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Thyberg et al.

[11] **3,724,402**

[45] **Apr. 3, 1973**

[54] WEBBED PANEL FOR CHAIRS

[75] Inventors: **Paul D. Thyberg**, St. Paul; **Wallace G. Splettstoeszer**, Watertown, both of Minn.

[73] Assignee: **General Housewares Corp.**, New York, N.Y.

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[21] Appl. No.: **152,071**

[52] **U.S. Cl.**.....**160/371**, 160/DIG. 15, 297/452

[51] **Int. Cl.**.....**A47g 5/00**, E06b 3/30

[58] **Field of Search**.....160/327, 328, 329, 371, DIG. 15, 160/353; 182/138, 139; 272/65, 70.1; 273/26 A; 297/452, 445; 5/186 R, 186 B, 190, 191

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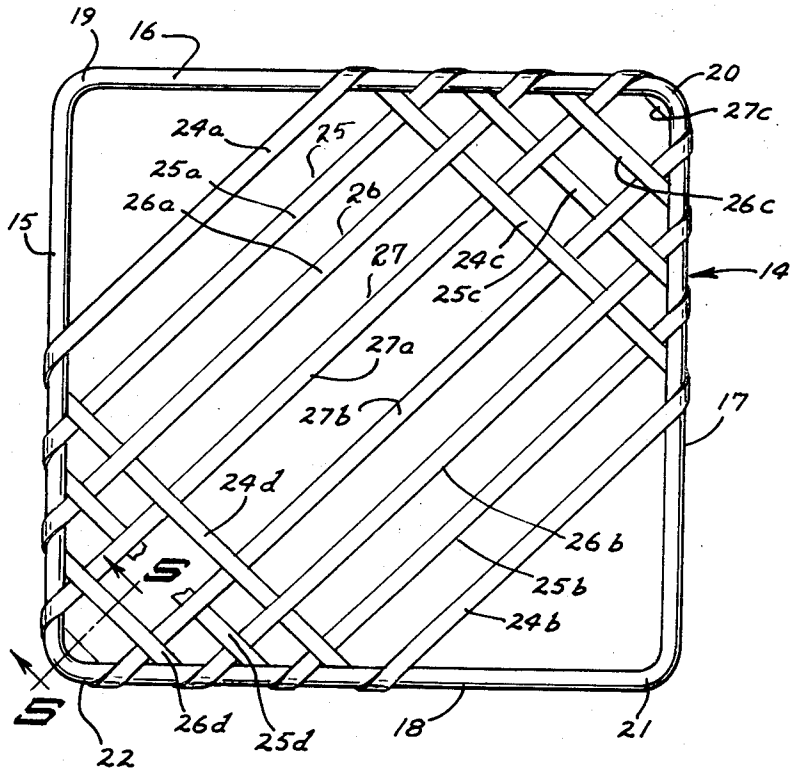
Primary Examiner—Peter M. Caun

Attorney—Carlsen, Carlsen & Sturm

[57] **ABSTRACT**

A panel for use as the seat or back of a lawn chair or the like wherein strands of webbing extend diagonally between portions of a rectangular peripheral frame to provide a flexible surface, the webbing herein comprising closed loops of a uniform and predetermined size which are interwoven with each other and secured to the frame without independent attachment means.

4 Claims, 9 Drawing Figures



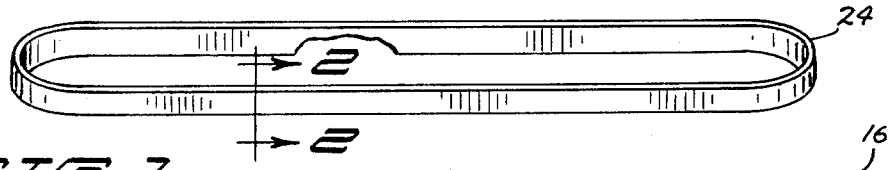


FIG. 1

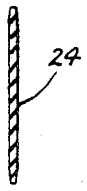


FIG. 2

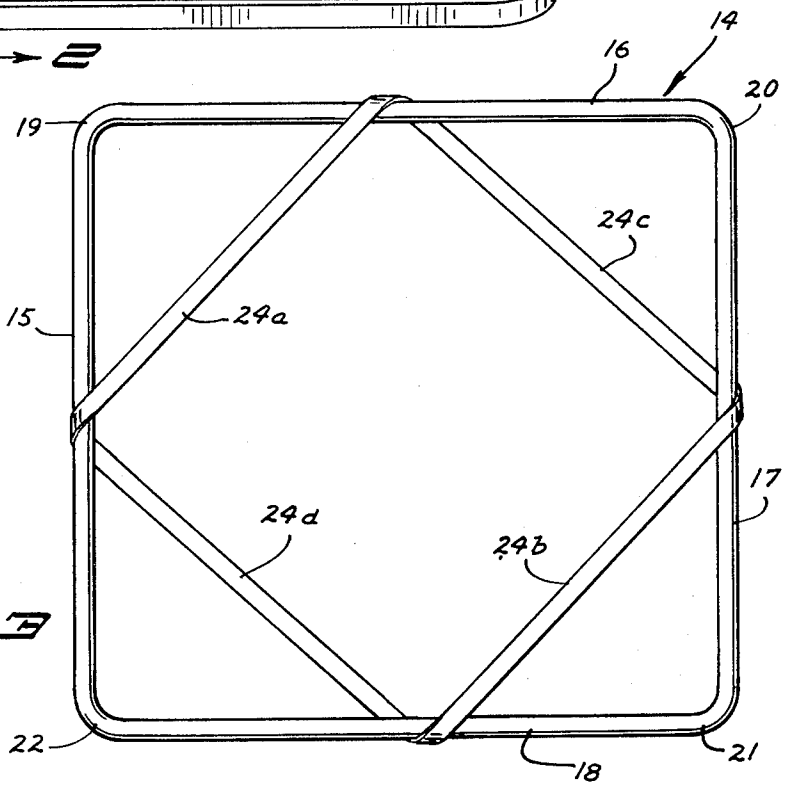


FIG. 3

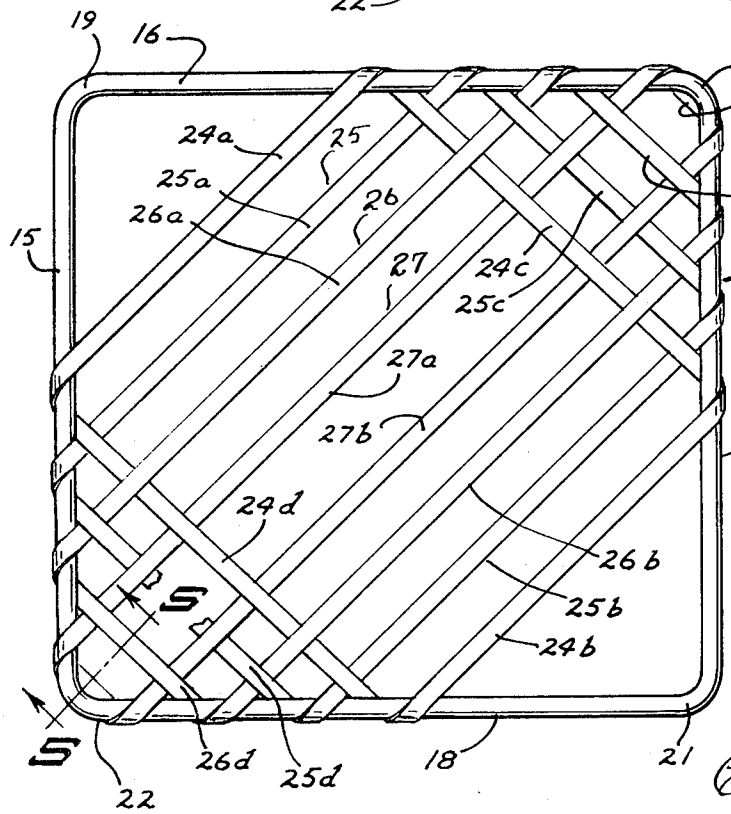


FIG. 4

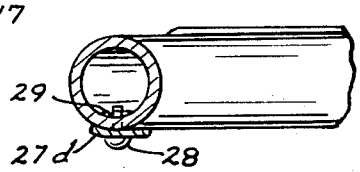


FIG. 5

INVENTORS
PAUL D. THYBERG
WALLACE G. SPLETTSTOESZER
BY
Carlsen, Carlsen & Sturm
ATTORNEYS

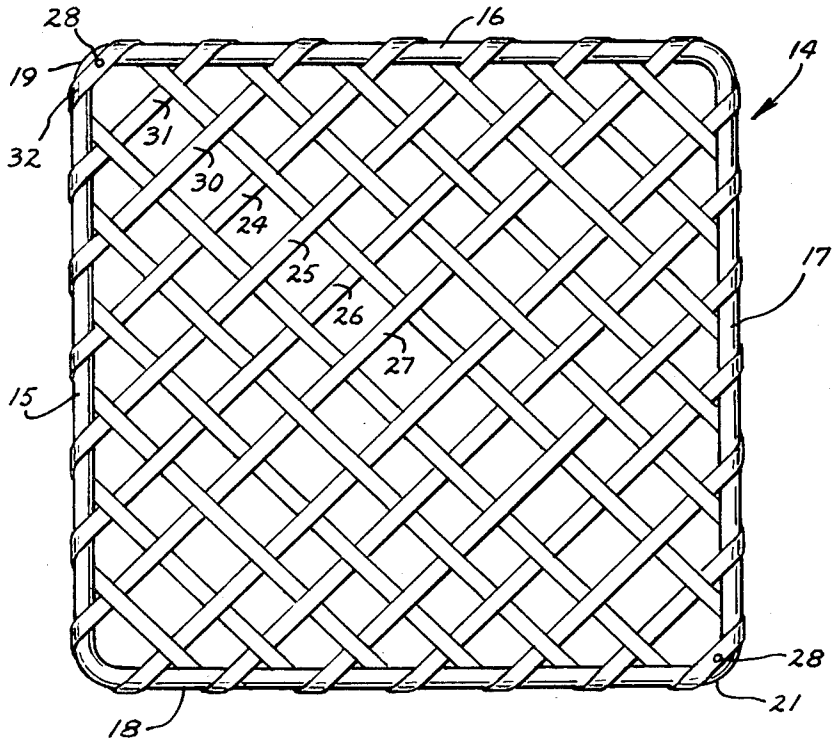


FIG. 6

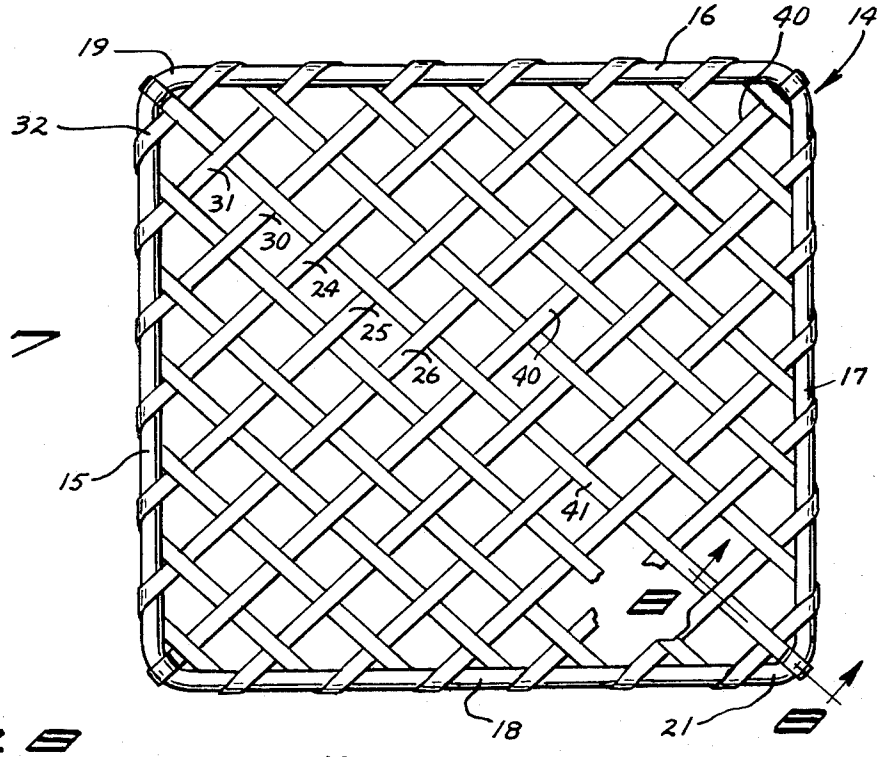
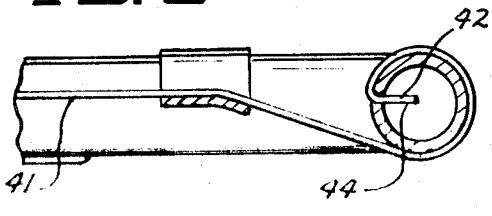


FIG. 7

FIG. 8



INVENTORS
PAUL D. THYBERG
WALLACE G. SPLETTSTOESZER
BY
Carlson, Gaskey & Olds
ATTORNEYS

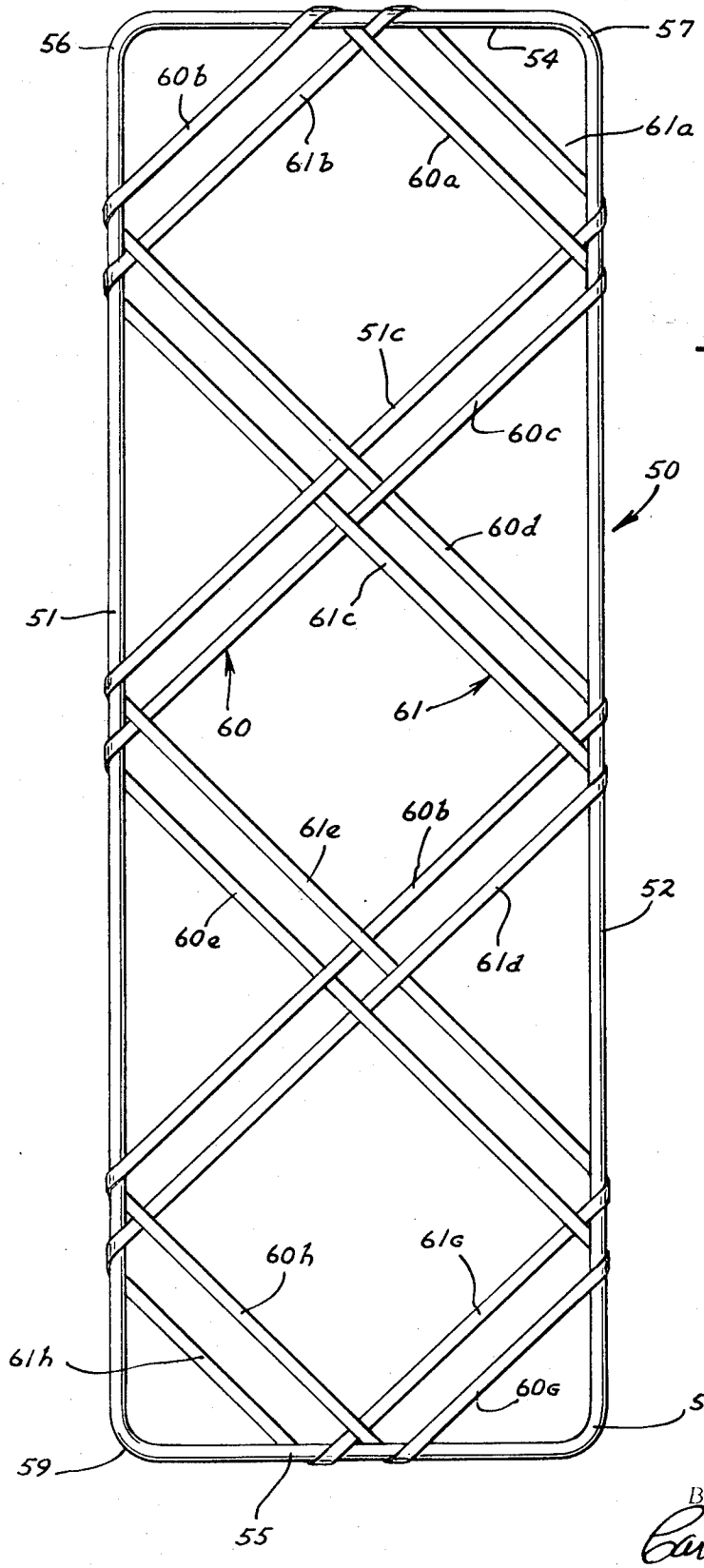


FIG. 9

INVENTORS
PAUL D. THYBERG
WALLACE G. SPLETTSTOESZER
BY
Carlson, Carlson & Sturm
ATTORNEYS

WEBBED PANEL FOR CHAIRS

BACKGROUND OF THE INVENTION

Patio or lawn furniture is frequently constructed of panels each having a generally rectangular metal frame with strips of plastic or fabric webbing interwoven or otherwise extending between portions of the frame.

In one type of construction a single length of flexible material is wound around spaced parallel portions of the frame to form a back or seat rest. In another construction one or more lengths of material are wound back and forth between frame portions and are interwoven with each other. Still another commonly used construction embodies many short straps of webbing material each of which extends only one span between two frame portions with the ends thereof suitably locked to the frame.

Each of these types of webbed furniture require a great deal of labor in the manufacturing process. Moreover, in each case, in the event that any single span of the webbing between frame portions should break from wear or damage, it is very difficult to replace and yet maintain the original appearance of the furniture piece involved. Where a single length of webbing is used for the whole panel, when one strand is broken the entire flexible surface collapses.

SUMMARY OF THE INVENTION

An object of the present invention is to provide a panel for a webbed type patio chair or the like which has the strength and durability of conventional panels and yet which may be assembled at a relatively low cost and repaired quickly and easily by the owner of the chair without special training.

Another object of the invention is to provide a panel for a webbed chair wherein the basic web structure comprises a plurality of webbing members all of which have an identical size and shape and which retain their original position on the framework by reason of their intertwining relation without the use of auxiliary locking means.

Still another object is to provide a chair panel with a webbed flexible surface and wherein it is unnecessary to weaken the panel frame by providing multiple webbing retention slots therein.

With the above mentioned and other objects in view the invention broadly comprises a square or rectangular frame member adapted to serve as the seat or back member of a lawn chair or chaise lounge or the like and a plurality of equal sized loops of flexible resilient material such as plastic stretched over opposing corners of the frame so that the loops form different rectangular shapes with the reaches thereof arranged in a diagonal interwoven manner.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. 1 is a perspective view of a closed loop of the webbing material used in the construction.

FIG. 2 is a section through the loop taken on line 2—2 of FIG. 1.

FIG. 3 is a plan view of a square frame with the first loop applied to its permanent position thereon.

FIG. 4 is similar to FIG. 3 with three additional loops applied thereto during assembly.

FIG. 5 is a section through a corner of the frame taken on line 5—5 of FIG. 4.

FIG. 6 is similar to FIGS. 3 and 4 with the panel in completely assembled condition.

FIG. 7 is similar to FIG. 6 but shows a modified form of the invention.

FIG. 8 is a section through the corner of the frame taken on line 8—8 of FIG. 7.

FIG. 9 is a plan view showing partial assembly of another modified form of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now more particularly to the drawing, reference numerals will be used to denote like parts or structural features in the different views. While a panel constructed in accordance with the invention may have various rectangular shapes the assembly may be more readily explained and understood where the panel is square. Accordingly, in FIGS. 3 through 6 the numeral 14 denotes a square frame of tubular metal such as might be used for the seat or back of a lawn or patio chair. Frame 14 has four equal side bars 15, 16, 17 and 18 connected by rounded corner portions 19, 20, 21 and 22. While the frame is generally square the opposing side bars such as 16 and 18 or 15 and 17 may be slightly curved out of the plane of the frame to give the panel a body conforming curvature as is generally desirable in a chair seat or back.

The webbing providing the flexible surface within the frame 14 is made up of a plurality of identical loops or belts 24 (FIGS. 1 and 2). These loops are formed of a slightly resilient flexible plastic material such as vinyl and may be injection molded or extruded and then cut in sections with the ends welded together to form the continuous loop. The material is flat in cross section, in the same manner as conventional webbing, as shown in FIG. 2.

In assembling a panel the first loop 24 is applied to frame 14 as shown in FIG. 3. This is done by spreading the loop between corners 20 and 22 and then stretching the loop ends downwardly around the corners and then sliding the loop outwardly along the bars 15 to 18 to the substantially square condition shown with the reach 24*a* thereof extending between bars 15 and 16 and parallel reach 24*b* thereof extending between bars 17 and 18. On the underside of the frame reach 24*c* extends between bars 16 and 17 and reach 24*d* extends between bars 15 and 18.

The second loop is denoted at 25. The end portions of this loop are pulled diagonally of the frame 14 under the reaches 24*c* and 24*d* and are then stretched downwardly around corners 20 and 22 and the loop is moved outwardly along bars 15 to 18 to the position shown in FIG. 4 with its reaches 25*a* and *b* parallel to and spaced inwardly from reaches 24*a* and *b* and its reaches 25*c* and *d* parallel to and spaced outwardly from reaches 24*c* and *d*.

The third loop is denoted at 26. One end portion of this loop is placed over reach 24*d*, then threaded under reach 25*d*, then stretched downwardly around frame corner 22. The other end portion is placed over reach 24*c*, then threaded under reach 25*c* and stretched downwardly over frame corner 20 and the loop is moved outwardly along bars 15 to 18 to the position shown in FIG. 4.

The fourth loop is denoted at 27. One end portion of this loop is threaded under reach 24*d*, over reach 25*d*, under reach 26*d* and then stretched downwardly around corner 22 of the frame. The other end portion is threaded under reach 24*c*, over reach 25*c*, under reach 26*c* and stretched downwardly around corner 20, to the position shown in FIG. 4. The corner loop 27 is provided with small fasteners 28 in the end portions 27*c* and *d* which are inserted into apertures 29 (FIG. 5) in the frame corner portions 20 and 22 to hold loop 27 in position.

Loops 30, 31 and 32 are then respectively interwoven into the panel and stretched around the corners 19 and 21 to completely fill the inside of the frame as shown in FIG. 6. The last loop 32 also carries fasteners 28 which are inserted into apertures in the corners 19 and 21.

The completed panel shown in FIG. 6 provides an interwoven webbed section that may be used as a back or a seat in a chair construction. The panel is quickly assembled and can be readily repaired by the chair owner should any one of the loops become worn or damaged.

A significant fact is that each loop when applied to the frame as shown and described geometrically forms the hypotenuse of four right angle isosceles triangles, the other legs of which are formed by the frame bars. Thus while the loops take different rectangular shapes when applied to the frame, the sum of the reaches in each loop span an identical distance. Accordingly, all of the loops are of the same size and may be applied interchangeably.

An alternate form of the invention is shown in FIG. 7. This utilizes the same basic construction with the diagonally intercrossing loops such as 24. However, here only six loops are used rather than seven and single straps are used to connect the diagonally opposing corners. Strap 40 connects corners 20 and 22 while strap 41 connects corners 19 and 21. These straps are secured to the frame as shown in FIG. 8. Slots 42 are provided on the inside surfaces of the rounded frame corners. One end portion 44 of the strap 41 is inserted into slot 42 in corner 21. The strap is then interwoven through the various webbing loops and the opposite end of the strap is stretched around the opposite frame corner 19 and inserted into the slot 42 therein. End portions 44 are retained in the slots by friction. Strap 40 is applied in the same manner.

The advantage in utilizing single straps such as 40 and 41 to finish off the panel is that they achieve a complete interwoven effect throughout the panel which is not accomplished in the structure shown in FIG. 6 where the adjacent parallel reaches of the corner to corner loops must intercross perpendicular reaches on the same side.

The loop type webbing can also be used on panels that are not square as exemplified in FIG. 9. Elongated rectangular panels of this type are frequently used in chaise lounges or cot-type furniture. In this embodiment the rectangular frame is designated generally by the numeral 50 and has elongated side bars 51 and 52 connected by end bars 54 and 55 and corners denoted in a clockwise direction by numerals 56, 57, 58 and 59.

Loop 60 is applied first downwardly over corner 57 leaving reach 60*a* extending between bars 54 and 52. The loop is then pulled downwardly and to the left as viewed in FIG. 9 and downwardly around bar 51 leaving a reach 60*b* extending from bar 54 to bar 51 and reach 60*c* extending from bar 50 to bar 51. Then the loop is pulled from bar 51 downwardly and to the right leaving reaches 60*d* and 60*e* extending between side bars 51 and 52. Then the loop is pulled from bar 52 downwardly around corner 59 leaving reach 60*f* extending between bars 52 and 51, reach 60*g* extending between bars 52 and 55 and reach 60*h* extending between bars 51 and 55.

The next loop 61 is applied by one end thereof pulled downwardly around corner 57 leaving reach 61*a* extending between bars 52 and 54. Loop 61 is then pulled under reaches 60*a* and 60*d* and downwardly around bar 51 leaving reach 61*b* extending from bar 54 to bar 51 and reach 61*c* extending from bar 52 to bar 51. The loop is then pulled downwardly and to the right, as viewed in FIG. 9, from bar 51 and over reaches 60*c* and 60*f* and upwardly around bar 52 leaving reaches 61*d* and 61*e* extending between side bars 51 and 52. Then loop 61 is pulled from side bar 52 under reaches 60*e* and 60*h* and downwardly around corner 59 leaving reach 61*f* extending from bar 52 to bar 51, reach 61*g* extending from bar 52 to bar 55 and reach 61*h* extending from bar 51 to bar 55.

It will be understood that additional loops are then added in the manner described being interwoven with the loops previously installed until the panel is completely filled in. Here as in the previously described embodiments the corner loops may be fastened to the frame or the single straps similar to but longer than straps 40 and 41 may be used for strength and to complete the interwoven pattern.

It will be understood the closed loop webbing construction may be used with rectangular frames of various lengths. However, it is found to be most satisfactory where the length dimension of the frame is substantially even multiples of the frame width.

Having now therefore fully illustrated and described our invention, what we claim to be new and desire to protect by United States Letters Patent is:

1. In a panel presenting a flexible surface for use as a chair seat or the like,

a. a substantially square rigid unitary frame formed of metal tubing,

b. a plurality of closed loops of the same size and of resilient flexible material each being secured around diagonally opposing corners of the frame and being spread at varying distances from the corners into a rectangular shape with the reaches thereof extending diagonally across the frame at a forty-five degree angle to the sides of the frame,

c. the reaches of the loops being interwoven with each other to form a flexible surface within the frame, and

d. fastening means acting between each of the loops located most closely adjacent to a frame corner and said adjacent corner for securing said loop against removal from the frame and thereby securing all of the other loops upon the frame.

2. The subject matter of claim 1 wherein said fastening means comprises a snap fastener on the loop inserted into an aperture in the frame.

3. The subject matter of claim 1 wherein said fastening means comprises intercrossing single straps extending between the frame corners and being interwoven

with each other and the loop reaches which each crosses, and the ends of said straps being connected to the frame corners.

4. The subject matter of claim 3 wherein the end portions of said straps are stretched around the frame corners and inserted into diagonally opposing slots in the frame to form said connection.

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