Aug. 5, 1958 J. H. WOODARD 2,845,699

METHOD OF MAKING CONTOURED DISHED ARTICLES

Filed Dec. 13, 1955

Fig. 1

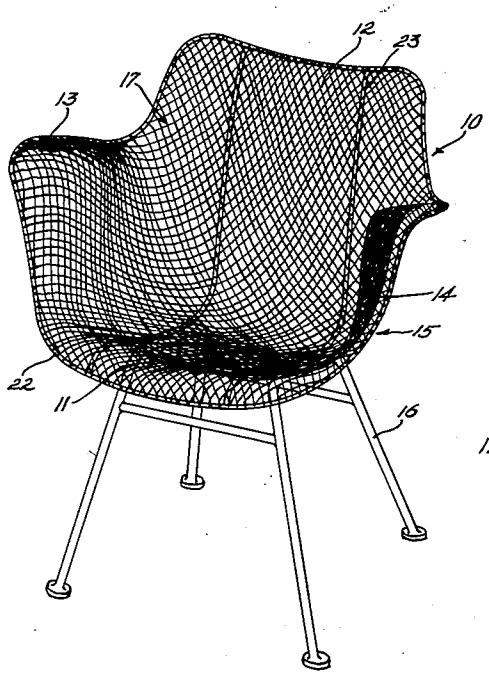


Fig. 2

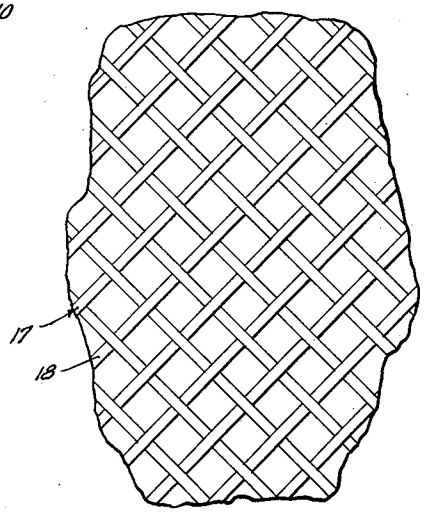
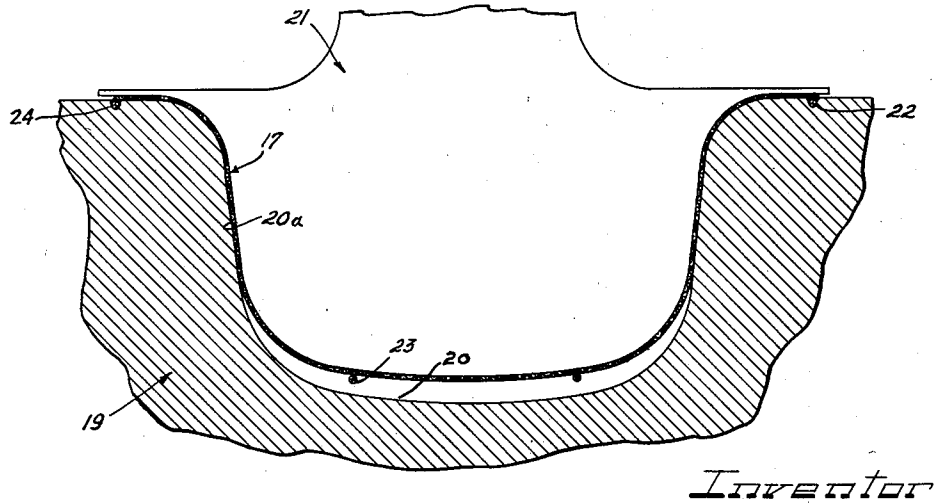


Fig. 3



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METHOD OF MAKING CONTOURED DISHED ARTICLES

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3 Claims. (Cl. 29—419)

This invention relates to a method of making contoured dished articles.

More specifically this invention relates to making a contoured article from a blank of deformable mesh material, which contoured article may be particularly utilized and adapted in a chair construction, a manikin construction, a chaise longue construction, and other similar articles.

In the illustrated form of my invention, it will be noted that relatively rigid frame portions are formed to a predetermined configuration and are utilized in the deformation of the blank of deformable mesh material to shape.

An object of this invention is to provide a new and improved method of making dished contoured articles.

Another object of this invention relates to a new and improved method of making dished contoured articles which method lends itself to economical manufacture of the articles on a large production scale.

Other objects and features of the present invention will more fully become apparent from the following detailed description taken in conjunction with the accompanying drawing which illustrates a preferred form of my invention by example only.

Figure 1 is a front elevation of a dished contoured chair made according to the method of the present invention;

Figure 2 is an enlarged fragmentary view of interwoven strands of mesh; and

Figure 3 is an enlarged fragmentary cross sectional view showing my novel apparatus diagrammatically shown forming a dished, contoured article to shape.

As shown on the drawings:

The reference numeral **10** indicates generally an exemplary type of chair construction to which the principles of my invention have been applied. The exemplary chair **10** includes a seat portion **11**, a back portion **12**, arm rest portions **13** and **14**, a frame structure **15** and a supporting leg structure **16** which is attached adjacent the seat portion **11** to the frame **15**.

As will be noted in Figure 2, and according to one of the principles of the present invention, a metal screening or mesh fabric **17** including relatively movable interwoven strands **18** have been utilized for purposes that will hereafter more fully become apparent.

It will be appreciated that the instant screening may be made of any suitable material such as steel, and may be painted in suitable colors or otherwise finished as desired.

Since the principles of my invention are intimately associated with the manner in which the chair is formed the following description is directed towards the method and apparatus of making same.

A suitable apparatus has been diagrammatically shown in Figure 3 which is adapted to impart to a flat strip of screening a predetermined contoured dished configuration.

To this end a lower female die member or support **19** is shown which may be made out of cast aluminum or other low cost materials as desired. Die member **19** includes a contoured dished hollowed out opening **20** which is adapted to receive therein a male portion of male die member **21** in mated relation with a surface **20a** defining the opening or hollow **20**.

Preferably, the male die member **21** is made of a basket-like rigid material having openings therein at predetermined intervals through which access to the outer periphery of the die member **21** and surface **20a** may be obtained when mated with die member **19**. In carrying out my method it is contemplated that the male die member be formed to a predetermined shape corresponding to the shape intended to be imparted to the strip of screening **17**.

The frame structure **15** includes a continuous outer peripheral frame bar **22** which it is contemplated should be formed to a predetermined configuration corresponding to the shape intended to be imparted to the outer periphery of the chair. The frame structure **15** also includes saddle bars **23** which are of a more or less L-shaped configuration and are adapted to span the seat and back portions **11** and **12** of the chair.

In carrying out the steps of my method the preformed frame bar **22** is initially placed in position upon the female die member **19** being positively located and nested in a slot **24**. After the bar **22** has been placed in position on female die member **19**, saddle bars **23** are carried and supported by die member **19** in predetermined position with respect to dished opening **20**. It will be appreciated that the bars **22** and **23** may be assembled together by welding or the like prior to the positioning of same in female die member **19** if desired.

The next step in my method is to place a strip of screening **17** across the opening **20**. Thereafter male die member **19** is progressively lowered thereby deforming the relatively movable interwoven strands **18** to a predetermined contoured dished configuration corresponding to the configuration of the male die member **19**.

As is shown in Figure 3 it will be noted that the mesh **17** is pressed against the frame structure **15** including frame bar **22** and saddle bars **23**.

At this stage in the operation, the machine operator may utilize suitable welding apparatus to spot weld the screening **17** at predetermined points or intervals to the frame structure **15** while the die members **19** and **21** are still mated. By so doing, the relatively movable strands **18** are precluded from moving out of position which tends to occur when the frame structure **15** is welded to or otherwise assembled with the deformed mesh **17** after they are removed from the die. Thus, by welding the frame structure with the screening while still in the die the intended dished contoured configuration of the screening may be accurately maintained with respect to the frame structure **15** thereby insuring that the mesh fabric **17** evenly engages along the bars **22** and **23**. After the sub-assembly comprising the frame structure **15** and screening **17** have been removed from the die, any strands **18** overlapping the frame bar **22** are thereafter suitably cut and removed. Any of the strands **16** not welded to the frame structure **15** while still in the die may now be attached and secured to the respective bars **22** and **23**.

After the sub-assembly has been completed, the leg structure **16** suitably may be welded or otherwise assembled to the saddle bars **23** in order to complete the chair.

One of the advantages that accrue as a result of employing relatively movable interwoven strands **18** is that the areas subject to the greatest wear and stress, for example, the outer periphery of the mesh fabric **17** along bar **22** and at the arm rest portions **13** and **14** are re-

inforced. This reinforcing action is brought about as a result of the interwoven strands **18** tending to be bent and curved thereby compacting the strands.

While the principles of my invention have been here illustrated in connection with the making of a chair, it will be appreciated that these same principles are applicable to other situations where dished contoured articles are to be formed, for example, in a manikin construction, in a chaise longue construction, and other similar contoured articles.

It will be understood that modifications and variations may be effected without departing from the scope of the novel concepts of the present invention.

I claim as my invention:

1. In a method of forming a contoured dished article of predetermined shape, the steps of forming a relatively rigid open frame substantially determinative of the outline of the article to be formed, supporting said frame generally around the periphery of a dished female die member, laying across said frame and female die member a piece of bendable open mesh screening made up of relatively laterally movable strands, pressing said screening into said female die member by means of a male die member to dish and shape the screening within said female die member and pressing the screening against said frame, while pressing the screening into the female die member relatively displacing the strands of the screening for general conformance to the die contours, and securing portions of said screening to portions of said frame while said male die member holds the screening against said frame to thereby retain the screening in permanently dished contour as imparted thereto by the die members.

2. In a method of forming a contoured dished article, the steps of forming a relatively rigid open frame of a predetermined shape conformable to the outline of the article to be formed, supporting said frame generally around the periphery of a dished female die member having about the dished portion thereof generally outwardly facing contoured surfaces, laying across said frame and female die member a piece of screening made up of relatively laterally movable interwoven strands, pressing said screening into said female die member and over said marginal contoured surfaces to dish and shape the screening generally conformable to the female die member, during such pressing relatively displacing the strands of the screening where they run over said marginal contoured surfaces to substantially bunch the same to a more dense relationship for enhanced rigidity, and securing portions of said screening to portions of said frame to retain the screening permanently in the dished and contoured form imparted thereto by said pressing.

3. In a method of forming a contoured dished article of predetermined shape and substantial finished rigidity, the steps of forming a relatively rigid open frame of predetermined shape and with saddle bars located across and secured at their ends to said frame, the frame and saddle bars generally conforming to a dished female die member, supporting said frame upon the periphery of the die member and with said saddle bars depending ino the die member, laying across said frame and the saddle bars and across the die member a covering piece of open mesh bendable screening made of relatively laterally movable strands, pressing the screening into said die member to conform generally to the contours of the die member and against said frame and saddle bars while relatively displacing the strands of the screening for conformance to the dished contour, and securing portions of the screening to portions of said frame while holding the screening as shaped to contour against said frame and said saddle bars whereby to retain this shaped screening permanently in the dished contour imparted thereto by said pressing.

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