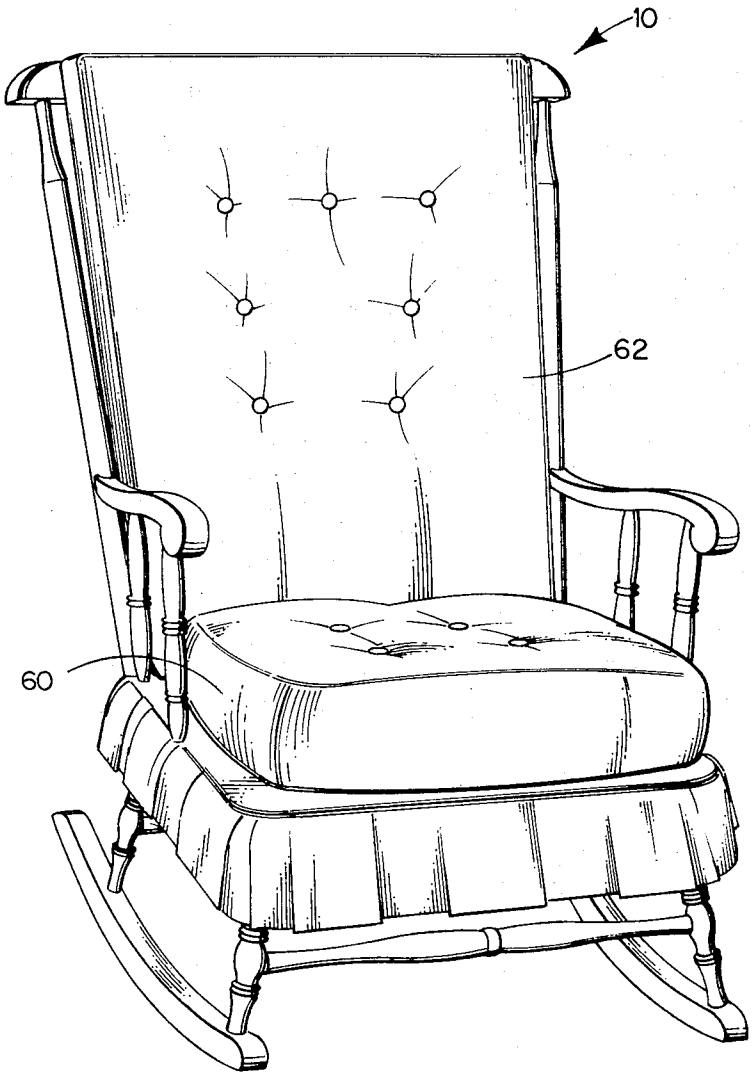


Fig. 3.

INVENTORS
BENJAMIN OSTROFF
MELVIN GEORGE OSTROFF
BY Chittick, Pfund, Birch, Samuels & Gauthier
ATTORNEYS

KNOCKED-DOWN CHAIR

BACKGROUND OF THE INVENTION

This invention relates to furniture and more particularly to an easily assembled chair and a method of compactly packing the disassembled chair for shipping.

Most furniture today is shipped from the factory already assembled. However, the great disadvantage of shipping pre-assembled furniture is that the container must be quite large relative to the weight of the furniture container therein. Because of this undesirable volume to weight ratio in shipping pre-assembled furniture, the shipping costs are extremely high. In fact, in this era of ever-increasing transportation costs, it is not unusual for a piece of furniture to have a shipping cost higher than its manufacturing cost. In the past, chairs have been made as knock-down units to minimize shipping size. However, most such chairs have been unsatisfactory either because they still required a sizeable shipping container or because they were difficult to assemble after shipment or because they did not readily assemble into a sturdy, rigid chair.

It is an object of the present invention to provide an easily assembled chair which overcomes the disadvantages of these previously known chairs.

Another object of the present invention is to provide an easily assembled chair which can be packed in a shipping container in such a compact fashion that the volume to weight ratio is greatly reduced, thereby lowering shipping costs.

Another object of the present invention is to provide an easily assembled chair which is quick and simple to assemble either by the retailer or the retail customer using common hand tools.

Another object of the present invention is to provide an easily assembled chair which is very stable, rigid and sturdy when assembled.

BRIEF SUMMARY OF THE INVENTION

The easily assembled chair of this invention is adapted to be shipped disassembled in a small carton. The chair parts are nested together and substantially fill the carton, thereby efficiently utilizing it with a low volume to weight ratio. The chair is either assembled at the retail store or in the customer's home. Not only are shipping costs reduced, but damage during shipment is practically eliminated because of the compact package of disassembled parts.

An important feature of this invention is the provision of cleats fixed to the lower ends of the chair back spindles and chair arm spindles. These cleats rigidly fix the spindles in position relative to each other and also form mounting platforms or bearing surfaces by which the back and arms are bolted to the seat. The cleats are flat and abut each other, end to end, as they extend around the periphery of the seat.

A combination of through-bolting and bolting into threaded press-fit bushings is used to rigidly assemble the chair after it arrives at its destination.

Other objects and advantages of this invention will be described in more detail hereinafter. The invention comprises the chair construction itself, its combination of elements and arrangement of parts. The invention also comprises the method of packing the disassembled chair in a container for shipping. For a fuller understanding of the nature and objects of the present invention, reference should be had to the following detailed description taken in connection with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a view in exploded perspective of the parts of the chair of the present invention;

FIG. 2 is a view of the chair of FIG. 1 shown knocked down and packed in a shipping carton; and

FIG. 3 is a view of the chair of FIG. 1 shown fully assembled with the cushions in place.

DETAILED DESCRIPTION OF THE INVENTION

In the drawings, FIG. 3 shows a completely assembled rocking chair **10** which is the preferred embodiment of this invention. However, it will be understood that the unique features of this invention can also be employed in other types of chairs.

FIG. 1 shows an exploded view of chair **10** clearly illustrating the mating parts thereof. Chair **10** has a combination seat-leg unit **12** which is comprised of a wooden seat frame **14** which is open at its center. A simple wire spring suspension **16** is rigidly carried in the central seat frame opening and both the seat frame **14** and the spring suspension are covered with a cushioned fabric cover and skirt **18** which pads and hides the wire suspension **16**. Frame **14**, suspension **16** and fabric cover **18** together form a substantially flat seat portion.

Four legs **20** are fixed to and extend downwardly from seat frame **14**. Preferably, legs **20** are canted outwardly and are rigidly fixed in position by front and rear cross bars **22** and **24**, respectively. The flat seat portion and the legs and cross bars together form seat-leg unit **12**.

Preferably, the chair of this invention takes the form of a rocking chair. In this configuration, a pair of curved rocking chair runners **26** is provided and fastener holes **28** are formed therein in alignment with the lower ends of legs **20**. Fasteners **30** are used to assembly runners **26** to legs **20**. The detachable fasteners **30** may take several forms, e.g., wood screws or bolts adapted to cooperate with threaded bushings bushings which are press-fitted into the lower ends of the chair legs.

The chair **10** has a chair back **32** which comprises a back rest portion including a horizontal head piece **34** and vertical spindles **36** fixed to and extending downwardly from the head piece. The back rest portion is fixed at its lower end to a flat cleat **38** which has recesses in its upper surface to accommodate the spindles **36**. Flat cleat **38** has a configuration, when viewed from above, which closely approximates the configuration of the back and side margins of the flat seat portion of seat-leg unit **12**. Thus, when it is positioned upon the flat seat portion, it is smoothly aligned therewith. Flat cleat **38** has a pair of fastener holes **40** formed entirely therethrough and a pair of fastener holes **42** bored partially therein and opening at the lower surface of cleat **38**. Threaded bushings (not shown) are press-fitted into holes **42**.

Corresponding holes are bored entirely through the frame **14** of seat-leg unit **12** and fasteners **44** are inserted through the top of cleat **38** as shown in FIG. 1 and are engaged by nuts which bear against the underside of frame **14**. Unshown fasteners are inserted

through the bottom of frame **14** are are engaged in the threaded bushings fixed in holes **42**. Obviously, the type and number of fasteners used is optional and may be varied within the scope of this invention. However, it has been found in practice that the employment of fasteners as shown in these drawings results in a very rigid structure which is quickly and easily assembled with common hand tools.

Chair **10** also has a pair of chair arms **46** each of which comprises an arm rest portion including a horizontal curved arm piece **48** and vertical spindles **50** fixed to and extending downwardly from the arm piece. Each arm rest portion is fixed at its lower end to a flat cleat **52** which has recesses in its upper surface to accommodate the spindles **50**. The flat cleats **52** have a configuration such that they smoothly abut flat cleat **38** as well as the side margins of the flat seat portion of seat-leg unit **12**.

In the same fashion as previously described relative to chair back **32**, the chair arms **46** are mounted on the seat-leg unit **12** by means of aligned holes and fasteners. Preferably, there are four holes and four fasteners for each chair arm. This opposed bolting arrangement is clearly shown in FIG. **1** and ensures a very secure mounting. An optional strength-increasing construction feature is the provision of recessed areas in seat frame **14** beneath cleats **52** so that cleats **52** are seated in seat frame **14** as well as being bolted thereto.

To greatly increase the rigidity of the chair, the trailing ends **54** of arm pieces **48** are formed with a concave notch corresponding with the convex periphery of vertical spindles **36**. Fastener holes **56** are provided through the two outside spindles **36** and, as shown in FIG. **1**, fasteners **58** are inserted through holes **56** to engage arm pieces **48** and to draw them tightly against the two outside spindles **36**. This arrangement provides the primary bracing for chair back **32** to support it against the rearward pressure exerted by a seated occupant. Also, the chair arms **46** are rigidly braced against lateral sway.

FIG. **3** shows the installation of a seat cushion **60** and a back cushion **62**. These removable cushions may be held in place by tie strings, snaps or other conventional means.

FIG. **2** shows the compact package which the chair of this invention can assume for shipping purposes. A shipping carton **64** has side walls **66** and end walls **68**. To pack the carton, the seat-leg unit **12** is first inserted so that its flat seat portion is flush against one carton side wall **66** and the four legs **20** extend across the carton toward the opposite side wall **66**. Preferably, cross bars **22** and **24** are disposed parallel to end walls **68**.

Then, chair back **32** is inserted so that its back rest portion is flush against the opposite side wall **66** and legs **20** extend between spindles **36**.

Finally, the two chair arms **46** and the two cushions **60, 62** are inserted between chair legs **20** as shown in FIG. **2** and the two rocking chair runners **26** are positioned against end walls **68**. Of course, the runners could be inserted between the chair legs and the chair arms positioned against the end walls or both the runners and the chair arms could be inserted between the chair legs. Regardless, the chair can be packed in a carton no higher or wider than the chair back **32** and no deeper than the vertical dimension of seat-leg unit **12**. Of course, it is understood that each chair element would be wrapped in cushioned packing paper before insertion into carton **64** to prevent damage and the hardware placed in a parts bag.

Thus, a very small shipping carton **64** can be used to ship the knocked down chair of this invention at a greatly reduced transportation cost because of the decreased space required. Experience has shown that savings of approximately 75 percent are possible between shipping an assembled rocking chair and shipping knocked down rocking chair **10**. Furthermore, rocker **10** can be quickly and easily assembled at the destination using only simple hand tools to produce an exceptionally rigid and comfortable rocking chair.

The above description obviously suggests many possible variations and modifications of this invention which would not depart from its spirit and scope. It should be understood, therefore, that the invention is not limited in its application to the details of structure specifically described or illustrated and that within the scope of the appended claims, it may be practiced otherwise than as specifically described or illustrated.

We claim:

1. A chair adapted to be shipped disassembled and then assembled at destination comprising, in combination:

a. a seat-leg unit including a substantially flat seat portion and four legs fixed to the underside of said seat portion and extending substantially normal thereto;

b. a chair back including a back rest portion and a flat cleat fixed to the lower extremity of said back rest portion and being disposed substantially normal thereto, said flat cleat having horizontal length and width dimensions exceeding those of said back rest portion lower extremity;

c. two chair arms each including an arm rest portion and a flat cleat fixed to the lower extremity of said arm rest portion and being disposed substantially normal thereto, said flat cleat having horizontal length and width dimensions exceeding those of said arm rest portion lower extremity;

d. said chair back cleat and said chair arm cleats having flat bottom surfaces, said seat portion having flat upper surfaces at its back and side margins, and said cleats and said seat portion all having aligned fastening means provided therein to facilitate the fastening of the bottom surfaces of said cleats directly upon and against the marginal upper surfaces of said seat portion, said fastened cleats cooperating with said seat portion to provide resistance against unwanted pivotal tipping of said back rest and said arm rests relative to said seat portion; and

e. said arm rest portions and said back rest portion having complementary fastening means provided thereon at their points of mutual contact to rigidly fasten them together.

2. The chair of claim **1** further comprising a pair of curved rocking chair runners having fastener holes formed therein, the lower ends of said seat-leg unit legs having corresponding aligned fastener holes formed therein, and fasteners adapted to be inserted into the aligned holes to assemble said rocking chair runners to said four legs to produce a rocking chair.

3. The chair of claim 1 wherein said cleats are shaped, sized and positioned to be smoothly aligned with the back and side margins of said flat seat portion, said cleats abutting each other end to end.

4. The chair of claim 1 wherein each said chair arm arm rest portion has a concave notch formed in its trailing end adapted to engage and interlock with an adjacent convex surface of said back rest portion to provide greatly increased rigidity in the assembled chair.

5. The chair of claim 1 wherein each said chair arm arm rest portion has a fastener hole formed in its trailing end and the adjacent back rest portion has a corresponding fastener hole formed therein, whereby said arm rest portions are adapted to be fastened to said back rest portion to provide greatly increased rigidity in the assembled chair.

6. The chair of claim 1 further including detachable back and seat cushions adapted to be attached to said chair.

* * * * *