United States Patent [19]

Zerlaut

[11] **3,907,362**

[45] **Sept. 23, 1975**

[54] **KNOCK DOWN CHAIR ASSEMBLY**

[76] Inventor: **H. Walter Zerlaut,** 1055 Granville Ave., Chicago, Ill. 60626

[22] Filed: **June 22, 1973**

[21] Appl. No.: **372,486**

[52] **U.S. Cl.** **297/440;** 297/17; 297/422

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

[58] **Field of Search** 297/439, 440, 441, 445, 297/446, 421, 422, 17, 42; 248/163, 431; 108/34

[56] **References Cited**

UNITED STATES PATENTS

3,058,777	10/1962	Froedge	297/440
3,082,037	3/1963	Anderson	297/440
3,312,501	4/1967	Penn	248/431
3,376,069	4/1968	Lowdermilk	297/17
3,379,474	4/1968	Schwartz, Jr.	297/441
3,521,928	7/1970	Nissen	297/441

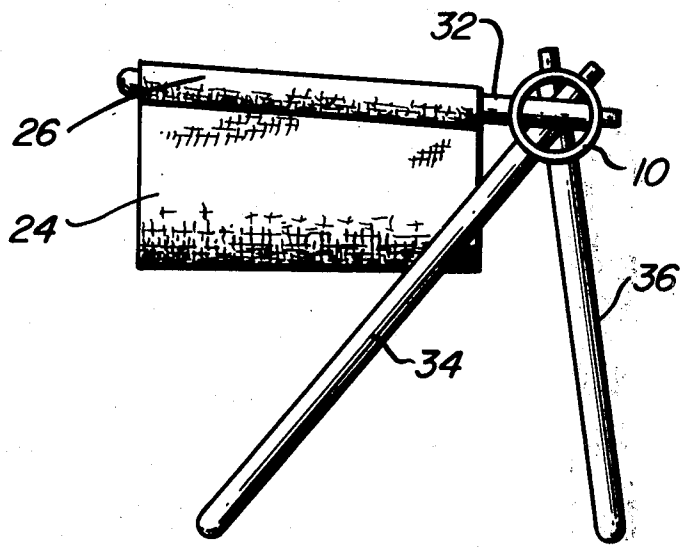
Primary Examiner—Casmir A. Nunberg

Attorney, Agent, or Firm—Dominik, Knechtel, Godula & Demeur

[57] **ABSTRACT**

A knock down chair assembly wherein a plurality of elongated support members are packaged in a tubular housing together with a flexible seat member wrapped with the support members. The tubular housing has a plurality of oppositely aligned mounting apertures which can receive the elongated support members in assembling the chair. Two of the support members operate as arm and seat supports and at least three support members operate as leg supports. A tie element may be used to join the various support members by being passed through openings in one of the ends of the support members.

4 Claims, 8 Drawing Figures



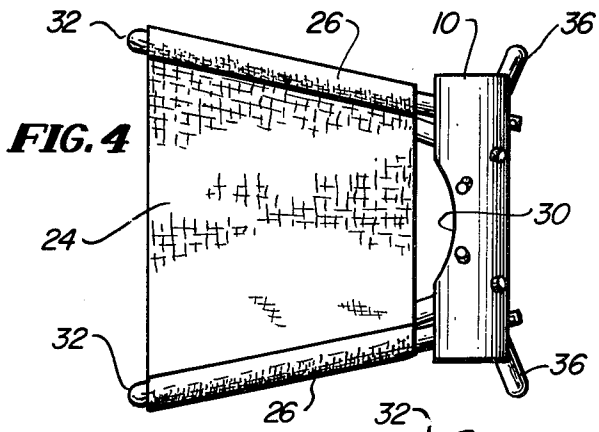


FIG. 4

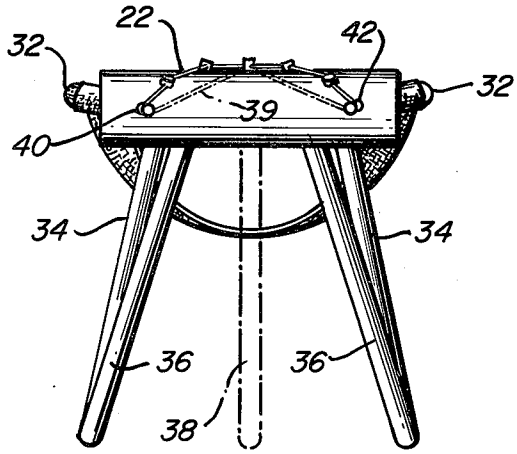


FIG. 5

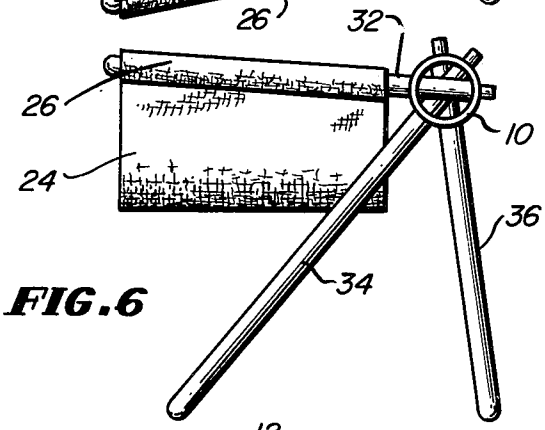


FIG. 6

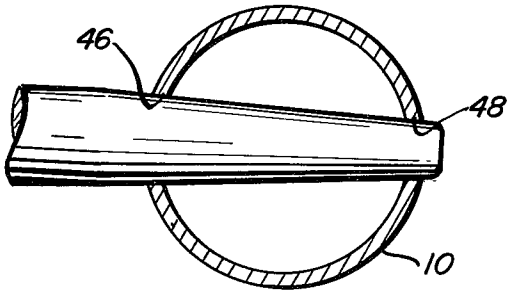


FIG. 8

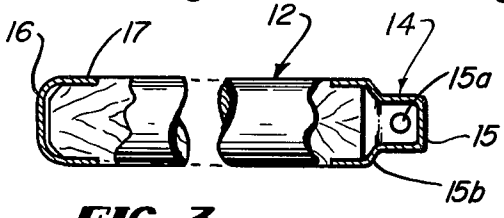


FIG. 3

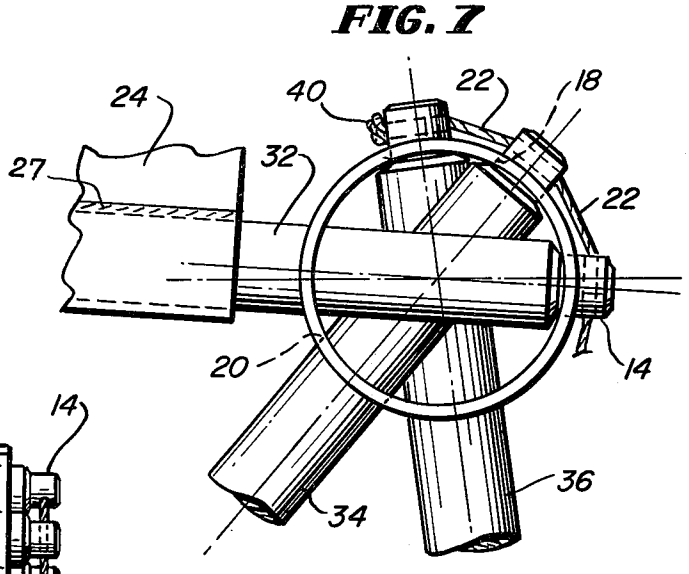


FIG. 7

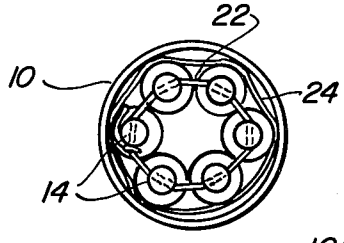


FIG. 2

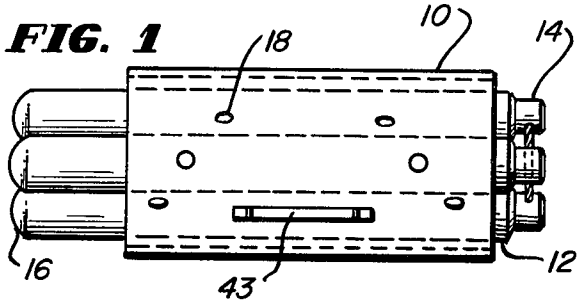


FIG. 1

KNOCK DOWN CHAIR ASSEMBLY

This invention relates to an improved knock down chair assembly which can comprise a small, compact package easily portable in the knocked down state. The chair is easily and quickly assembled into a serviceable chair having arm supports which hold the seat member; and at least three leg supports.

The knock down or folded chair assemblies have a wide popularity, particularly for functions such as camping, outings, picnics, sporting events, and still other activities of like nature. It is desirable that these assemblies be presented in as lightweight and compact a form as is possible with ease and convenience of assembly, as well as reliable serviceability.

It is accordingly one important object of the present invention to provide an improved knock down chair assembly which is packaged in a neat, compact, and easily portable form; but which can be readily, quickly and easily assembled.

Yet another important object of the present invention is to provide a knock down chair assembly in which elongated support members are mounted to a tubular housing which serves to carry such elongated support members in packaged form. It is a feature of this object and an advantage in the practice thereof that such elongated support members are directly and quickly engaged to aligned mounting apertures in the tubular housing, some of said support members serving as a support for a seat as well as an arm rest; while others serve as leg supports.

Yet another important object of the present invention is to provide a knock down chair assembly of the type described wherein the knock down compact package contains all the components positioned within a tubular housing which holds such components conveniently and securely. An aspect of this object and advantage is that the package components are readily accessible for immediate withdrawal and prompt assembly.

Still yet another important object of the present invention is to provide a compact, relatively small packaged asembly holding chair components which can be quickly removed and assembled without need of tools, special skills, or extraordinary manipulations. It is a feature of this object and an advantage in the practice thereof that the knock down package and components can be economically manufactered and distributed, while still providing desirable reliability and serviceability.

The foregoing objects and advantages are attained together with still others which will occur to practitioners from considering the invention shown in the following disclosure including drawings wherein:

FIG. **1** is a side elevational view showing the disassembled packaged chair components;

FIG. **2** is an end view of the package shown in FIG. **1**;

FIG. **3** is a side elevational view, on an enlarged scale, of a representative elongated support member which overall length is reduced by removal of an intermediate portion;

FIG. **4** is a top elevational view of the chair assembled from the packaged components shown in FIGs. **1** and **2**;

FIG. **5** is a rear elevational view of the assembled chair shown in the view of FIG. **4**;

FIG. **6** is a side elevational view of the assembled chair shown in the views of FIGS. **4** and **5**;

FIG. **7** is a portional end view of the assembled components; and

FIG. **8** is a side elevational view, with parts removed of an alternative embodiment for mounting elongated support members to the tubular housing.

Use of the same numerals in the various views of the drawings will indicate reference to the same structures, parts or elements, as the case may be.

Looking first at the views of FIGS. **1** and **2**, there is seen a tubular housing shown as a cylindrical member **10**. The major lengths of elongated supports, each of which is shown generally as **12**, are grouped and packaged within the tubular housing **10**. Each of the elongated support members are shown as having a reduced end indicated generally by **14**.

The reduced width end may be considered as a lashing end as illustrated further in the view of FIG. **3**. A metal ferrule **15** is shown in the configuration of the reduced width end, and this ferrule has an opening **15***a* for receiving a tie element, as will be later described. In a preferred form, the reduced width end of the ferrule **15** is joined by a shoulder member **15***b* to the body of the elongated support member. Also in the preferred form, the shoulder **15**b is curved so it can better contact the inside curve of the cylindrical member housing **10**. The opposite end of the elongated support member **12** may be viewed as the large end having a dimension which is uniform with the body portion of the elongated support. The end **16** is shown as being fitted with a large cup or ferrule **17** of dense construction such as metal or sturdy plastic. Ends **16** are the floor or ground contacting portions of the elongated supports which operate as leg supports.

The tubular housing **10** is shown as having a plurality of oppositely aligned mounting apertures, including one small aperture such as **18** and one large aperture such as **20**. Small apertures **18** accommodate the reduced width end **14** of the elongated supports while the large apertures accommodate the dimension of the body of the elongated supports **12**.

The packaged knock down assembly of the chair components shown in FIGS. **1** and **2** further includes lashing or tie element **22** which is shown passing through the openings **15***a* in the reduced width ends of the support members. Lashing the various elongated support members helps to maintain them in secure, compact position within the tubular housing **10**. The packaged assembly also includes a flexible seat member **24** which is shown wrapped around the grouped elongated support members.

Looking now at the views of FIGS. **4** through **8**, the flexible seat member **24** has means at the opposite ends for mounting to some of the elongated support members. Such means are shown as preset folds **26** fixed by stitching **27** or the like to define fold passageways **28**. Between the preset folds is located intermediate flexible seat portion **29**. the flexible seat member may be constructed of canvas, nylon, or other natural or synthetic materials.

The tubular housing **10** is formed of a continuous sidewall to define a cylindrical member and a portion of the sidewall is modified as a chamfer to provide a comfortable backrest portion. Such chamfer or curve is disposed towards the occupier of the assembled chair.

It is seen that some of the elongated supports operate as arm and seat member supports **32.** These arm and seat supports move through the fold passageways **28** at opposite sides of the flexible seat member **24.** It is also seen that others of the elongated support members operate as forward leg supports **34,** while still others of the elongated support members operate as rear leg supports **36.** The arm and seat supports, as well as their aligned mounting apertures, lie in the same plane. This is also true for the forward leg supports and the rear leg supports. As further seen in the preferred form, the plane of the forward leg members is spaced by about **45°** from the plane of the rear leg support members and the plane of the arm and seat support members.

While four leg supports have been shown, together with four pairs of oppositely aligned mounting apertures, a three leg support may be optionally selected. A single rear leg support member may be utilized as indicated in phantom at **38.** Such a single rear leg support would serve only with the two forward leg supports to provide three point stability. It is understood, however, that the single leg support may be a forward leg while the other pair of leg supports in the three point contact can be rear leg supports. The lashing of the three leg supports is indicated in phantom by lashing lines **39.**

In the embodiments already illustrated, the reduced width ends **14** are passed through the small apertures **18** while the bodies of the support members pass through the large apertures **20** which are opposite to the small apertures. The tie element **22** may be then used to lash all the reduced width ends of the elongated support members together by forming a knot or stop **40** in the reduced width end where the tie element is first passed, and then forming a tie element or knot as in **42,** the last reduced width end through which the tie element is passed.

The tie element may be removed if greater care is placed in frictionally engaging the small aperture in the reduced width end by providing closer tolerances. Another alternative embodiment for mounting the elongated body support members is shown in the view of FIG. **7** wherein the elongated supports **44** have the configuration of a tapered cylinder or elongated cone. The tubular housing has a large aperture **46** and an oppositely aligned small aperture **48.** A tapered elongated support member or cone therefore allows a wedging fit which securely positions the elongated support member in the tubular housing. The elongated support member may also have the threads for screw fitting in threaded bores, or be otherwise mounted.

The disassembled or packaged chair assembly has been shown to be compactly packaged by substantially filling the available passage of the tubular housing with the various components, particularly elongated support members, flexible seat member, and tie element where present. Such package is conveniently handled and stored, and a handle such as **43** may be provided on the continuous sidewall of the tubular housing to facilitate manual transport.

The claims of the invention are now presented and the terms used in such claims may be further understood by reference to the language of the preceding specification and the views of the drawings.

What is claimed is:

1. A knock down chair assembly including

a tubular housing,

at least five pairs of oppositely aligned mounting apertures in said tubular housing,

at least five elongated supports positionable within said housing, the major length of each of the supports being disposable within said tubular housing, each support having cross sectional portions conforming to the configuration of said mounting apertures so that each of said supports may be moved through and engage each of the opposite aligned mounting apertures in a pair, two of said support members operable as arm supports and at least three support members operable as support legs, one end of each elongated support has a reduced width spaced by a shoulder from the body of the elongated support, each oppositely aligned pair of mounting apertures have one large aperture to accommodate the body of the elongated support member and a small aperture to accommodate the reduced width portion of each elongated support member, each reduced width portion having an opening, and which assembly further includes a lashing member to tie all the elongated support members by passing through the opening in each reduced width portion extending out of the tubular housing, and

a flexible seat member wrappable around said elongated arm supports within said housing, opposite ends of said seat member provided with means to mount said seat member to said supports which are operable as arm supports.

2. A knock down chair assembly which includes the features of claim **1** above, wherein four elongated supports are operable as leg supports, said tubular housing having two pairs of oppositely aligned mounting apertures lying in a seat and arm support plane, two pairs of oppositely aligned apertures lying in a forward leg support plane, and two pairs of oppositely aligned mounting apertures lying in a rear leg support plane, said forward leg support plane being spaced from said seat and arm support plane and said rear leg support plane by about **45°.**

3. A knock down chair assembly which includes the features of claim **2** above, wherein the mounting means of said seat support member are preset folds defining passageways to receive said elongated support operable as seat and arm supports.

4. A knock down chair assembly which includes the features of claim **3** above, where in each of the elongated support members the reduced width portions are cylindrical and the shoulders are curved, and wherein said tubular housing has a substantially cylindrical configuration with a continuous sidewall, a portion whereof is chamfered to serve as a backrest in the assembled chair.

* * * * *