Feb. 6, 1968 H. GREEN 3,367,392

FURNITURE CONSTRUCTION

Filed April 1, 1965 2 Sheets-Sheet 1

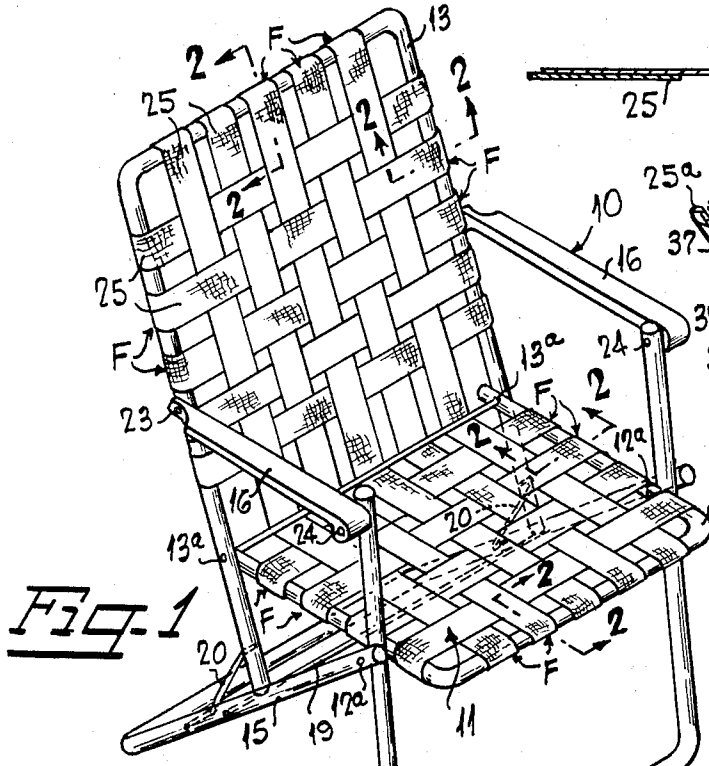


Fig. 1

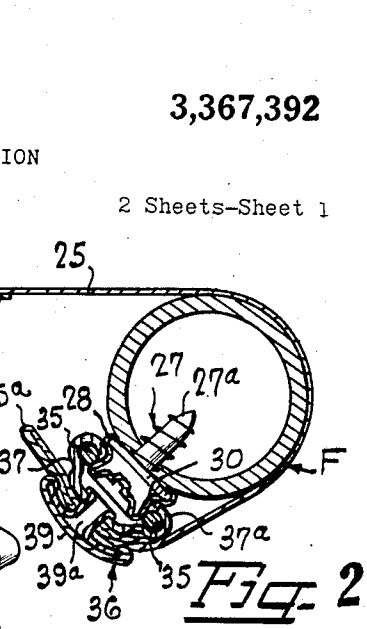


Fig. 2

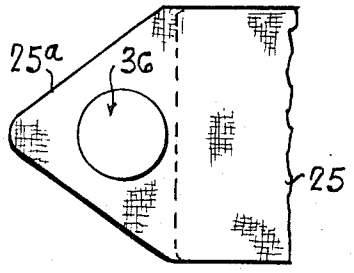


Fig. 5

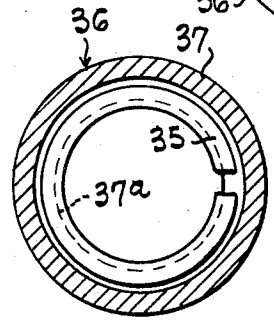


Fig. 4

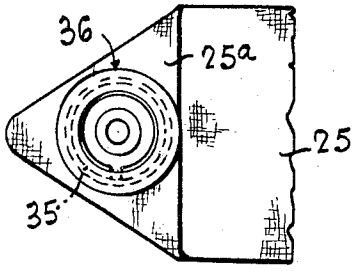


Fig. 6

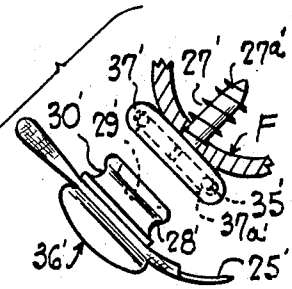


Fig. 7

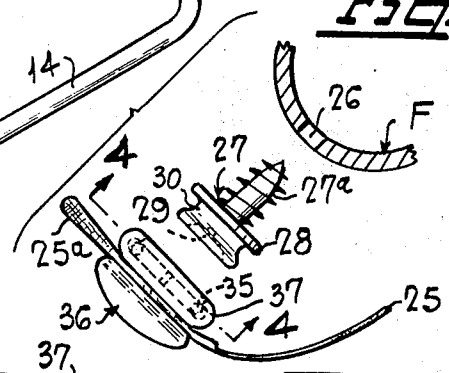


Fig. 3

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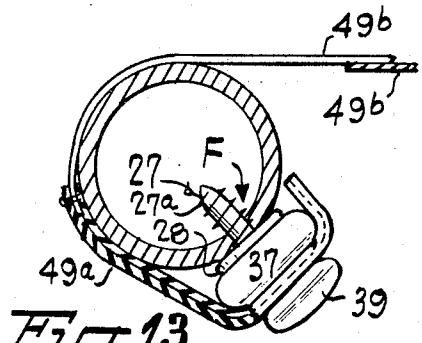


Fig. 13

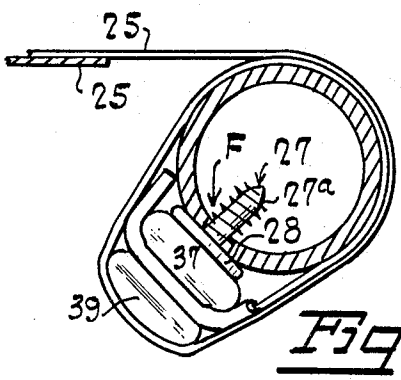


Fig. 8

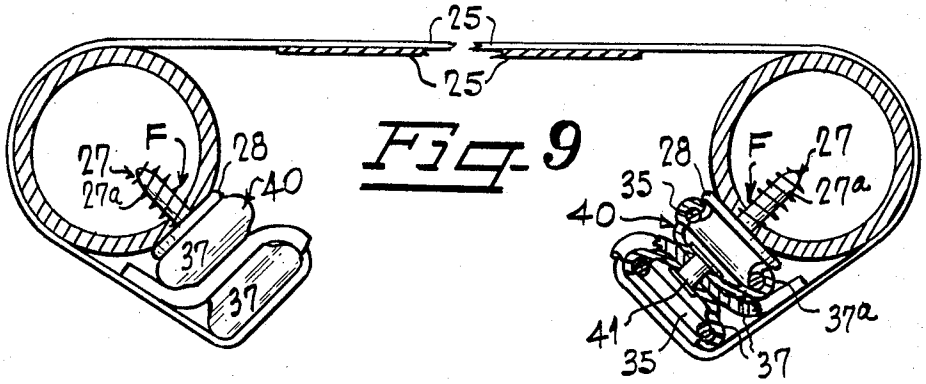


Fig. 9

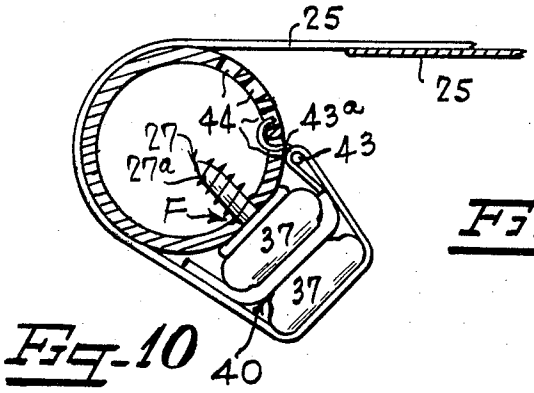


Fig. 10

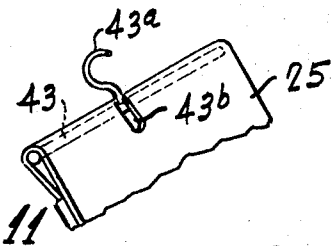


Fig. 11

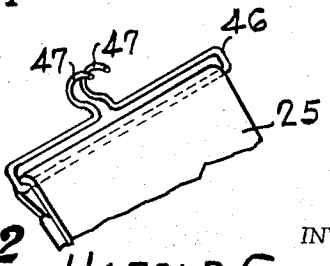


Fig. 12

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3,367,392

FURNITURE CONSTRUCTION

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Filed Apr. 1, 1965, Ser. No. 444,775
2 Claims. (Cl. 160—371)

This invention relates to furniture construction and more especially to an improved assembly composed of a rigid frame or chassis having a flexible cover or panel anchored thereto.

It is an object of this invention to effect substantial savings in time, labor and costs incident to the manufacture, handling and repairing the above-mentioned type of furniture construction. Although my invention is illustrated and described in association with an outdoor chair having detachable seat and back panels made of interwoven straps or webbing, it is to be understood that the invention is equally applicable to other types of furniture and furnishings such as luggage racks, waiter's stands, cots, beds, stretchers, tables, toilet seats and shower screens.

It is another object of invention to provide an assembly of the class described in which a tensioned flexible cover or panel is detachably secured to or over a rigid framework by means of snap fasteners, each of which are connectable and releasable along an axis disposed transversely of the direction of the strap tension whereby the latter is utilized to supplement the normal action of the fastener to hold it in connected position.

It is another object of invention to provide a detachable panel assembly of the above-mentioned type, in combination with take-up means which makes possible the use of a panel or webbing of a specified dimension on some or all of a range of chair frames of lesser dimensions. The take-up means contemplates the elimination of excess panel length or width in varying amounts and as conditions require at the points of connection of the panel to the chair frames.

Some of the objects of invention having been stated, other objects will appear as the description proceeds when taken in connection with the accompanying drawings, in which:

FIGURE 1 is an isometric view of an outdoor chair embodying my invention;

FIGURE 2 is an enlarged sectional view taken along lines 2—2 in FIGURE 1 and illustrating the use of snap fasteners for detachably securing the combined seat and back panel to the rigid chair chassis or framework;

FIGURE 3 is an enlarged exploded view of the parts shown in FIGURE 2;

FIGURE 4 is an enlarged sectional view taken along line 4—4 in FIGURE 3 and illustrating a split spring ring as a part of the female component of the snap fastener;

FIGURE 5 is a top plan view of one end of a strap or webbing with the female component of the snap fastener attached thereto;

FIGURE 6 is a view of the reverse side of the webbing and fastener component shown in FIGURE 5;

FIGURE 7 is an exploded view showing a modified form of the invention in which the positions of the male and female snap fastener components are reversed with respect to the positions occupied in the preceding form of invention;

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FIGURE 8 is a sectional detail view showing a modified form of the invention in which take-up means is provided for eliminating panel slack and thereby making possible the use of a panel of a specified dimension on some or all of a range of chair frames of lesser dimensions;

FIGURE 9 is a cross-sectional detail view illustrating another means for taking up the excess length of the flexible panel;

FIGURE 10 is a sectional detail view illustrating still another means for taking up the excess panel length;

FIGURE 11 is an isometric view of a portion of the flexible panel and associated hook element of FIGURE 10, but in a detached position;

FIGURE 12 is a view similar to FIGURE 11, but showing a different type of hook element; and

FIGURE 13 is a sectional view similar to FIGURE 10 wherein the take-up means consists of an elastic panel section connecting the snap fastener with the marginal edges of a relatively inelastic flexible load-supporting cover or panel.

Referring more particularly to the drawings, the numeral 10 broadly denotes a conventional framework or chassis of a piece of outdoor furniture such as a lawn chair, said chair having a combined seat and back panel 11 detachably secured thereto in accordance with my invention.

Chassis 10 includes seat frame 12, back frame 13, front support frame 14, and rear support frame 15, each of said frames being U-shaped and preferably made from tubular lightweight material. The chassis also includes a pair of arm rests 16.

Frame 12 is pivotally connected to the intermediate portion of frame 13 as at 13*a*. Similarly, the front portion of seat frame 12 is pivotally connected as at 12*a* to the respective back and front frames 14 and 15. When the chair is in erected position the lower ends of the legs of U-shaped frame 13 are adapted to rest upon a horizontal cross rod 19, the latter being supported between the legs of frame 15. A pair of links 20 are pivotally connected to and between the legs of frames 13 and 15. Finally, each arm rest 16 has its opposite ends respectively connected at as 23 and 24 to frames 13 and 14. The above-described pivotal connections render the chair collapsible.

In the drawings the combined seat and back panel 11, as illustrated, consists of a plurality of interwoven flexible straps or web members 25. The present invention however is not confined to such panel construction but may be employed in association with flexible panels composed of a single sheet.

The points of attachment of the marginal edges of flexible panel 11 to the seat and back tubular frames 12 and 13 are designated by the letters F (see section 2—2 and FIGURES 2, 3 and 7). At each point F the tubular frame has a radially disposed perforation 26 therein in which a restricted shank 27*a* of a male snap fastener component 27 is threadably secured, said shank having an enlarged head portion 28 projecting radially outwardly from the tubular frame and in substantial alinement with the axis of the shank. The outer end face of head portion 28 has a groove 29 therein into which the end of a screw driver may be inserted when attaching or detaching the male component.

Head portion 28 also has a peripheral groove 30 there-

in which is adapted to be releasably engaged by a split spring ring 35 of a female snap fastener component 36. When female component 36 is attached to male component 27 as shown in FIGURE 2, the ring 35 is radially expanded at groove 30 to thereby clamp the components together. On the other hand, when the female component is detached as shown in FIGURES 3 and 4, the spring ring 35 returns to its contracted position.

Ring 35 is loosely confined in annular disk 37 of component 36 by means of the inturned outer disk rim 37*a*. The end of webbing or strap 25 is preferably reinforced or overlapped as at 25*a* and then attached to the female component 36 by means of a cap member 39, said cap member having a centrally disposed hollow rivet 39*a* integral therewith penetrating both the strap 25 and the center of disk 37. The projecting end of rivet 39*a* is expanded to thereby securely clamp the overlapped strap end 25*a* beween disk 37 and cap 39.

It should be noted that the male and female snap fastener components, when attached, are axially alined with one another and with a radius of the tubular chair frame at point F. It will be further observed that the plane of strap end 25*a* (FIGURES 2 and 3) is substantially normal to the aforesaid alined members as previously stated, when tension is exerted upon strap 25 and its associated male component, the latter component will laterally react to this tension in the plane of fastener groove 30 to supplement the normal spring action of ring 35 in detachably holding the fastener components together. Moreover, when strap 25 is wound around a portion of the convex periphery of the tubular member as shown in FIGURE 2, the radially inward pull of the strap will further tend to urge the female component 36 inwardly upon the male component to render the connection more secure.

FIGURE 7 shows a modified form of connection which may be employed at points F. Since this modification consists essentially in the reversal of the positions of the male and female snap fastener components as shown in FIGURES 2 and 6, a further description is not deemed necessary. Instead, the parts in FIGURE 7 corresponding to those in FIGURES 2 and 6 will be given the same reference characters with prime notations added.

FIGURES 8 through 13 illustrate several modified forms of the invention in association with webbing or panel take-up means whereby a specified length of detachable panel may be utilized upon a plurality of chair frames having their panel supports respectively spaced at different distances apart.

One method of taking up excess length in the webbing or panel 25 consists in winding or wrapping the excess length around the tubular frame and around the attached snap fastener at point F as shown in FIGURE 8. Thus the webbing is shortened by each wound turn a fixed amount. This method is applicable usually in cases where the above wound turn of the webbing is a multiple of the length of the panel span.

FIGURE 9 illustrates another method of taking up excess webbing length and panel slack wherein the excess length is detachably secured in overlapped position to the chair frame at points F. The end of strap 25 has secured thereto a snap-fastener component 40, said component consisting of a pair of female socket portions 37 respectively positioned on opposite faces of the strap. Stated differently, one female socket 37 is located on the wear or outer face of the webbing and the other socket 37 on the reverse or underside. These disks 37 are integrally secured to one another and the end of strap 25 by means of a connecting rivet 41.

As illustrated in FIGURE 9, the socket 37 on the wear side of the webbing 25 is detachably fastened to the male fastener 27 on the frame and is positioned with the connected webbing end pointing in the opposite direction from the direction assumed in FIGURE 2 where the webbing length is tailored to fit the frame without any adjustment The unfastened socket 37 serves as an arbor for forming a take-up loop in the webbing as more fully described below.

With the end of the attached webbing 25 pointing in the direction shown in FIGURE 9, the intermediate portion of the webbing is folded reversely over the outer female socket 37 on the face of the webbing and wound upon the outer face of the tubular frame as in FIGURE 2. It will be observed that the webbing is shortened a fixed amount substantially equal to the overlap and therefore this method is best suited where the overlap length is a multiple of the panel span length.

It will be further observed that the socket 37 on the under face of the webbing is used in installations where the length of the webbing fits the panel span without adjustment.

In FIGURES 10 and 11 take-up and tensioning means capable of minute adjustment of the panel length is shown. This result is made possible by employing a T-shaped member 43 for varying the length of overlap when the panel or webbing is attached to the tubular frame in the manner shown in FIGURE 9. The member 43 is provided with a hook 43*a* which penetrates a slot 43*b* in the webbing end and in the area of the overlapped excess material, said hook being removably inserted in a selected pair of adjacent perforations 44 spaced in the periphery of the tubular frame at variable distances from the point of attachment of the snap-fastener 27 to said frame. It is evident that the hook 43*a* is inserted in the proper pair of perforations 44 to accommodate the amount of overlap.

Instead of employing T-shaped hook member 43 as shown in FIGURES 10 and 11, the hook member 46 shown in FIGURE 12 may be employed and thereby eliminate the necessity of slitting the webbing end as shown in the former figures. Member 46 is formed from a continuous length of wire having its intermediate portion inserted between the excess overlapping portions of the webbing 25. Each of the opposite ends of the wire is bent around the tape and has a hook 47 formed thereon, said hooks being positioned side-by-side but separable to permit insertion or removal of the webbing.

FIGURE 13 shows a webbing or panel 48 composed of an elastic end portion 49*a* and a relatively inelastic intermediate portion 49*b*. This type of panel may be employed in association with either of the snap-fastener connections described in the preceding forms of invention. The foregoing modification will also permit minute adjustment of the takeup of the excess webbing length so that one particular webbing length will accommodate chair frames whose panel supports are spaced apart at different distances. Although the elastic segment 49*a* is shown adjacent the point of attachment of the webbing to the tubular panel support, it may also be located at an intermediate position. It has been found more advantageous, however, to employ segments 49*a* at webbing ends and positioned against the supports since many elastic fabrics do not possess the desired wearing properties required of those portions or panel areas directly contacted by the occupant of a chair.

In the drawings and specification a preferred embodiment of the invention has been disclosed, and although specific terms are employed they are used in a generic sense and not for the purpose of limitation, the scope of invention being set forth in the following claims.

I claim:

1. Furniture construction comprising a frame having a pair of spaced bar members, a flexible cover transversely spanning the space between and having its opposite end segments respectively extending partially around said members, means for securing one of said end segments to one of said bar members, means including a snap fastener for detachably securing the end portion of the other of said segments to the other of said bar members, the last-named bar member being provided with an aperture circumferentially spaced from said fastener, and cover take-up and tensioning means releasably connecting said other segment and said aperture.

2. Furniture construction as defined in claim 1 wherein said other bar member is provided with additional apertures circumferentially spaced at successively increased distances from said fastener, and wherein said take-up and tensioning means is selectively connectable to said apertures whereby the cover tension may be varied.

References Cited

UNITED STATES PATENTS

1,181,715	5/1916	Acre et al.	160—385 X
2,080,761	5/1937	Crawford.	
2,586,262	2/1952	Robins.	
2,614,630	10/1952	Moszelt	160—368
2,655,707	10/1953	Rubin.	
2,737,232	3/1956	Gruber.	
2,851,303	9/1958	McQueen	160—368
2,884,994	5/1959	Rosalsky	160—404

FOREIGN PATENTS

642,639	9/1950	Great Britain.

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