Nov. 15, 1955 M. YELLEN 2,723,712

CHAIR STRUCTURE

Filed May 24, 1954

Fig. 1

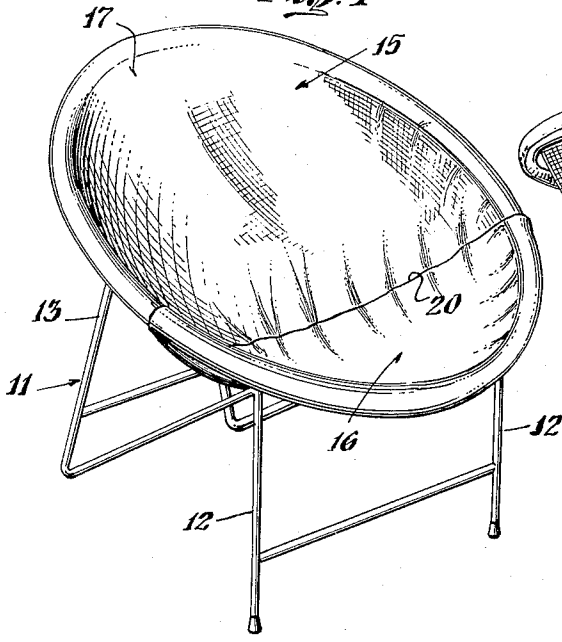


Fig. 2

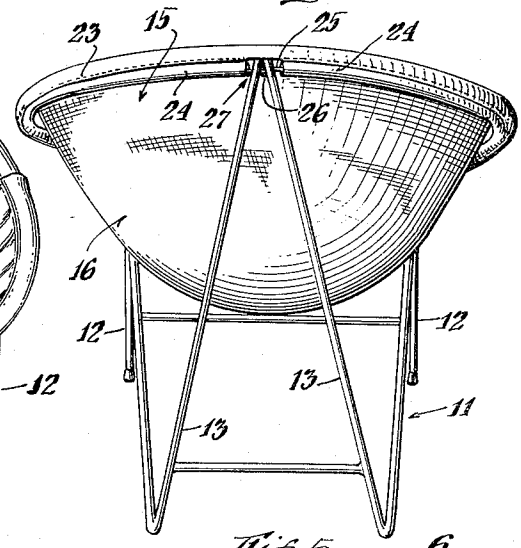


Fig. 5

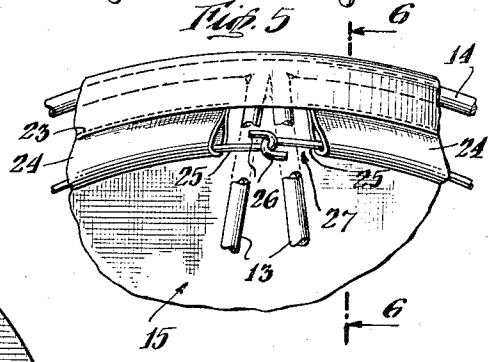


Fig. 3

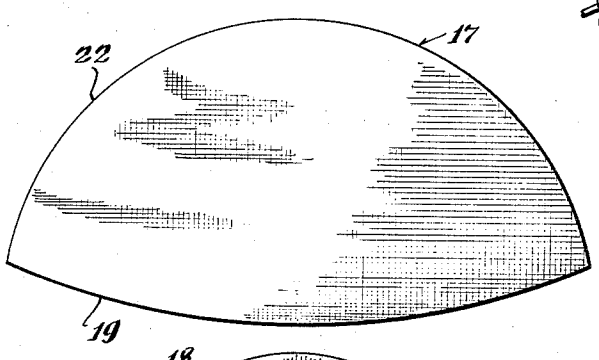


Fig. 4

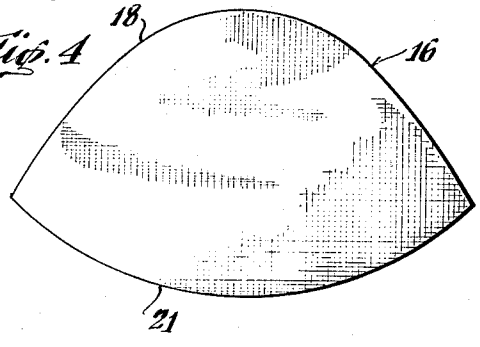
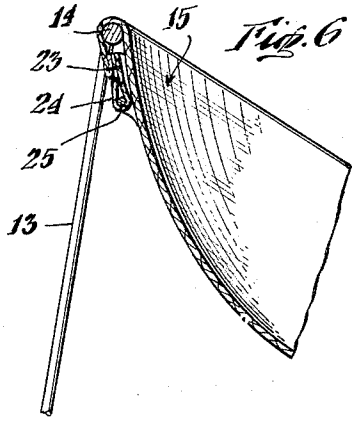


Fig. 6



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CHAIR STRUCTURE

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Application May 24, 1954, Serial No. 431,797

4 Claims. (Cl. 155—187)

The present invention relates to chair structures and, more particularly, to bucket chairs.

A general object of the present invention is to provide such a device which is readily and economically manufactured on a mass basis, which will provide greater comfort to the occupant, and which will allow quick and simple mounting to frame structure of a body-supporting unit of flexible sheet material.

Another object of the present invention is to provide such bucket chair structure as will permit more simplified removal and replacement of bucket seat means for cleaning or recovering, featured by a hoop support over which a circular hem of a body-supporting fabric unit may be quickly anchored by a separable wire loop.

A further object of the present invention is to provide a cupped body-supporting fabric unit or the like having a circular hemmed edge constructed from two differently shaped sectors which when sewed together provide a bucket seat of unique shape for maximum comfort.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the features of construction, combination of elements, and arrangement of parts, which will be exemplified in the construction hereinafter set forth, and the scope of the invention will be indicated in the claims.

For a fuller understanding of the nature and object of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawing, in which:

Fig. 1 is an elevational perspective of an embodiment of a bucket chair structure of the present invention as viewed from side of the front thereof;

Fig. 2 is another perspective view of a bucket chair structure of the Fig. 1 embodiment as viewed from the back thereof;

Fig. 3 is a top plan view illustrating the shape of the fabric used to form the back element of the bucket chair body-supporting fabric unit shown in Figs. 1 and 2;

Fig. 4 is a top plan view illustrating the shape of the fabric used to form the seat element of the bucket chair body-supporting fabric unit shown in Figs. 1 and 2;

Fig. 5 is a detailed rear elevation, with parts broken and in section, illustrating an embodiment of fastening means employable to advantage on bucket chair structure of the present invention; and

Fig. 6 is a transverse sectional view, taken substantially along line 6—6 of Fig. 5.

Referring to the drawing, in which like numerals identify similar parts throughout, it will be seen that, as illustrated in Figs. 1 to 6, inclusive, an embodiment of the present invention may be in the form of a cupped bucket chair structure comprising a support frame **11** including front legs **12, 12** and back legs **13, 13** on which is mounted, preferably by welding, a fabric unit supporting hoop in the form of a torus or circular ring **14**, and a cupped seat unit **15** of flexible sheet material, such as

fabric, supported on the latter. As is clear from Figs. 1 and 2, the front legs **12, 12** are appreciably shorter than the rear legs **13, 13** to cant the hoop **14** forward, i. e., to dispose it in a plane oblique to any horizontal supporting surface, such as a floor. The body-supporting fabric unit **15** preferably is made up of a sectorial seat element or piece **16**, shown in plan in Fig. 4 and another sectorial back element or piece **17**, shown in plan in Fig. 3. It will be noted therefrom that the latter is much larger than the former and of different shape to shape the bucket unit **15**, when these elements thereof are sewed together to a contour of greatest comfort to the occupant of the chair, so that the chair back has greater vertical depth than the chair seat and appreciable width to provide encompassing wrap-around of considerable extent, and the seat has appreciable lateral depth with respect to the width thereof. Edge **18** of seat piece **16** is to be sewed to edge **19** of back piece **17** to form cross seam **20**.

The edges **21** and **22** respectively of seat and back pieces **16** and **17** may be unequal arcs of a common circle, i. e., the radii of the curvature thereof are substantially equal (minor variations being dictated by different allowances for the seaming operation). The resulting circular and circumferential edge **23** of the fabric unit is provided with an anchoring-loop receiving hem **24**, preferably as a separate strip sewed to the circumferential edge. For added strength the circumferential edge **23** of the fabric unit **15** may, if desired, be hemmed before the hem strip **24** is sewed thereto.

The hem **24** provides a passage for an anchoring element which in the structure of the present invention consists of a separable wire loop **25**. The loop **25** preferably is made of strong resilient metallic material, such as steel, so that when made from a single piece of wire it may have a permanently-set C-shape. Thus, when the C-shaped wire forming loop **25** is threaded through the hem **24** the circumferential edge **23** of fabric unit **15** is permitted to assume a generally circular shape without undue strain on the hem or wire, and to facilitate positioning of the hem down over the circular hoop **14**. Preferably, the opposed ends of the C-shaped piece of wire constituting anchoring loop **25** are provided with opposed hooks **26, 26** for ready interengagement and disconnection. Since hooks **26, 26** are preferably made integral with the main body of the wire forming loop **25** by turning back the ends thereof the strength and permanent settability of the metal thereof is important to prevent the relatively heavy load of a supported person from distorting and spreading them to accidental disengagement. The hooks **26, 26** are of appreciable width to facilitate hooking them together and unhooking them from each other, thus the passage provided by hem **24** is of appreciable width to assure easy sliding or threading of one of the hooks therethrough in assembling the loop **25** in the hem. Also the hooks **26, 26** preferably are rounded, i. e., provided with rounded noses to facilitate such threading.

Since, in order securely to anchor the fabric unit **15** on the hoop **14** the hem must be drawn about the latter to the underside thereof, the connection of the elements of the support frame **11**, including front legs **12, 12** and back legs **13, 13** are connected to the hoop in a manner as to avoid interference with the anchorage of the fabric unit to the latter. For this reason the front legs **12, 12** are welded to the hoop **14** at points toward the inner side of the hoop, at least inward of the position of the outer edge of the hem **24** when drawn down tightly to the anchored position thereof by loop **25** when its ends **26, 26** are hooked together. In order to permit threading of the loop wire **25** into the hem **24** and permit hooking and unhooking manipulation of the hooks **26, 26** a gap is provided at **27** in the hem. This is conveniently located medially of the

top edge of back piece 17 where it will be least conspicuous. This gap 27 at this location also conveniently permits the connection or welding of the top ends of the back legs 13, 13 to the underside of the hoop 14 since they may extend therethrough, as will be seen from Figs. 2 and 5. More importantly, such gap 27 in the hem 24 permits the hooks 26, 26 to be engaged behind the upper portions of the back legs 13, 13 for further concealment, as is seen in Fig. 2, and in order to dispose the loop 25 to the inner sides of the back legs, as will be seen in Fig. 6. The disposition of loop 25 to the inner sides of the back legs 13, 13 assures that imposed load, which is greatest along the medial portion of the top edge 22 of the back piece 17, will not tend to snap the loop-anchored hem 24 up over the hoop 14, which might otherwise initially occur at that point, freeing the fabric unit 15 from the hoop accidentally to spill the occupant.

The removability of the fabric unit 15 from the hoop 14, when hooks 26, 26 are disengaged from each other and withdrawability of loop wire 25 from hem 24, facilitate demounting and separation of the fabric unit for cleaning or replacement. Also it permits the frame unit comprising support structure 11 and hoop 14, the unhooked loop wire 25, and the fabric unit 15 (with the latter folded up into a compact bundle) to be shipped in knock-down condition to facilitate handling.

In order to mount the parts of the bucket chair of the present invention together one threads the loop wire 25 through the hem 24, using one of the round-end hooks 26 as a leading element which easily slides through the hem passage. When the hooks 26, 26 are disposed in opposed relation in the hem gap 27, the wire-equipped hem is forced down over the supporting hoop 14 and the hooks 26, 26 are slipped behind the top ends of back legs 13, 13. The hooks 26, 26 are then pulled past each other in overlapping relation with pucker of the hem 24 to beneath the hoop 14, and then moved to interengagement and released. When hooks 26, 26 are hooked together, the closed loop 25 is substantially circular and of a diameter appreciably less than the outer diameter of hoop or ring 14 so as to be disposed beneath the latter with the outer margin of hem 24 securely to anchor the latter down over the ring. The chair structure illustrated in Figs. 1 and 2 is thus quickly and easily assembled.

Another manner of assembling the body-supporting fabric unit 15 and the support frame 11 after the loop of wire 25 has been threaded through hem 24 may be performed by the assembler standing behind the support frame, the gap 27 is inserted under hoop 14 and spanning the upper portion of rear legs 13, 13. Hooks 26, 26 are fastened in front of rear legs 13, 13 and beneath hoop 14. The fabric unit 15 is then draped over support frame 11 in a position approximately that of the final setting. With hooks 26, 26 still fastened the wire equipped hem 24 is guided around and forced down over the supporting hoop 14 by pulling the wire equipped hem forward and downward beneath the supporting hoop from the rear legs forward. The flexibility of wire 25 permits it to assume a substantially oval shape, the oval having a greater maximum diameter than the outside diameter of the supporting hoop 14. When the entire wire equipped hem is forced beneath the supporting hoop 14 the closed loop 25 is permitted to assume a substantially circular shape. The fabric unit 15 which is partially drawn over the supporting hoop 14 is firmly anchored by wire 25 which is beneath hoop 14 and of a smaller diameter than the outer diameter of the hoop.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained and, since certain changes may be made in the above construction without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A chair structure comprising, in combination; frame means having a bottom portion to rest upon a supporting surface such as a floor and including a seat support ring, a cupped seat unit of flexible sheet material having a circular margin provided with a hemmed edge providing an anchoring element passage, said hemmed edge having a relatively short longitudinal gap therein, a C-shaped piece of resilient wire threaded through said hem with the ends of said wire extending in opposed relation into said gap, a pair of interengaged hooks on the opposed ends of said wire connecting said ends together to form a circular loop of a diameter less than the outer diameter of said ring and disposed with the outer margin of said hemmed edge beneath said ring, thereby anchoring the circular margin of said seat unit down over said ring, said ring being disposed in a plane oblique to a plane through the bottom portion of said frame means with the latter representative of the supporting surface on which the chair is to stand, said cupped seat unit being suspended in said ring with the hem gap partially concealed behind the portion of said ring at highest elevation, and rear leg means comprising a portion of said frame means and connected to the underside of said oblique ring at the highest elevation thereof in the said hem gap.

2. A chair structure comprising, in combination; frame means having a bottom portion to rest upon a supporting surface such as a floor and including a seat support ring, a cupped seat unit of flexible sheet material having a circular margin provided with a hemmed edge providing an anchoring element passage, said hemmed edge having a relatively short longitudinal gap therein, a C-shaped piece of resilient wire threaded through said hem with the ends of said wire extending in opposed relation into said gap, a pair of interengaged hooks on the opposed ends of said wire connecting said ends together to form a circular loop of a diameter less than the outer diameter of said ring and disposed with the outer margin of said hemmed edge beneath said ring, thereby anchoring the circular margin of said seat unit down over said ring, said ring being disposed in a plane oblique to a plane through the bottom portion of said frame means with the latter representative of the supporting surface on which the chair is to stand, said cupped seat unit being suspended in said ring with the hem gap partially concealed behind the portion of said ring at highest elevation, and rear leg means comprising a portion of said frame means and connected to the underside of said oblique ring at the highest elevation thereof in the said hem gap, said interengaged hooks being disposed between said ring and said rear leg means to the inner side of the latter thereby partially concealing said hooks.

3. A chair structure comprising, in combination; frame means including an obliquely disposed support hoop, and a cupped seat unit of flexible sheet material suspended in said hoop and having a circular outer edge anchored to said hoop, said seat unit being formed of a relatively narrow sectorial bottom piece and a relatively wide sectorial back piece each having an arcuate outer edge, said bottom unit extending arcuately through appreciably less radial degrees, both of said pieces having the remaining edges thereof curved and seamed together to bring their arcuate outer edges into circular alignment to provide the circular outer edge of said seat unit, the relative shaping of said bottom and back pieces providing said seat unit with a bottom portion which is relatively deep from the front toward the back in a lateral direction and a curved back portion which extends from the front corners of said relatively narrow bottom piece deeply back along the seamed edge of the latter.

4. A chair structure comprising, in combination, frame

means having a bottom portion to rest upon a supporting surface such as a floor and including a seat support ring, a cupped seat unit of flexible sheet material having a circular margin provided with a hemmed edge providing an anchoring element passage, said hemmed edge having a relatively short longitudinal gap therein, a C-shaped piece of resilient wire threaded through said hem with the ends of said wire extending in opposed relation into said gap, a pair of interengaged hooks on the opposed ends of said wire connecting said ends together to form a circular loop of a diameter less than the outer diameter of said ring and disposed with the outer margin of said hemmed edge beneath said ring, thereby anchoring the circular margin of said seat unit down over said ring, said ring being disposed in a plane oblique to a plane through the bottom portion of said frame means with the latter representative of the supporting surface on which the chair is to stand, said cupped seat unit being suspended in said ring with the hem gap partially concealed behind the portion of said ring at highest elevation, said seat unit being formed of a relatively narrow sectorial bottom piece and a relatively wide sectorial back piece each having an arcuate outer edge, said bottom unit extending arcuately through appreciably less radial degrees, both of said pieces having the remaining edges thereof curved and seamed together to

bring their arcuate outer edges into circular alignment to provide the circular outer edge of said seat unit, the relative shaping of said bottom and back pieces providing said seat unit with a bottom portion which is relatively deep from the front toward the back in a lateral direction and a curved back portion which extends from the front corners of said relatively narrow bottom piece deeply back along the seamed edge of the latter, and rear leg means comprising a portion of said frame means and connected to the underside of said oblique ring at the highest elevation thereof in the said hem gap, said interengaged hooks being disposed between said ring and said rear leg means to the inner side of the latter thereby partially concealing said hooks.

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