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	Burton	II.103

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RAPIFAX-RIFAX-INFOTEC FACSIMILE
(212) 867-2216

17 November 1982

Mr. Scott Burton
86 Thompson Street
New York, New York 10012

RE: New U.S. Design Application for CHAIR FRAME, CHAIR BODY AND CHAIR Our Docket: Burton-1
And
Mechanical Application for CHAIR AND FRAME THEREFOR
Our Docket: Burton-2

Dear Scott:

This letter will confirm that your two applications were filed in the U. S. Patent & Trademark Office on 17 November 1982. I am enclosing a conformed copy of each application for your files, together with a copy of my forwarding letter to the U. S. Patent & Trademark Office, submitting the application for filing.

I would like to remind you of various foreign filing deadlines, should you wish to secure foreign patent protection.

First, as to the design application, there is a six(6) month period, expiring 17 May 1983 by which applications, if filed before that date, will bear an effective filing date of 17 November 1982. Securing this effective filing date is important, because of your showing of the chair at the Max Protetch Studio on November 17th. As I explained to you, in most countries of the world, a patent application must have an effective filing date prior to a public disclosure of an invention for there to be valid patent protection. Should you not file corresponding design patent applications by 17 May 1983, valid design patent protection will not be possible in most foreign countries. Canada, however, is an exception. It permits registration of a design so long as it takes place within one(1) year of the first publication of that design in Canada.

As to the mechanical application, the deadline for filing foreign applications is one(1) year from the U. S. filing date, namely, 17 November 1983.

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I remind you of these dates now so that you will have them in mind. I will undertake no foreign filing unless I receive your specific instructions to do so.

Best regards,

Robert Scobey

RS:ab
Encls. Applications w/encls. (2)

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FORM PTO-1082

Case Docket No. BURTON-1

THE COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

Sir:

Transmitted herewith for filing is the ~~xxxxxx~~ DESIGN application of

Inventor: SCOTT BURTON

For: CHAIR FRAME, CHAIR BODY, AND CHAIR

Enclosed are:

[XX] 6 sheets of drawing. (Informal) containing Figs. 1-12.

[ ] An assigrment of the invention to _____

_____

[ ] A certified copy of a _____ application.

[ ] An associate power of attorney.

[XX] A verified statement to establish small entity status under 37 CFR 1.9 and 37 CFR 1.27.

[XX] CITATION OF PRIOR ART (Including references, Catalog and Publication).

The filing fee has been calculated as ~~xbxoxxxbelowx~~ : Small Entity Filing Fee: $62.50

	(Col. 1)	(Col.2)	SMALL ENTITY			OTHER THAN A SMALL ENTITY	
FOR:	NO. FILED	NO. EXTRA	RATE	FEE	OR	RATE	FEE
BASIC FEE				$150	OR		$300
TOTAL CLAIMS	-20=	*	x5=	$	OR	x10=	$
INDEP CLAIMS	-3=	*	x15=	$	OR	x30=	$
[ ] MULTIPLE DEPENDENT CLAIM PRESENTED			+50=	$	OR	+100=	$
			TOTAL	$	OR	TOTAL	$

* If the difference in Col. 1 is less than zero, enter "0" in Col. 2

[ ] Please charge my Deposit Account No. _____ in the amount of $_____. A duplicate copy of this sheet is enclosed.

[XX] A check in the amount of $62.50 to cover the filing fee is enclosed. (No. 1814)

[XX] The Commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to Deposit Account No. 19-0812. A duplicate copy of this sheet is enclosed.

[XX] Any additional filing fees required under 37 CFR 1.16.

[ ] Any patent application processing fees under 37 CFR 1.17.

[ ] The Commissioner is hereby authorized to charge payment of the following fees during the pendency of this application or credit any overpayment to Deposit Account No. _____. A duplicate copy of this sheet is enclosed.

[ ] Any patent application processing fees under 37 CFR 1.17.

[ ] The issue fee set in 37 CFR 1.18 at or before mailing of the Notice of Allowance, pursuant to 37 CFR 1.311(b).

[ ] Any filing fees under 37 CFR 1.16 for presentation of extra claims.

Respectfully submitted,

Robert Scobey - Reg. No. 19838
Attorney for Applicant
261 Madison Avenue-N.Y.,N.Y. 10016
Tele: 212-687-0911

[X] Petition/Specification and Declaration & Power of Attorney

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(SOLE)
Docket Burton-1

P E T I T I O N

TO THE COMMISSIONER OF PATENTS
AND TRADEMARKS

Your petitioner, SCOTT BURTON a citizen of United States of America and a resident of 86 Thompson Street, New York, New York prays that Letters Patent may be granted to him/~~her~~ for the term of fourteen years for the new and original design for CHAIR FRAME, CHAIR BODY, AND CHAIR set forth in the following specification.

S P E C I F I C A T I O N

Be it known that I, SCOTT BURTON have invented a new, original and ornamental design for CHAIR FRAME, CHAIR BODY, AND CHAIR, of which the following is a specification, reference being had to the accompanying drawing(s), forming a part hereof:

Fig. 1 is a perspective view of a chair frame embodying my design.

Figs. 2 to 4 are respectively top, front, and right-side views of the chair frame of Fig. 1.

Fig. 5 is a perspective view of a chair body embodying my design.

Figs. 6, 7, and 8 are respectively top, front, and right-side views of the chair body of Fig. 5.

Fig. 9 is a perspective view of a chair embodying my design, formed from the chair frame of Fig. 1 and the chair body of Fig. 5.

Figs. 10, 11, and 12 are respectively top, front, and right-side views of the chair of Fig. 9.

THE CLAIM

The ornamental design for CHAIR FRAME, CHAIR BODY, AND CHAIR as shown and described.

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DECLARATION AND POWER OF ATTORNEY

SCOTT BURTON, the above-named petitioner, declares that he/~~she~~ is a citizen of the United States of America, and resident of 86 Thompson Street, New York, New York that he/~~she~~ verily believes himself/~~herself~~ to be the original, first and sole inventor of the design for CHAIR FRAME, CHAIR BODY, AND CHAIR described and claimed in the foregoing specification; that he/~~she~~ does not know and does not believe that the same was ever known or used before his/~~her~~ invention thereof, or patented or described in any printed publication in any country before his invention thereof, or more than one year prior to this application, or in public use or on sale in the United States more than one year prior to this application; that said design has not been patented or made the subject of an inventor's certificate in any country foreign to the United States on an application filed by him/~~her~~ or his/~~her~~ legal representatives or assigns more than six months prior to this application; that he/~~she~~ acknowledges his/~~her~~ duty to disclose information of which he/~~she~~ is aware which is material to the examination of this application; and that no application for patent or inventor's certificate on said design has been filed by him/~~her~~ or his/~~her~~ representatives or assigns in any country foreign to the United States except as follows: NONE

And he/~~she~~ hereby appoints, individually and collectively, Robert Scobey (Reg. 19838), Guy W. Shoup (Reg. 26,805), Henry T. Burke (Reg. 18975), Gerard F. Dunne (Reg. 27286), Eliot S. Gerber (Reg. 18115), Douglas W. Wyatt (Reg. 21041) and James W. Badie

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(Reg. 20968), and each c/o Wyatt, Gerber, Shoup, Scobey & Badie of 261 Madison Avenue, New York, New York 10016, telephone 212-687-0911, his/~~her~~ attorneys, each with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to sign the drawings, to receive the patent, and to transact all business in the Patent and Trademark Office connected therewith.

The undersigned petitioner declares further that all statements made herein of his/~~her~~ own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereof.

Date: January 14, 1982 Scott Burton
SCOTT BURTON

Post Office Box: 86 Thompson Street
New York, New York 10012

Residence Address: 86 Thompson Street
New York, New York 10012

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Docket: Burton-1

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS (37 CFR 1.9(f) and 1.27(b) - INDEPENDENT INVENTOR

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled: CHAIR FRAME, CHAIR BODY, AND CHAIR described in

[x] the specification filed herewith
[ ] application serial no._____, filed_____
[ ] patent no._____, issued_____

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

[x] no such person, concern, or organization
[ ] persons, concerns or organizations listed below*

*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

FULL NAME_____
ADDRESS_____
[ ]INDIVIDUAL [ ] SMALL BUSINESS CONCERN [ ] NONPROFIT ORGANIZATION

FULL NAME_____
ADDRESS_____
[ ]INDIVIDUAL [ ] SMALL BUSINESS CONCERN [ ] NONPROFIT ORGANIZATION

FULL NAME_____
ADDRESS_____
[ ] INDIVIDUAL [ ] SMALL BUSINESS CONCERN [ ] NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the appl[illegible] tion, any patent issuing thereon, or any patent to which this verified statement is direct[illegible]

SCOTT BURTON		
NAME OF INVENTOR	NAME OF INVENTOR	NAME OF INVENTOR
Scott Burton		
Signature of Inventor	Signature of Inventor	Signature of Inven
November 14, 1982		
Date	Date	Date

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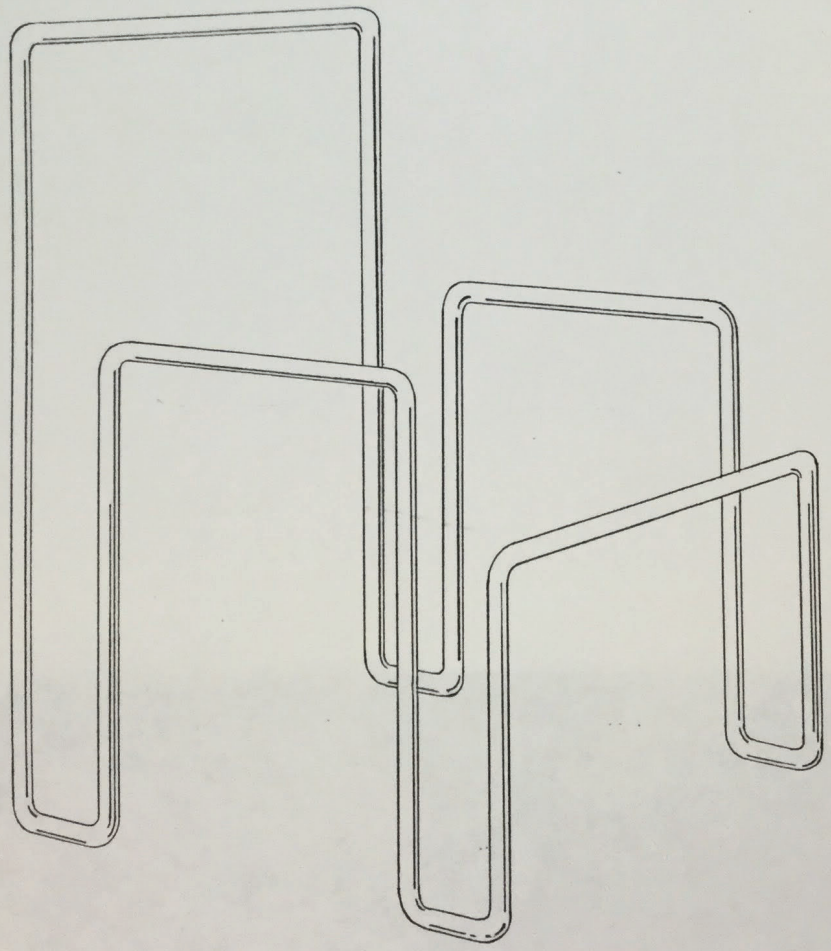


FIG. 1

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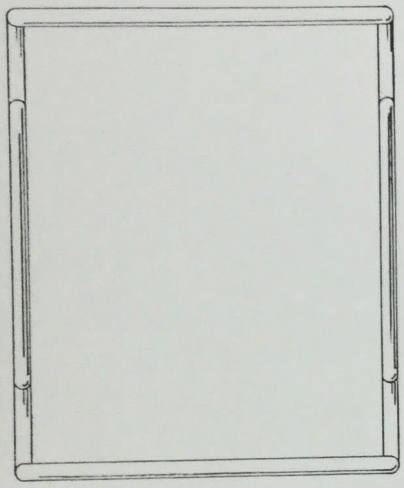


FIG. 2

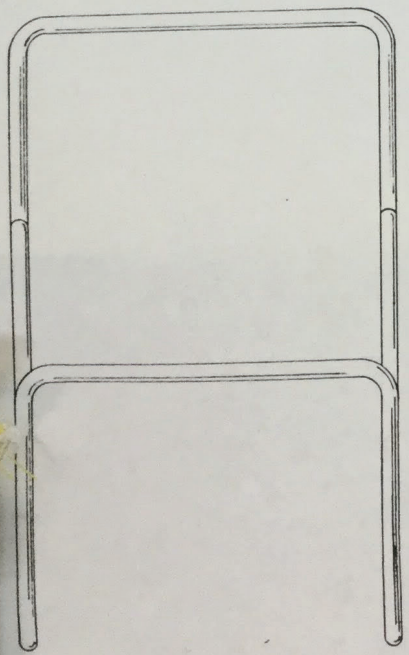


FIG. 3

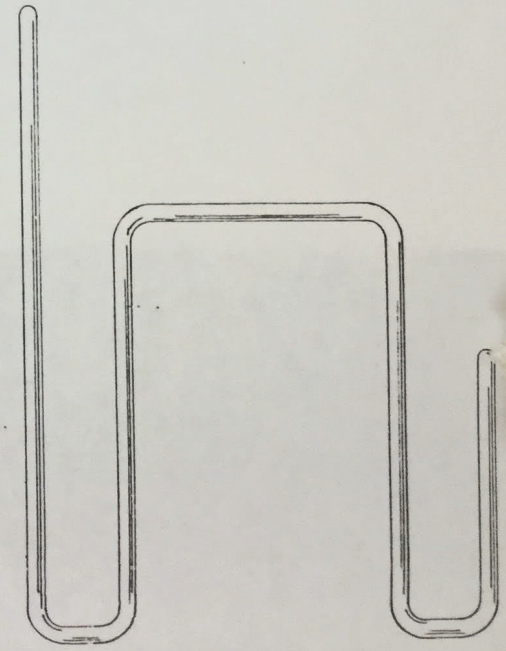


FIG. 4

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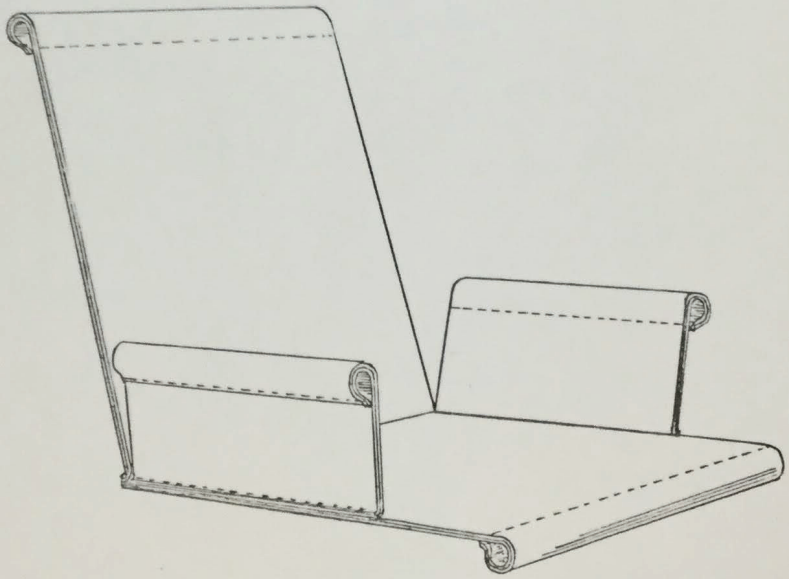


FIG.5

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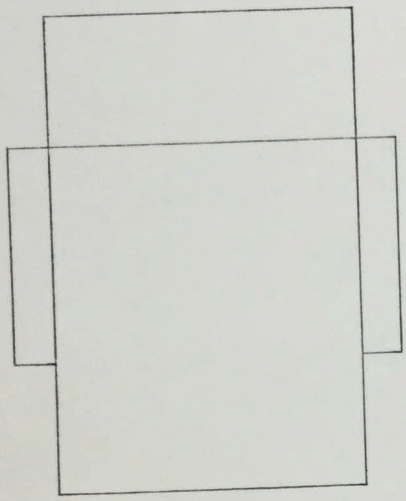


FIG. 6

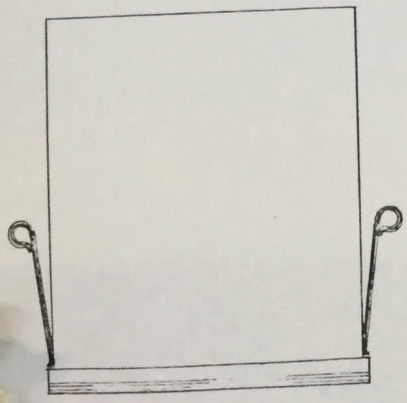


FIG. 7

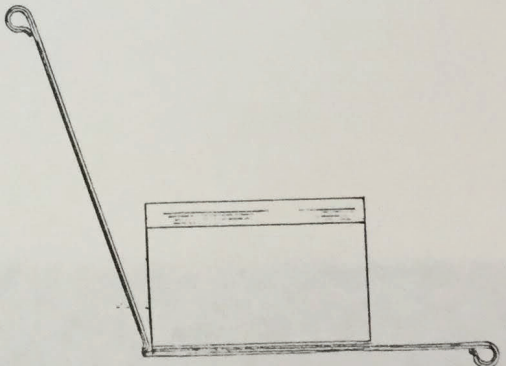


FIG. 8

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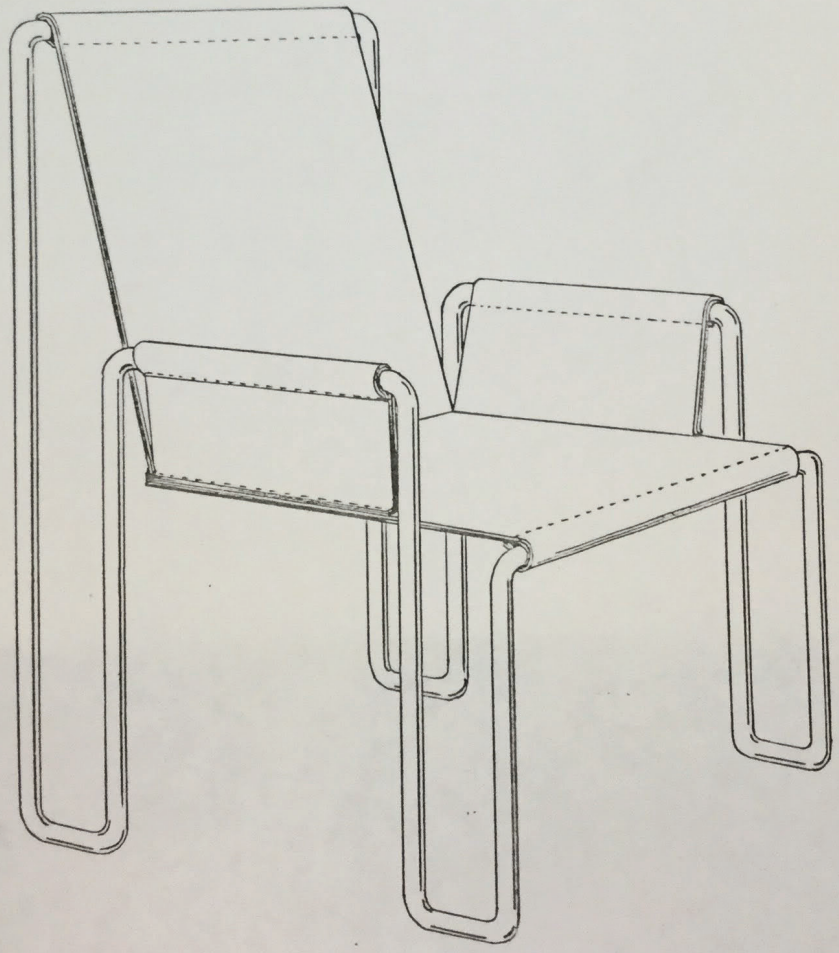


FIG. 9

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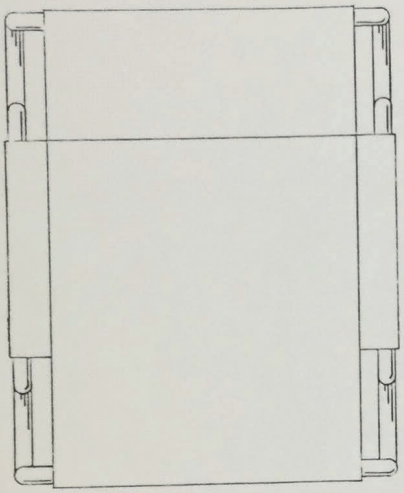


FIG. 10

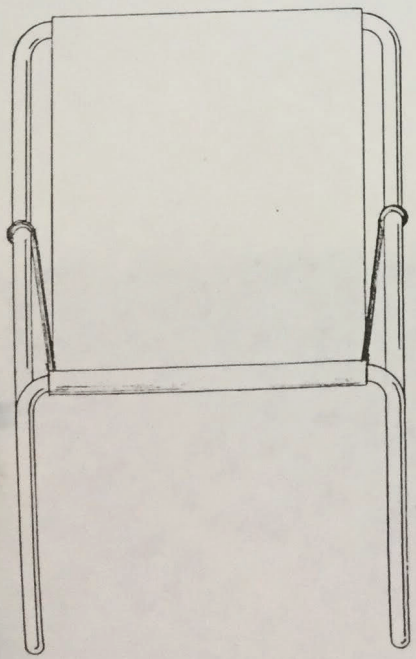


FIG. 11

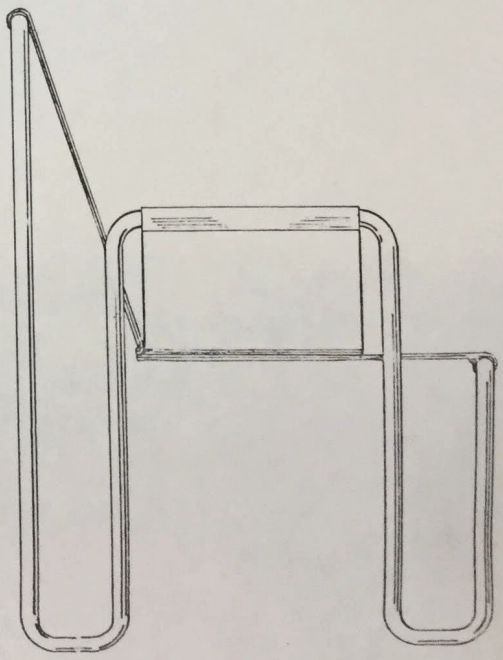


FIG. 12

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Docket: Burton 1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : SCOTT BURTON

Serial No. : Not yet assigned

Filed : Concurrently herewith

For : CHAIR FRAME, CHAIR BODY, AND CHAIR

CITATION OF PRIOR ART

Hon.Commissioner of Patents & Trademarks

Washington, D.C. 20231

Sir:

It is desired to make of record the following references, a copy of each of which is enclosed:

U.S.Patent No.	Applicant	Issue Date
2,150,429	De Sanno,Jr.	03/14/39
2,725,096	Granby	11/29/55
3,471,200	Morrison	10/07/69
3,591,233	Turcksin	07/06/71
D-106,384	Vavrik	10/05/37
D-220,908	Smith	06/15/71
D-233,963	Welton	12/24/74
D-238,030	Welton	12/16/75
D-238,636	Olson et al	02/03/76

Catalog

U.S. CHAIRCRAFT MFG.CORP. Catalog, P.4, Received April 2, 1952, D6-69

Publication

CONTEMPORARY FURNITURE, An International Review Of Modern Furniture, 1950 to the Present, edited by Klaus-Jürgen Sembach, published by Architectural Book Pgblishing Co., New York, New York 10016 (1982), Pages 87 and 89.

The invention is believed to be patentable over the references.

Respectfully submitted,

Robert Seebey

Robert Seebey / Reg. No. 19838
Attorney for Applicant
261 Madison Avenue
New York,New York 10016
Tele: 212-687-0911

16 November 1982

Date

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55-187

Nov. 29, 1955 M. GRANBY 2,725,096

DECK CHAIR CANVAS

Filed Dec. 9, 1953 2 Sheets-Sheet 1

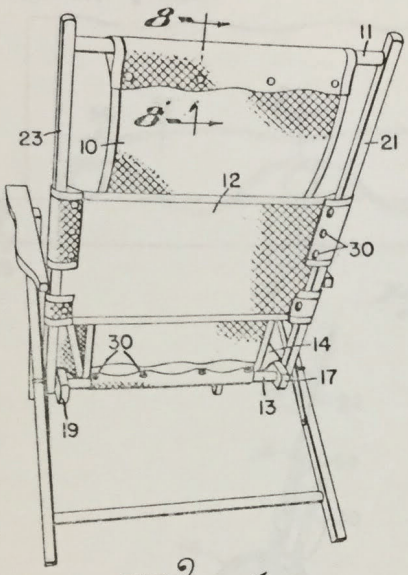


Fig. 1

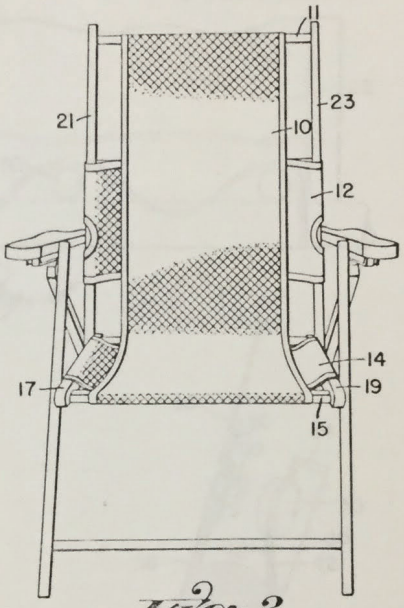


Fig. 2

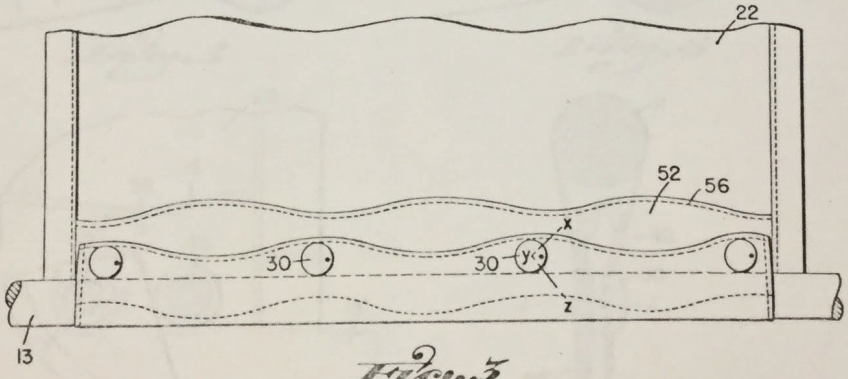


Fig. 3

1094

INVENTOR.
MELVILLE GRANBY

BY
J. Warren Kinney, Jr.
ATTORNEY

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Nov. 29, 1955 M. GRANBY 2,725,096

DECK CHAIR CANVAS

Filed Dec. 9, 1953 2 Sheets-Sheet 2

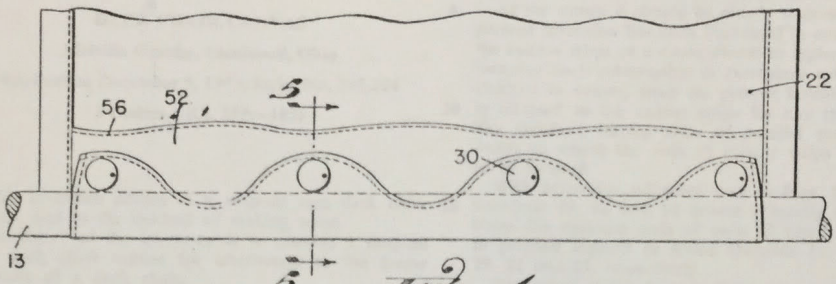


Fig. 4

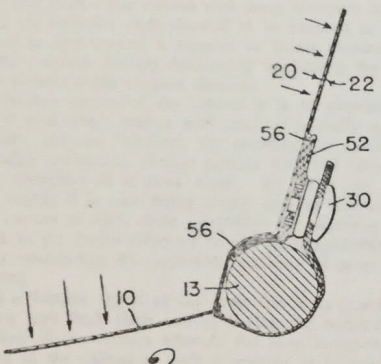


Fig. 5

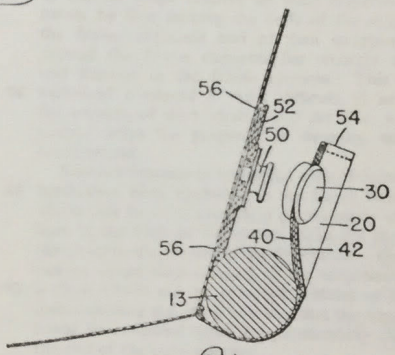


Fig. 6

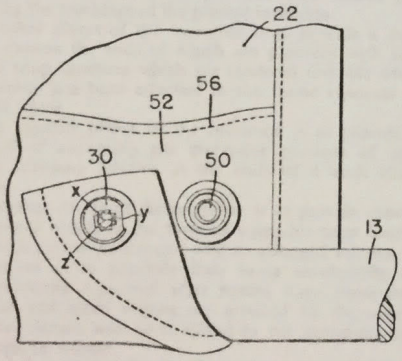


Fig. 7

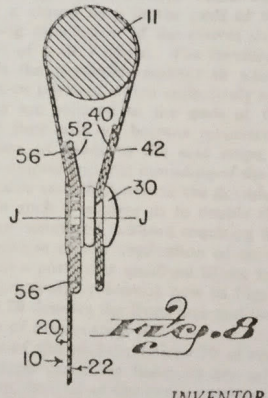


Fig. 8

INVENTOR.
MELVILLE GRANBY

BY
J. Warren Kinney, Jr.
ATTORNEY

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United States Patent Office

2,725,096

Patented Nov. 29, 1955

2,725,096

DECK CHAIR CANVAS

Melville Granby, Cincinnati, Ohio

Application December 9, 1953, Serial No. 397,204

3 Claims. (Cl. 155—187)

This invention relates to a snap-on type deck chair canvas, and to the method of making same.

An object of the invention is to provide a snap-on type deck chair canvas for attachment to the frame elements of a deck chair.

Another object of the invention is to provide lengths of flexible deck chair canvas with snap fasteners for enabling the opposite ends thereof to be secured in loop-fashion to and around a support or frame element for thereby securely though detachably anchoring the ends of the canvas to the support element.

A further object of the invention is to provide the ends of deck chair canvas with rows of laterally spaced separable snap-on fasteners, for enabling the canvas to be readily secured to and/or quickly detached from the frame elements of a deck chair. By using my deck chair canvas it is now but a simple task to replace the worn canvas of deck chair assemblies by attaching new canvas to the frame elements of the chair assembly, by merely connecting the separable portions of snap type fasteners.

Still a further object of the invention is to provide a snap-on type deck chair canvas having the hereinabove described characteristics wherein the snap fasteners are secured to the canvas in such a manner as to preclude said fastener elements from touching the body of a person seated in a deck chair provided with canvas embodying the teachings of the present invention.

Another object of the invention is to provide a deck chair canvas the ends of which are provided with separable snap fasteners which are rendered invisible when the canvas has been attached to the frame elements of a deck chair.

Still another object of the invention is to provide a method of anchoring the respective portions of separable fasteners relative to the ends of a deck chair canvas.

A further object of the invention is to provide canvas attachment means in the form of separable snap fasteners which are so constructed and so arranged relative to the canvas as to preclude their being accidentally or unintentionally separated after having been connected.

These and other objects are attained by the means described herein and as disclosed in the accompanying drawings, in which:

Fig. 1 is a perspective view of the rear of a typical deck chair provided with snap-on type canvas strips embodying the teachings of the present invention.

Fig. 2 is a perspective view of the front of the chair of Fig. 1.

Fig. 3 is an enlarged fragmentary view of the lower end of the chair back as seen in Fig. 1.

Fig. 4 is a view similar to Fig. 3 showing the relationship of the various parts when a load has been applied to the back and seat panels of the chair.

Fig. 5 is a sectional view taken on line 5—5 of Fig. 4.

Fig. 6 is a sectional view similar to Fig. 5 but illustrating the fasteners in separated position.

Fig. 7 is an enlarged fragmentary view of the lower right corner of Fig. 3 showing the snap fastener portions in separated position.

Fig. 8 is a sectional view taken on line 8—8 of Fig. 1.

At the outset it should be clearly understood that the present invention has been illustrated in connection with the canvas strips of a conventional or typical deck chair, however such relationship is exemplary rather than restrictive in nature, since the present invention is equally adapted to the canvas strips for any type of chair-like structure having pairs of parallel supporting elements to which the ends of canvas strips are adapted to be secured.

With particular reference now to Figs. 1 and 2, the numerals 10, 12 and 14 denote generally three canvas strips the opposite ends of each of which are secured to parallel support or frame elements 11, 13, 15, 17, 19, 21 and 23, respectively.

Heretofore it has been customary to secure the ends of canvas strips relative to their respective frame elements by first tacking the ends of the strips directly to the frame elements and of then wrapping the canvas around the frame elements for securely anchoring the end thereof to the frame element. This mode of attachment rendered it most difficult, if not impossible, for owners of deck chairs, and the like, to remove the canvas strips for purposes of cleaning, storage and/or replacement.

Another manner in which the ends of canvas strips have heretofore been anchored to the frame elements of deck chairs has been to provide a permanently closed loop or hem in the ends of the canvas strips for the reception of the structural elements of the deck chair. Quite obviously canvas strips thus secured to the structural elements of a chair could not be removed without at least partially disassembling the chair in order that the support elements could be removed from the permanently closed loops in the end of the canvas strips.

The primary object of the present invention is to provide strips of canvas the ends of which are provided with snap-type separable fasteners which when fastened will provide a closed loop in the ends of the strip, thereby facilitating attachment of the canvas strips to the frame elements of a deck chair. The invention likewise comprehends the particular manner in which the separable elements or portions which collectively comprise the snap fasteners are secured to the ends of the canvas strips whereby they will not become separated incident to the application of loads to the said strips. The invention further comprehends the mounting of the component parts of separable snap fasteners to the flexible canvas strips or panels in such a manner as to enable them to be easily opened or separated, without requiring the use of special tools, incident to the application of an opening pressure applied in a particular quadrant of the snap fasteners.

With particular reference now to Figs. 5, 6 and 8, the numeral 20 denotes the front face and the numeral 22 the rear face of canvas strip 10.

A row of the socket-portions 30 of each of a plurality of snap-type separable fasteners are secured directly to and along the end of the canvas strip with the open part of the socket portion facing outwardly of the rear face 22. In the preferred embodiment of the invention the socket portions 30 extend through the canvas strip and through a reinforcing strip which may, if desired, be formed by folding the end of the strip upon itself as at 40, thence back upon itself as at 42, for thereby providing a reinforced edge, note Fig. 6.

The stud portions 50 of the snap fasteners are secured directly to a reinforcing or carrier strip denoted generally by the numeral 52, said strip preferably comprising four plies of material which may, if desired, be similar to the

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material from which strips 10, 12 and 14 are fabricated.

Carrier strip 52 is permanently fastened to rear face 22 in spaced parallelism with t' nd 54 of the canvas strip such as by means of stitching , enoted generally by the numerals 56. As clearly evident from an inspection of Figs. 5, 6 and 8, no part of the socket portions extends through or is visible through front face 20 of the canvas strip.

With particular reference now to Fig. 3, the broken lines X—Y—Z define a qu. rant of the socket portion 30 of the fastener elements, hich is so constructed and arranged as to effectively re t lateral separation except in response to the applicatio of opposing axial forces in the quadrant defined by the ines X—Y—Z. In other words, the socket and stud p rtions are constructed and arranged whereby to effective resist separation incident to the application of opposing orces in planes at substantial right angles with common axis J—J, see Fig. 8, through the stud and socket portions. The present invention is neither directed to nor concerned with the particular structural details of such fastener means, which are commercially available, being known to the trade as "Lift-A-Dot" type of separable fasteners.

With further reference to Fig. 3, it will be noted that the quadrant defined by broken lines X—Y—Z is bisected by a line normal to the forces applied to the connected portions of the fasteners by a load supported on the front face of the canvas strip. The dot within the apex of quadrant X—Y—Z of Fig. 3 is on a line which bisects said quadrant, said dot indicating the center thereof.

The use of separable fasteners secured to the ends of canvas strips provides quick, easy means for securely anchoring the ends of the strips relative to the frame elements of a chair whereby accidental or unintentional separation of the fastener portions is positively precluded incident to the application of loads onto the canvas strips since, as a matter of fact, the greater the load applied to the canvas strips, the greater will be the force by which the respective socket and stud portions of the individual fasteners are locked together.

The canvas strips may be quickly removed from the chair frame incident to application of a lifting force applied to the socket portions 30 within the quadrant defined, in Fig. 3, by the lines X—Y—Z.

From the foregoing, it will be noted that I have provided simple yet highly effective means for enabling a canvas strip to be quickly secured to and removed from a chair frame by means of separable snap fasteners secured to the ends of the strips as heretofore indicated.

What is claimed is:

1. In a deck chair having a pair of spaced, parallel frame uprights connected at one end by an upper horizontal frame member and at the other end by a lower horizontal frame member to provide a back rest framework, a pair of horizontal side members extending forwardly from the lower ends of said uprights, a forward frame member interconnecting the forward ends of said side members to define therewith a seat framework, a length of canvas adapted to extend between said upper frame member and said forward frame member and having a medial portion adapted to be disposed adjacent said lower frame member to provide a seat and back rest, each end of the canvas having a row of socket portions of a plurality of snap-type fasteners secured thereto and a row of stud portions secured thereto in spaced relation to the socket portions, the marginal end portions of the canvas being adapted to be looped about the associated upper and forward frame members with the studs engaged in the sockets to firmly secure such end portions to the stated frame member, and a strip of material secured along one longitudinal edge to said medial portion of the canvas and adapted to be looped about said lower frame member, said strip and said medial portion having cooperable snap-type fastener portions secured thereto and interengaged with each other to firmly secure said medial portion to the lower frame member.

2. In a deck chair as defined in claim 1, a second length of canvas adapted to extend between said uprights and transversely behind the first mentioned length of canvas, each end of the second canvas having a row of socket portions of a plurality of snap-type fasteners secured thereto and a row of stud portions secured thereto in spaced relation to the socket portions, the marginal end portions of the second canvas being adapted to be looped about the associated uprights with the studs engaged in the sockets to firmly secure such end portions to the stated uprights.

3. In a deck chair as defined in claim 2, a third length of canvas adapted to extend between said horizontal side members and transversely beneath the first mentioned canvas, each end of the third canvas having a row of socket portions of a plurality of snap-type fasteners secured thereto and a row of stud portions secured thereto in spaced relation to the socket portion, the marginal end portions of the third canvas being adapted to be looped about the associated side members with the studs engaged in the sockets to firmly secure such end portions to the stated side members.

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1,815,836	Deal	July 21, 1931
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10634

Oct. 5, 1937. L. VAVRIK Des. 106,384

CHAIR

Filed Aug. 23, 1937

Fig. 1.

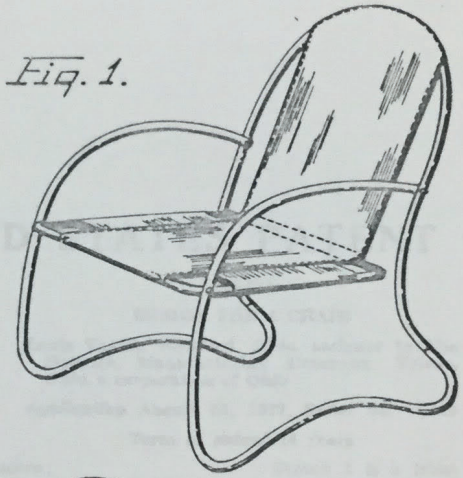
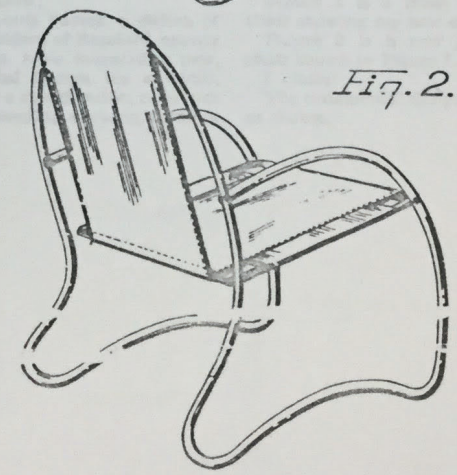


Fig. 2.



Inventor
Louis Vavrik

Malcolm M. Fraser

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Patented Oct. 5, 1937

Des. 106,384

UNITED STATES PATENT OFFICE

106,384

DESIGN FOR A CHAIR

Louis Vavrik, Rossford, Ohio, assignor to The Hettrick Manufacturing Company, Toledo, Ohio, a corporation of Ohio

Application August 23, 1937, Serial No. 71,249

Term of patent 14 years

To all whom it may concern:

Be it known that I, Louis Vavrik, a citizen of the United States and resident of Rossford, county of Wood, State of Ohio, have invented a new, original, and ornamental Design for a Chair, of which the following is a specification, reference being had to the accompanying drawing, forming a part thereof.

Figure 1 is a front perspective view of the chair showing my new design; and

Figure 2 is a rear perspective view of the chair shown in Figure 1.

I claim:

The ornamental design for a chair substantially as shown.

LOUIS VAVRIK.

106384

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United States Patent

Des. 238,636
Patented Feb. 3, 1976

238,636

CHAIR

Ogden R. Olson and Roy E. Knoedler, Columbus, Ind., assignors to Cosco, Inc., Columbus, Ind.

Filed July 29, 1974, Ser. No. 492,505

Term of patent 14 years

Int. Cl. D6—01

U.S. Cl. D6—67

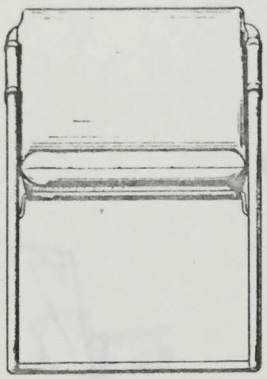


Fig. 1

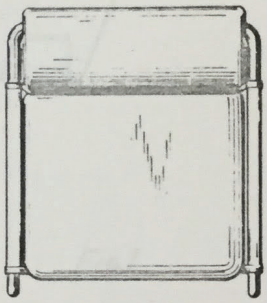


Fig. 3

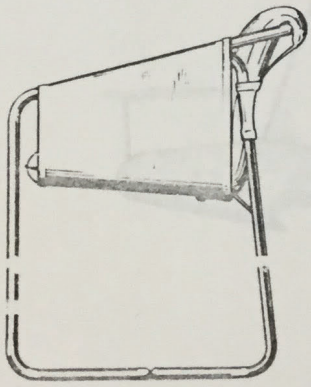


Fig. 2

FIG. 1 is a front elevation of a chair showing our new design;

FIG. 2 is a side elevation thereof; and

FIG. 3 is a top plan view thereof.

The side not shown in FIG. 2 is a mirror image of the side shown while the undisclosed rear is conventional.

We claim:

The ornamental design for a chair, as shown and described.

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Industrial Design, October 1965, p. 55, bottom left.

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BRUCE W. DUNKINS, Primary Examiner

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United States Patent

Des. 238,030
Patented Dec. 16, 1975

238,030

STACKABLE CHAIR BODY

Gerry D. Welton, 910 E. Tripp, Peoria, Ill. 61603

Filed May 1, 1973, Ser. No. 356,107

Term of patent 14 years

Int. Cl. D6—06

U.S. Cl. D6—197

FIG. 3

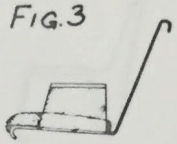


FIG. 2

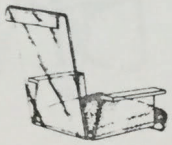


FIG. 1

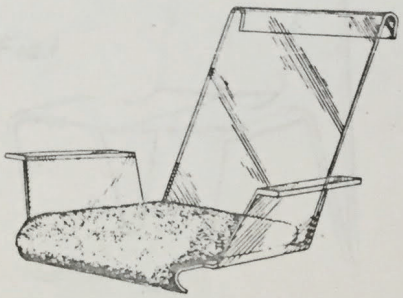


FIG. 1 is a front perspective view of a stackable chair body embodying my new design.

FIG. 2 is a rear perspective view of the stackable body shown in FIG. 1.

FIG. 3 is a side elevation of the stackable chair body shown in FIG. 1 and FIG. 2.

I claim:

The ornamental design for stackable chair body, as shown.

References Cited

UNITED STATES PATENTS

D. 174,503	4/1955	Kolb et al.	D6—67
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BRUCE W. DUNKINS Primary Examiner

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United States Patent Office

Des. 233,963
Patented Dec. 24, 1974

233,963

T-SLING CHAIR

Gerry D. Welton, 910 E. Tripp, Peoria, Ill. 61603
Filed May 1, 1973, Ser. No. 356,104

Term of patent 14 years

Int. Cl. D6—01

U.S. Cl. D6—55

FIG. 3

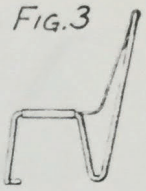


FIG. 2

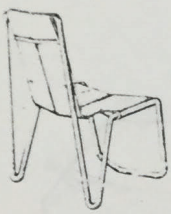


FIG. 1

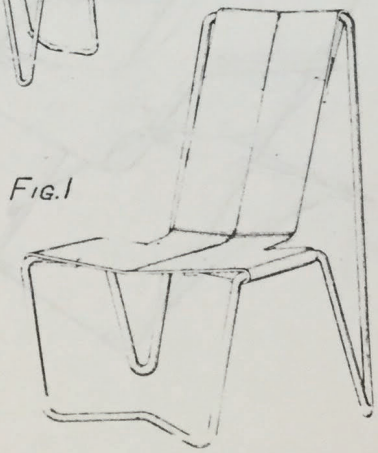


FIG. 1 is a front perspective view of a T-sling chair embodying my new design.

FIG. 2 is a rear perspective view of the T-sling chair shown in FIG. 1.

FIG. 3 is a side elevation of the T-sling chair shown in FIG. 1 and FIG. 2.

The ornamental design for T[illegible]

References Cited

UNITED STATES PATENTS

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House & Garden, April 1957, p. 122, chair top right by Landes Mfg. Co.

Interiors, October 1965, p. 73, chair top right.

BRUCE W. DUNKINS, Primary Examiner

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United States Patent Office

Des. 220,908
Patented June 15, 1971

220,908

FOLDING CHAIR

Alexander Ralph Smith, East Molesey, England, assignor to Unique Mail Order Company Limited, East Molesey, Surrey, England

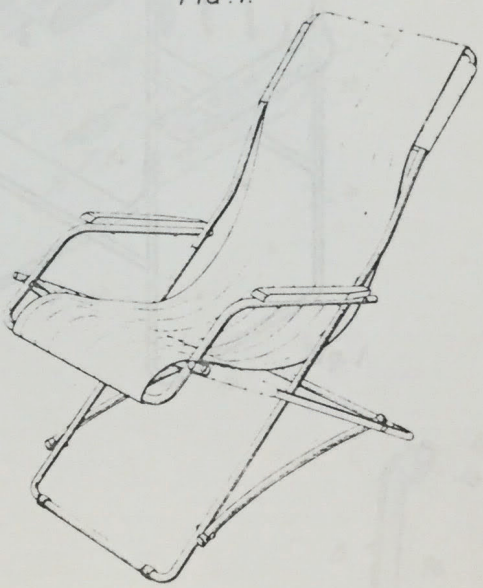
Filed Nov. 28, 1969, Ser. No. 20,299

Term of patent 14 years

Int. Cl. D6—*01*

U.S. Cl. D15—11

FIG. 1.



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CROSS REFERENCE SEARCH ROOM

March 14, 1939. A. P. DE SANNO, JR 2,150,429

CHAIR

Filed Sept. 11, 1937

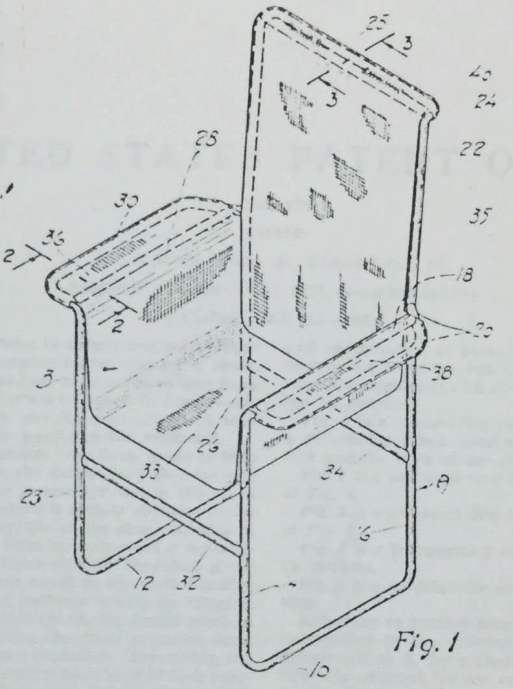


Fig. 1

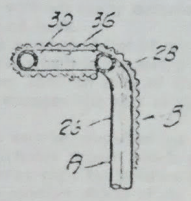


Fig. 2

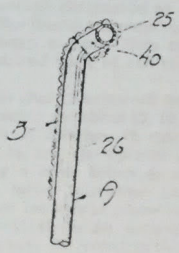


Fig. 3

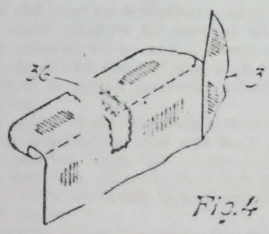


Fig. 4

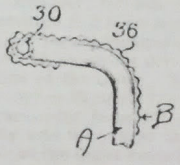


Fig. 5

INVENTOR.
Albert P. de Sanno Jr.

BY Harry Langsam
ATTORNEY.

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Patented Mar 14, 1939

2,150,429

UNITED STATES PATENT OFFICE

2,150,429

CHAIR

Albert P. de Sanno, Jr., Philadelphia, Pa.

Application September 11, 1937, Serial No. 163,311

3 Claims. (Cl. 155—187)

My invention relates to a chair and relates particularly to a detachable fabric seat for a chair.

Heretofore, chairs have been made so they have a flexible fabric attached to the chair framework, but the framework usually is arranged so that it directly bears the weight of the occupant.

Lawn and deck chairs have been made so they are foldable; hence, the entire chair may be carried from one place to another, but in the event of rain, the entire chair is usually exposed to the elements. To carry the entire chair indoors in order to prevent it from becoming wet is both inconvenient and at times difficult, therefore if the fabric covering alone could be removed a saving in convenience and patience would be effected. Heretofore, detachable covers for chairs wherein the cover alone carries the chair occupant have not been commercially exploited. Invariably, the suggested prior art devices have been of such complex construction that a very long period of time must be expended in attaching or detaching the fabric cover to the framework of the chair.

It is an object of my invention to provide a chair with an easily detachable combined fabric seat and back.

It is another object of my invention to provide a fabric which is supported by the chair in such manner that no part of the framework of the chair engages the seat or the back of the occupant.

It is another object of my invention to provide a detachable fabric which does not utilize any clamps or clips for holding it to the framework.

It is another object of my invention to provide an improved chair, or the like, in which the fabric, canvas, or other material forming the seat is detachable from the frame.

Another object of my invention is to provide an improved chair adapted for outdoor use which includes a suitable frame and a fabric covering or the like providing the seat and back rest constructed so as to permit an easily attached and taut covering.

Another object of my invention is that the fabric covering defining the seat and back rest are wholly suspended from the supporting frame whereby a fettering action in the chair does not permit the chair occupant from contacting the supporting frame.

Other objects of my invention are to provide an improved device of the character described of simple and economical construction and which possesses a maximum amount of serviceability.

With the above and related objects in view, my invention consists in the details of construction and combination of parts, as will be more fully understood from the following description, when read in conjunction with the accompanying drawing in which:

Fig. 1 is a perspective view of a chair having a detachable fabric covering which defines the seat and the back of the chair.

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1.

Fig. 4 is a fragmentary view of one of the fabric pockets.

Fig. 5 is a modification of an arm of my invention.

Referring in greater detail to my invention as exemplified in the drawing, a frame, generally designated as A, for a chair which is more particularly adapted for use outdoors, such as in a porch, a deck, a lawn, or garden chair, has a fabric covering, generally designated as B, attached to the frame. The frame A is constructed so that there are no sharp corners, thus the covering forming the seat and back of the chair will not wrinkle or bind.

The base of the chair framework includes suitable ground engaging members 10, 12. From the ends of the ground member 10 extend vertical uprights 14 and 16, and the upright rods 14 and 16 are joined by a cross brace or side or arm member 18 the latter providing an arm rest. Within the same horizontal plane of the cross brace or arm rest 18 is an outwardly spaced cross arm 20; hence, the construction hereinbefore described provides an arm rest of two closely spaced parallel cross-arms or side members 18 and 20. However, the innermost cross-arm 18 may be omitted if it is desired to provide greater lateral space for the occupant's arm, as in those cases where the occupant does not wish to engage any portion of the frame. The rear upright 16 continues upwardly above the arm rest, and then turns rearwardly from 22, the rod continues rearwardly and then turns at right angles as at 24 to serve as the upper cross-brace of the framework.

I have hereinbefore described the right-hand side of the framework, as Fig. 1 is viewed, and I shall now describe the left-hand side of the framework which is complementary to the right-hand side of the frame. From the ends of the left-hand ground member 12 extend the vertical upright rods 23, 26 which are arranged similarly to the uprights 14, 16 respectively. Two spaced arm rests or side members 28 and 30 are ar-

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ranged similarly to the left hand arm rests 18 and 20. The inside arm 28, like arm 18 may be optionally omitted or used.

A lower cross brace 32 joins the front vertical uprights 14 and 23 but the brace is located so that the occupant of the chair does not sag enough to bodily engage the brace. A lower cross brace 34 joins the rear vertical uprights 16 and 26 and is also located out of contact with the seat covering.

The fabric covering B which defines the seat 33 and the back 35 of the chair is constructed of suitable sturdy material, and is easily and rapidly attachable or detachable from the frame A. The seat also has side portions extending from the seat and back portions of the covering. The fabric has three pockets 36, 38 and 40 therein. The pockets 36 and 38 being on each side of the fabric to slip over the rods 30 and 20, respectively, and the pocket 40 slips over the upper cross member 25 (Figs. 1 and 3). Hence, an occupant of the chair may comfortably sit and lean against the back without engaging any hard or rigid members constituting the chair frame. Even if a small tectering action is established by the occupant of the chair the fulcrum points of support do not rigidly hold the fabric in position and still none of the chair framework is engaged. Thus, the chair is strong, durable and extremely comfortable to the occupant.

Each fabric pocket is formed by overlapping a portion of the fabric, at the place where the pocket is to be formed and then stitching the side edges together. With this arrangement of the pockets in the fabric, the latter may be easily slipped off or on the frame and any tension imposed upon the seat 33 or the back 35 will not result in the fabric B either slipping or wrinkling but will enable the fabric to be drawn taut.

The sewing o overlapping portions of the fabric covering B t form retaining pockets disposes of all metallic detachable means which otherwise may rust or rip through the fabric; straps and holding tapes are likewise unnecessary in my invention. The single construction of the fabric covering nd its ease of attachment and detachment ma s it easy to wash and launder.

The frame A, ustrated in Fig. 1 and herein-before describe s of tubular construction but any other suita frame construction may be employed.

Although my vention has been described in considerable det , such description is intended as illustrative ra r than limiting, since the invention may be variously embodied, and the scope of the invention is to be determined as claimed.

I claim as my invention:

1. A chair comprising a frame, said frame consisting of spaced interconnected side members, a portion of the frame being adapted to engage the ground, a horizontally extending arm member connected to each side member at the height of an arm rest and extending laterally outwardly from said side member, a rear upright on each side member extending above the arm rest member, a cross brace connected to the upper ends of each of the rear uprights and extending rearwardly of said rear uprights, a fabric covering defining the seat and back of said chair and having side portions extending from said seat and back, and a plurality of pockets in the fabric, said pockets complementarily receiving the laterally extending arm members and the upper cross brace whereby the occupant of the chair will be swingably suspended in the lower portion of the covering, said pockets being easily and rapidly removable from the interfitting portions of the frame.

2. A chair comprising a frame having spaced connected side members, each side member comprising a ground engaging member, a front and a rear upright rod connected to the ground engaging member, a single member connected to said uprights at the height of an arm rest and extending laterally outwardly from said uprights, a cross brace connected to the upper ends of the rear uprights of both side members, said upper cross brace extending rearwardly of said rear uprights, a fabric covering defining the seat and back of said chair and having side portions extending upwardly from said seat and back, a plurality of pockets in said fabric, said pockets complementarily receiving the laterally extending members and the upper cross brace whereby the occupant of the chair will be swingably suspended in the lower portion of the covering.

3. A chair comprising a frame, said frame having a plurality of vertically extending side members arranged to form opposite side members, a horizontally extending arm member connected to each of the vertical members comprising one side member, and said arm member extending laterally outwardly from said side member at about the height of an arm rest, the rear vertically extending members extending above the arm members, a cross brace extending rearwardly and joining the upper ends of said rear members, a fabric covering defining the seat and the back of said chair, a plurality of pockets in said fabric, said pockets complementarily receiving the horizontally extending arm members and the cross brace whereby the occupant of the chair will be pivotally suspended in said covering, and said pockets being detachably suspended from the interfitting portion of the frame.

ALBERT P. DE SANNO, JR.

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07-06-71 XR 3,591,233

United States Patent

[11] 3,591,233

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[45] Patented July 6, 1971
[32] Priority June 17, 1968
[33] Austria
[31] A5794/68

[54] ARTICLE OF FURNITURE
11 Claims, 12 Drawing Figs.

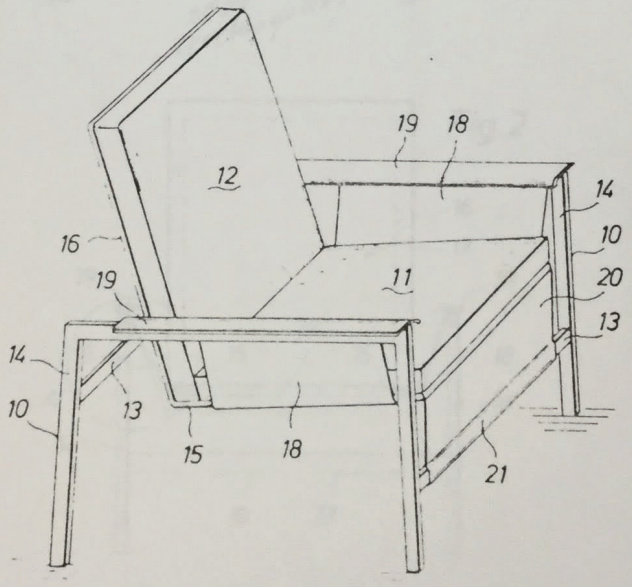
[52] U.S. Cl. 297/276, 297/282, 297/452
[51] Int. Cl. A47c 3/025
[50] Field of Search 297/445, 452, 441, 281, 273, 276, 282

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Primary Examiner – Reinaldo P Machado
Attorney – Richard G Stephens

ABSTRACT: An article of furniture, such as a chair, comprising: a base frame formed from at least two spaced-apart side sections interconnected by at least one cross-strut; at least one back and seat unit universally displaceable between said side sections by the suspension of said back and seat unit between said side sections by means of at least one elastic sheet secured at at least one end to at least one side section and being in supporting engagement with said back and seat unit and optionally provided with an elastic retaining strip securable at one end to said back seat unit and at its other end to a cross-strut in the front region of said base frame so as to limit the rising movement of the front of said back and seat unit when loaded.



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SHEET 1 OF 5

Fig.1

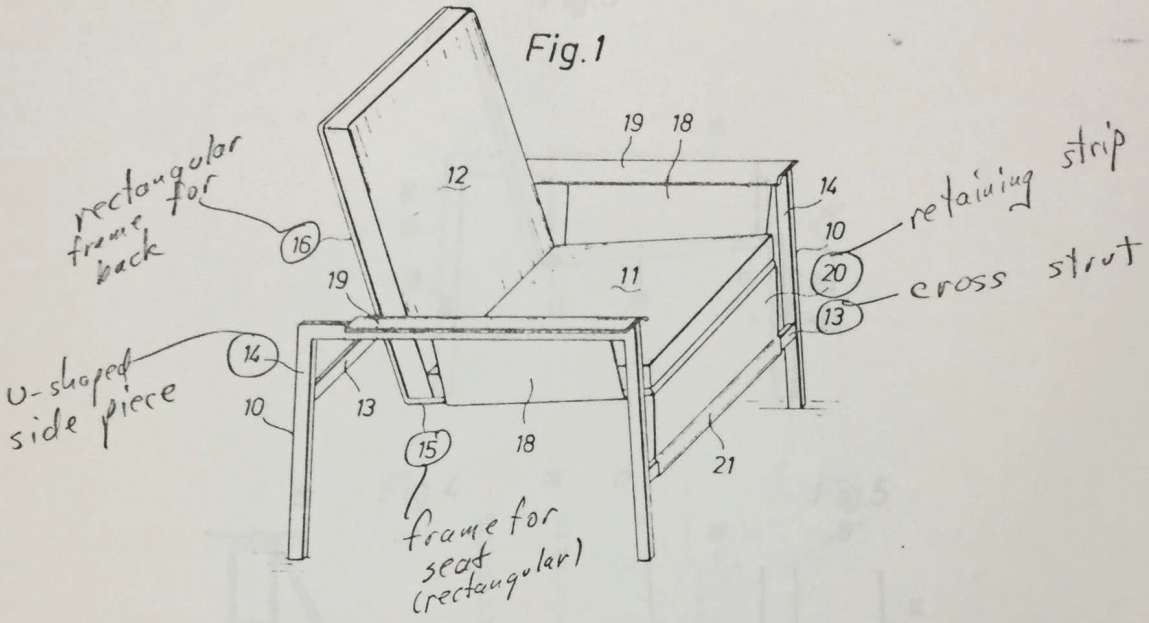
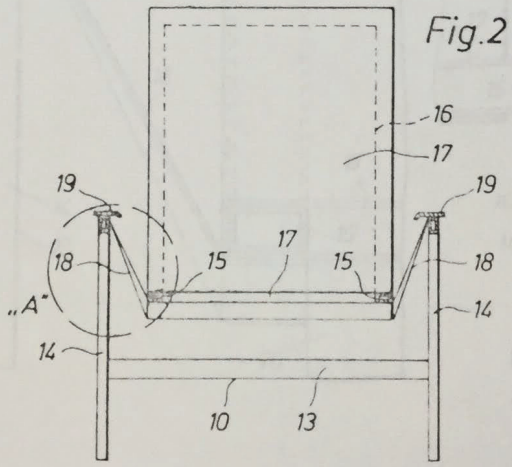


Fig.2



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Fig.3

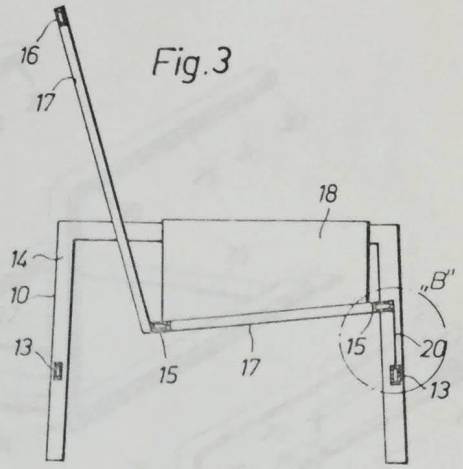


Fig.4

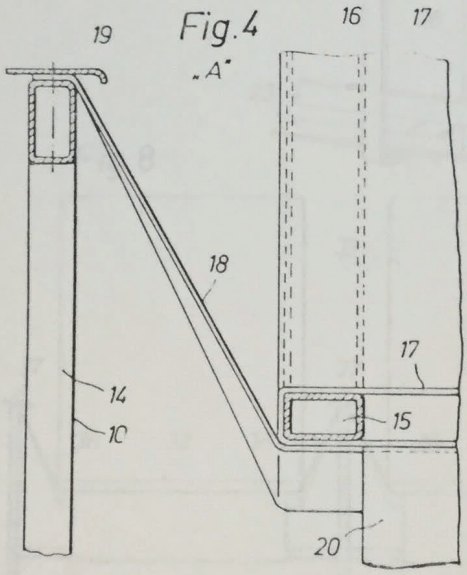
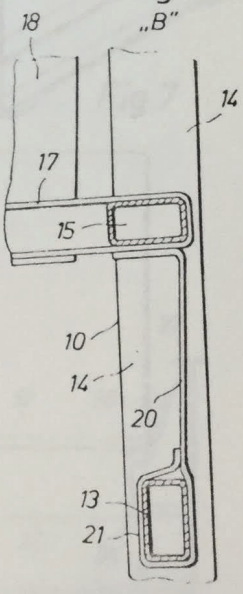


Fig.5



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Fig.6

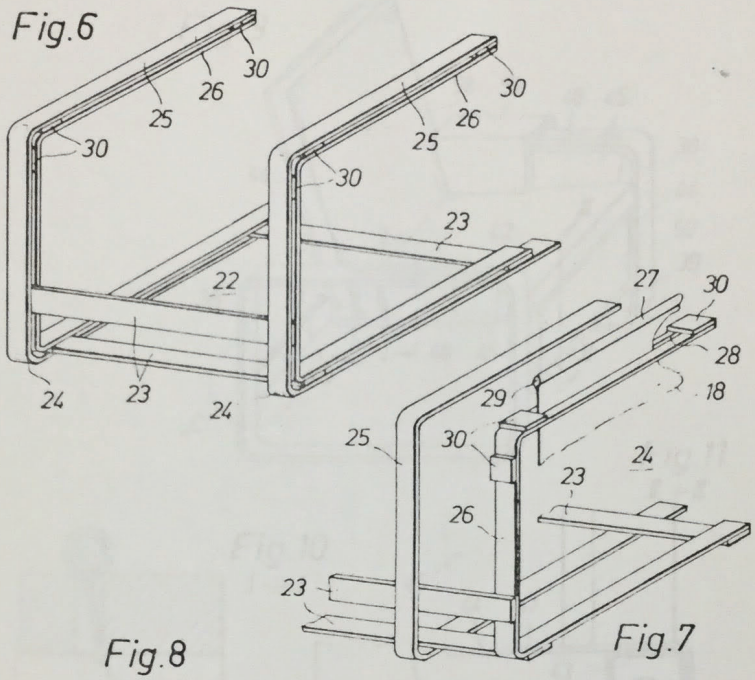
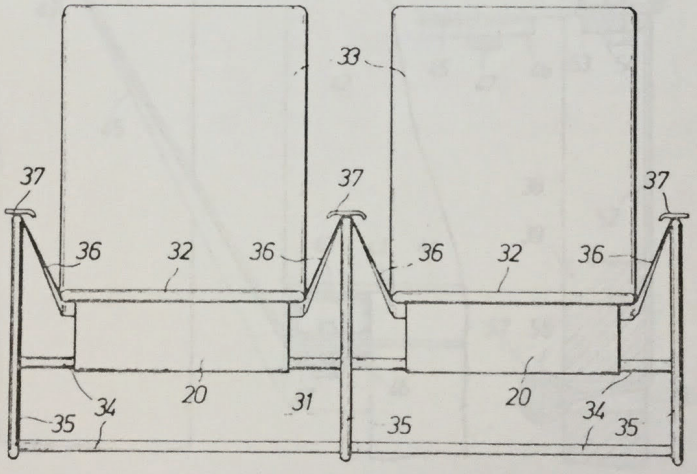


Fig.7

Fig.8



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Fig.9

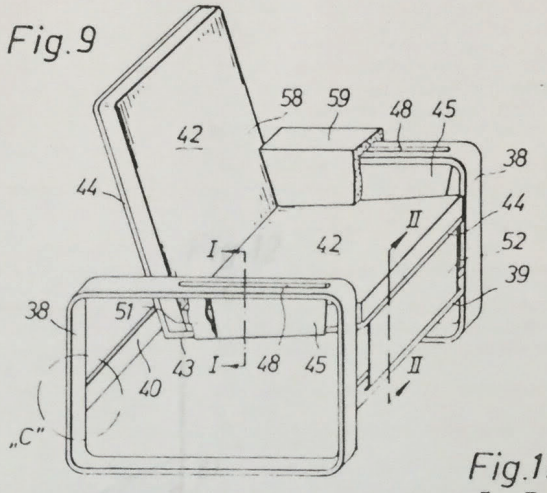


Fig.10
I ÷ I

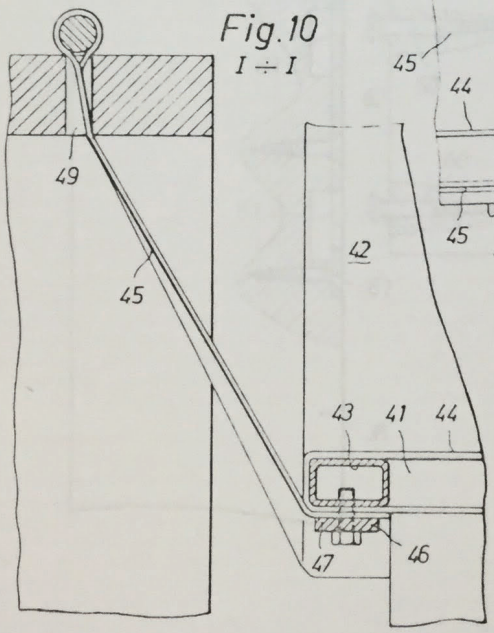
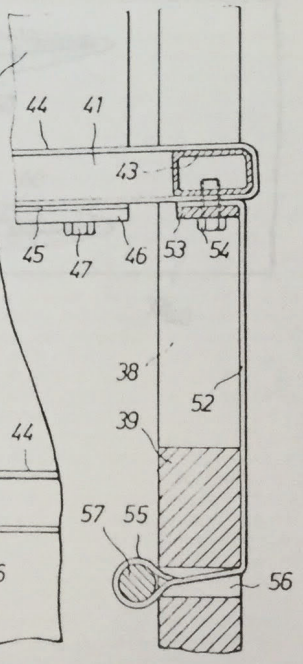


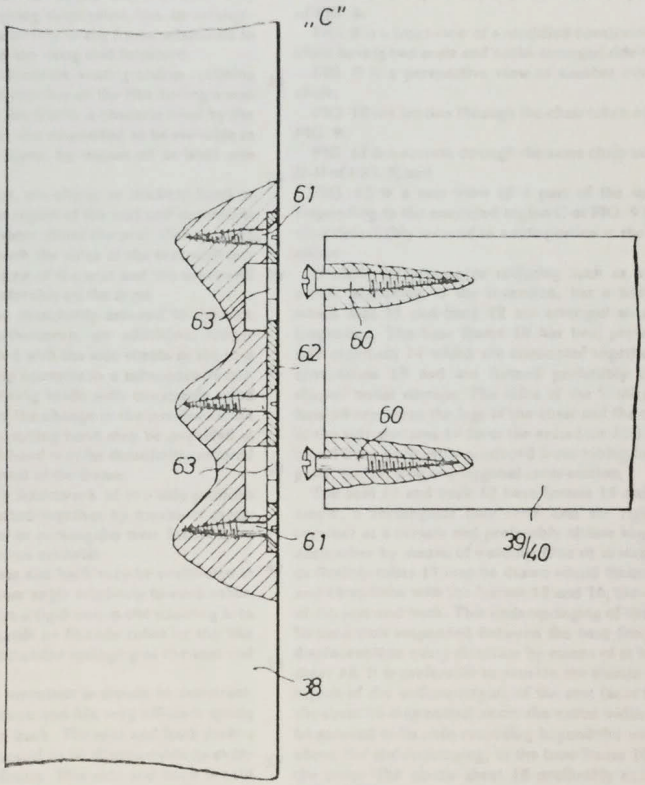
Fig.11
II ÷ II



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Fig. 12



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ARTICLE OF FURNITURE

The present invention concerns an item of furniture for sitting and/or reclining, such as an arm chair or couch, having a seating surface and a back between the sides of a base frame.

In the case of conventional chairs, the seat and back are movable only in a certain direction relatively to the suspension since the back and the seat are connected to one end of the base frame and the connecting area is suspended freely displaceable between the back and the seat.

Such known chairs have efficient spring suspension but do not permit a frequently desirable change of position of the seat and back relative to the frame.

It is an object of the present invention to provide an item of furniture which, in addition to simple construction, easy manufacture and efficient spring suspension, has an arrangement of the seat and back relatively to the frame adaptable to the desired position of the person using said furniture.

According to the present invention, seating and/or reclining furniture such as arm chairs, couches or the like having a seat and back arranged between the frame is characterized by the feature that the seat and back are suspended to be movable in all directions between the frame by means of at least one elastic band.

In a preferred embodiment, the elastic or resilient band or sheet may be arranged in the region of the seat and secured in the region of its end to the frame above the seat. One or more bands may be provided on both the sides of the seat with one end being secured on the frame of the seat and the other end on the frame of the chair, preferably on the arms.

The elastic sheets may be detachably secured to the side portions and the seat. Furthermore, an additional longer elastic strip may be associated with the side sheets at the rear of the seat, which longer strip operates as a subsequently acting spring element for receiving loads with constantly good spring properties; for limiting the change in the position of the seat and back an elastic supporting band may be provided at the front of the chair, which band may be detachably secured to the seat and a transverse strut of the frame.

It is preferable to form the framework of two side portions rigidly or detachably connected together by means of cross-struts and having a U-shaped or rectangular base form of, for example, metal, wood or plastics material.

The frames forming the seat and back may be connected at a certain and preferably obtuse angle relatively to each other, by welding or the like to form a rigid unit in the abutting area and provided with elastic bands or flexible tubes or the like resilient members to form the under springing of the seat and back.

The chair of the present invention is simple to construct, easy and economical to produce and has very efficient spring characteristics of its seat and back. The seat and back form a unit which is preferably arranged to be displaceable in every direction between the base frame. This seat and back is held on the base frame in a simple and reliable manner by means of one or more elastic sheets which permit movement of the seat and back according to the position of the body of the person using the chair. Because of the resilient and floating arrangement of the seat and back, these two loading surfaces, which are rigidly connected together, adapt themselves to the position of the body so that this seating and/or reclining chair may be used as a multipurpose item of furniture. The loading capacity of the seat and the back is desirably very great and designed according to actual requirements, whilst at the same time, gentle suspension is ensured.

The construction of the base frame is very simple and assembly thereof is easy and attachment of the seat and back extremely simple.

The chair has an extremely efficient spring capacity and great loading capacity in addition to long life without signs of fatigue of the elastic sheets, tubes, bands or strips and represents a convenient chair, providing a favorable seating, reclining and leaning surface for the person using it.

The invention will be described further, by way of example, with reference to the accompanying drawings, in which:

FIG. 1 is a perspective view of an arm chair having a seat and back unit suspended in a base frame;

FIG. 2 is a partial front view of the chair of FIG. 1;

FIG. 3 is a side view partly in section of the chair of FIG. 1;

FIG. 4 is a front view partly in section, of the securing region of the seat and back with the base frame according to the encircled region A in FIG. 2;

FIG. 5 is a side view, partly in section, of a portion of the seat with attachment to the base frame according to the encircled region B of FIG. 3;

FIG. 6 is a perspective view of another embodiment of a base frame;

FIG. 7 is an exploded perspective view of part of the frame of FIG. 6;

FIG. 8 is a front view of a modified construction of a seat or chair having two seats and backs arranged side by side;

FIG. 9 is a perspective view of another embodiment of a chair;

FIG. 10 is a section through the chair taken on the line I–I of FIG. 9;

FIG. 11 is a section through the same chair taken on the line II–II of FIG. 9; and

FIG. 12 is a rear view of a part of the same chair corresponding to the encircled region C of FIG. 9 having a cross-strut detachably secured to a side portion in the exploded condition.

A chair for seating or reclining such as an armchair or couch according to the invention, has a base frame 10 in which seat 11 and back 12 are arranged so as to be freely suspended. The base frame 10 has two, preferably parallel, side members 14 which are connected together by means of cross-struts 13 and are formed preferably of inverted U-shaped metal stirrups. The sides of the U-shaped side members 14 represent the legs of the chair and the top crosspieces of the side portions 14 form the arms (see FIG. 1). The members 14 are preferably produced from tubing having a rectangular, round, oval or polygonal cross section.

The seat 11 and back 12 have frames 15 and 16 of, for example, a rectangular base form and are rigidly connected together at a certain and preferably obtuse angle relatively to each other by means of welding. One or several elastic bands or flexible tubes 17 may be drawn round these two frames 15 and 16 to form with the frames 15 and 16, the underspringing of the seat and back. This underspringing of the seat and back forms a unit suspended between the base frame 10 which is displaceable in every direction by means of at least one elastic sheet 18. It is preferable to provide the elastic sheet 18 in the region of the underspringing of the seat (seat frame 15), and the sheet 18 may extend under the entire width of the seat and be secured at its ends extending beyond the width of the seat, above the underspringing, to the base frame 10, preferably to the arms. The elastic sheet 18 preferably extends over substantially the entire depth of the seat and thus supports the entire surface of the underspringing of said seat.

The elastic sheet 18 may be formed of two parts which are provided in the two side regions of the seat 11 and be connected at one end to the base frame 10, preferably the arm, and at the other end to the seat frame 15.

A plurality of elastic sheets 18 arranged adjacent one another at spaced intervals to provide the floating suspension for the seat 11 and back 12, extend as strips in the side areas of the seat from the base frame 10 to the seat frame 15 or, alternatively, from one side of the frame under the seat frame 15 as far as the other side of the base frame.

The sheet 18 is elastic in one direction and is provided with elastic threads extending in the direction of the axis of symmetry of the chair so that the sheet is elastic in the direction of the standing surface of the seating and/or reclining chair.

The elastic band or tube 17, serving as seat and back band, and the elastic sheet 18 consist in each case of an elastic web of fabric, the weft and/or warp threads of which have

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preferably and at least partially, cores of vulcanized rubber threads round which textile threads are spirally wound.

The sheet 18 is secured at one end by means of screws between the arm and a strip 19 provided thereon and can be secured at the other end to the band 17 of the seat frame 15 by, for example, vulcanizing.

It is preferable to manufacture the frames 15 and 16, the side members 14 and the cross-struts 13 of rectangular tubing In the front area of the seat frame at least one elastic retaining strip 20 may be provided which limits the upward movement of the seat frame 15 when a person seated thereon leans back, and can be attached at one end to the seat frame 15 and at the other end to the front cross-strut 13 of the base frame 10. The retaining strip 20, or a plurality of retaining strips arranged by vulcanizing side by side at spaced intervals, is secured at one end to the band 17 of the seat 11 and at the other end is disposed round the cross-struts 13 and formed by vulcanizing into an attachment loop 21 (see FIG. 5).

A different type of base frame 22 is shown in FIGS. 6 and 7 which is formed of two spaced apart side portions 24 connected together by cross-struts 23. The side members 24 preferably have a U-form, one side of each portion forming the leg (standing surface) and the other side, the arm.

Each side member 24 may be made of wood for example and have two telescoping stirrups 25, 26 which may be connected together by screws, glue or the like securing means 25 representing the outer stirrup into which stirrup 26 may be inserted. The elastic web 18 supporting seat 11 and back 12, or the seat and back underspringing, is secured at its ends to the side members 24, the web 18 being enlarged or thickened in the region of its ends, extends through the inner stirrup 26 and is supported by its reinforcement 27 on the inner stirrup 26.

The inner stirrup 26 has a recess, such as slot 28, through which the web 18 is passed by its ends. The reinforcement 27 of the web 18 is supported between the outer and inner stirrups 25, 26 on the inner stirrup 26, whereby this web 18 is suspended at both ends from the side members 24. It is preferable to provide reinforcement 27 of the sheet 18 at its two ends by loops through which there extend a retaining rod 29 of, for example, metal or wood. The cross section of the retaining rod 29 and the sheet loop is greater than the width of the longitudinal slot 28 so as to prevent the end of the sheet 18 slipping through. The retaining sheet 18 may also be formed as a sheet extending over the entire depth of the seat or be formed by several strips extending over the entire width of the seat. Furthermore, the sheet 18 may be formed of two parts provided in the side areas of the seat underpsringing, said parts being secured at their other ends to the band 17 of the seat frame 15 by e.g. vulcanizing or adhesion. The cross-struts 23 are preferably provided on the inner stirrups 26 and extend, when the side portions 24 are pushed together, between the outer and inner stirrups 25 and 26. The inner stirrups 26 may be provided with several spacers 30 which determine the spacing between the two stirrups 25 and 26 to be connected.

The seat 11 and back 12 and the seat and back underspringing are displaceably suspended in the base frame 22, corresponding to the base frame 10 of FIG. 1 by means of the elastic sheet 18. Pads 31 may be disposed on the seat and back underspringing.

An alternative embodiment of the invention is shown in FIG. 8 and comprises a base frame 31 in which, for example, two seats 32 with backs 33 are displaceably suspended. The base frame 31 is composed of three side members 35 connected together by cross-struts 34 and has a U-shaped stirrup form and U-shaped members may be arranged to stand on the legs or rest on one leg.

The basic form of the seats 32 and backs 33 and the suspension thereof correspond to the embodiments shown in FIGS. 1 to 5. The suspension of the seat 32 and back 33 is also provided by means of elastic sheets 36 which are secured to the side members 35 in the region of the arms 37. The sheets 36 may be secured by means of screws or adhesives between the side members 35 and the associated arms or, according to the embodiment shown in FIGS. 6 and 7, in slots formed in the side members 35. The center side member 35 serves to secure two elastic sheets 36 so that only three side members 35 are required for the two seats 32. In the adjacent marginal areas of the two seats 32, two sheets 36 may be provided which extend from the respective seats 32 to the side members 35, or one sheet 36 may be provided which is secured at both its ends to the seats 32 and is secured in the center area between the side member 35 and arm 37 or extend through a slot into the center member 35.

It is preferable to form the side members 35 of tubes of circular cross section.

Furthermore, a plurality of seats 32 and backs 33 may be arranged adjacent to each other, the adjacent marginal areas of two seats being always secured to one side member 35.

A further embodiment is illustrated in FIGS. 9 to 12 in which the chair has two side frame members 38 having, for example, an angular and preferably rounded rectangular section. The two side frame members 38 are spaced from each other by means of front and rear transverse struts 39, 40.

In FIGS. 9 to 12 a seat 41 with back 42, similar to that of FIGS. 1 to 5, is shown displaceably suspended between the two side members 38, the seat 41 and back 42 having rectangular frames 43 which abut each other at certain and preferably obtuse angle and which are rigidly connected together. One or possibly more elastic bands or tubes 44 representing the underspringing of the seat and back are drawn round the two frames 43.

The seat 41 with back 42 is floatably suspended so as to be displaceable in all directions between the side members 38 by means of lateral elastic sheets 45. Each lateral sheet 45 is detachably connected at its upper ends to the side members 38 and at the lower end to the seat 41, and at its lower end to the lower side of the seat 41 in its lateral marginal areas by means of a clamping strip 46 and screws 47 or the like securing means engaging therewith and extending into the seat frame 43. The upper ends of the side sheets 45 are formed into loops 48 which extend through slots 49 (only one shown) in the upper horizontal part of the frames 38 and are each secured by means of a retaining rod 50 of metal, plastics material or wood passing through loop 48. It is preferable for the cross section of the retaining rod 50 to be slightly larger than the width of the slot 49 so that the retaining rod 50 disposed in the loop 48 rests on top of the members 38, and when the sheet 45 is under tension, it cannot be pulled through the slot 49 with its loop 48, thus preventing undesirable detachment (see FIG. 10).

Towards the rear of the seat 41 an auxiliary elastic strip 51 of smaller width than sheet 45 is associated with each sheet 45 and is detachably secured to the members 38 and the seat 41 in a similar manner as sheet 45. The strip 51 is longer than the adjacent band 45 by sufficient amount so that it remains untensioned until sheet 45 received a certain load. If the sheet 45 is loaded beyond this certain load, tensioning of the longer strip 51 ensues so that the loading forces are received by both the sheet 45 and the strip 51 so that, because of their difference in length, different loads may be received with a satisfactory spring property and additional spring elements are rendered unnecessary. Sheet 45 and strip 51 can absorb heavy loads; smaller loads being compensated by the sheet 45 with the strip 51 serving as a (delayed action) spring in the event of increasing loads.

At least one retaining band 52 is provided in the front region of the seat and extends almost over the entire width of the seat thus limiting the upward movement of the seat 41 when under the load of a person leaning back, and also limiting the swiveling movement of the seat and back unit directed downwardly. The retaining band 52 is detachably secured at its upper end to the underside of the seat frame 43 by means of a clamping strip 53 and screws 54 passing through the strip 53 and the band 52 extending into the seat frame 43. The other end of the plastic band 52 is formed into a loop 55 which extends from the front of the chair through a slot 56 in the cross-

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strut 39 and is detachably secured to the cross-strut 39 by means of a retaining rod 57. The retaining rod 57 extends through the loop in the retaining band 52 at the rear of strut 39 and prevents the band 52 slipping out of the slot 56 when under tension.

The arrangement of the side sheets 45 and strips 51 of different length in both side areas, and of the retaining band 52 in the front region of the chair provides satisfactory spring capacity and absorption of loads of different weight with a constant spring suspension. Furthermore, the seat 41 with back 42 can be removed from the side members 38 as a unit in a simple and rapid manner. Additional cushions 58 may be disposed on the seat 41 and the back 42 and loose arm cushioning 59 may be laid over the regions of the frame housing the retaining rods 50 in the sheet loops 48.

In order to make it possible to transport the chair in a simple and space saving manner, the side members 38 are detachably connected to the cross struts 39 and 40 by means of mounting fittings. Two head screws or pins 60 are set in the fronts of the cross-struts 39, 40 and arranged at a space one above the other. The insides of the side members 38 each have a connecting plate 62 countersunk by means of screws 61. The connecting plates 62 each have two slots 63 arranged one above the other and enlarged at one end for inserting the head screws 60 which can be inserted in the slot 63 at right angles to the plane of the plate and thereafter displaced downwardly by a certain amount for connecting the side members 38 to the cross-struts 39,40. The shafts of the head screws 60 when in engagement extend into the slots 63 with their heads or attachments being disposed behind the slots 63 in contact with the plate 62 so that axial displacement of the head screws 60 is prevented. The front ends of the cross-struts 39, 40 extend along the plates 62 without a clearance and the head screws 60 resting in the slots 63 of the connecting plates 62, establish a firm but detachable connection between the side frames 38 and the transverse struts 39 and 40. Because of this detachable connection, the base frame sections formed on side members 38 and cross-struts 39,40 may be rapidly, simply and compactly packed a feature which makes them convenient for transportation.

The chair of the invention is advantageously provided with a simple but gentle and constant spring suspension of the seat and back which is obtained by means of an elastic sheet which is easy to manufacture and to secure and is also resistant to stresses.

The seat and back preferably form a spring-suspended unit and can be changed jointly, in any desired manner, in their position relatively to the base frame of the chair. The attachment of the elastic sheet to the seat and back, and also to the base frame, can be carried out in any other different manner. In addition, the shape of the base frame may be of any desired type and be formed of any material such as for example plastics material.

Such a seat may be fitted with either a rigid or resilient seat and back.

The floating suspension for seating according to the invention is particularly suitable for use in omnibusses and long distance coaches since the universally displaceable suspension of the seat and back unit gives not only considerable technical advantages, but also a great saving in weight of at least 50 percent and greater safety in respect of the risk of injury.

On bad roads jolts or bumps are absorbed by the elastic sheets and not transmitted to the passengers. The base frame can be easily and simply fitted in an omnibus by virtue of its shape. Since a rigid back is unnecessary, serious damage to persons is avoided in a favorable manner in the event of accidents, because the seat and back are suspended as a unit in a floating manner which thus yields under loads or absorbs jolts. When the seat is fitted in a vehicle, the cross-struts may be omitted so that freedom of movement for the legs of the passengers is ensured. In addition, seats are also suitable as chairs in large halls.

I claim:

1. An article of furniture, such as a chair, comprising: a base frame formed from at least two spaced apart side sections interconnected by at least one cross-strut; at least one back and seat unit comprising a rigid angle frame carrying resilient seat and back cushioning means in planes arranged at an obtuse angle relative to each other; and means for resiliently suspending said back and seat unit from said base frame to allow universal displacement of said back and seat unit relative to said base frame consisting of at least one elastic sheet having one end attached to said rigid angle frame adjacent the seat portion of said angle frame and an opposite end attached to one of said side sections, thereby to allow universal displacement of said back and seat unit relative to said base frame.

2. An article according to claim 1 wherein said means for resiliently suspending said back and seat unit comprises elastic sheet means having edges attached to said back and seat unit and opposite edges attached to portions of said side sections of said base frame which form arm rests, whereby said back and seat unit is resiliently suspended from said arm rest portions of said article of furniture.

3. An article of furniture according to claim 1 wherein at least one elastic sheet extending almost over the entire depth of the seat and at least one auxiliary elastic strip associated with the sheet in the rear area of the seat are provided for the universally displaceable suspension of said back and seat unit between said two side members, said auxiliary strip being longer than said elastic sheet for delayed spring action when said seat and back unit is loaded.

4. An article of furniture according to claim 1 wherein each side section is of a substantially U-shaped form with one lower shank thereof forming a supporting surface, the other upper shank forming an arm and the crosspiece forming a leg and wherein each side section comprises two telescopic interconnectable U-shaped members, one U-shaped member being provided in the region of said arm (upper shank) with a recess such as a longitudinal slot through which one end of said elastic sheet passes and is secured, by means of terminal reinforcements of said elastic sheet, between the inner and outer telescopic U-shaped members of said side members.

5. An article according to claim 1 having an elastic retaining strip extending across the front of said seat portion of said angle frame, said elastic retaining strip having one end connected to said back and seat unit and an opposite end connected to said base frame, thereby to resiliently oppose upward movement of the front edge of said seat portion of said back and seat unit.

6. An article of furniture according to claim 5 wherein said back and seat unit comprises a framework having at least one elastic sheet, tube or the like cover drawn thereover and said elastic sheet is securable at one end by means of screws or the like between a portion of said side section forming an arm and an arm ledge and at its other end by vulcanizing to said elastic sheet, tube or the like drawn over said seat frame; and wherein said retaining strip is connected at one end to the back and seat cover by vulcanizing or mechanical means and at its other end, formed as a tubular portion, is optionally retained on said cross-strut.

7. An article of furniture according to claim 6 wherein said elastic sheet is secured at at least one end to at least one side section above the plane of the seat portion.

8. An article of furniture according to claim 6 wherein said elastic sheet consists of a web which is elastic in one direction and has elastic threads extending in the direction of the center longitudinal plane of the chair (axis of symmetry).

9. An article of furniture according to claim 8 wherein said elastic web is of a fabric whose warp and/or weft threads preferably have at least in part, cores of vulcanized rubber threads round which textile threads are spirally wound.

10. An article of furniture according to claim 1 wherein each side section is of a substantially U-shaped form with the U-shanks being formed as legs and the crosspiece thereof as an arm and wherein each side section comprises two telescopic interconnectable U-shaped members, one U-shaped member

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being provided in the region of said arm (crosspiece) with a recess such as a longitudinal slot through which one end of said elastic sheet passes and is secured, by means of terminal reinforcements of said elastic sheet, between the inner and outer telescopic U-shaped members of said side members.

11 An article of furniture according to claim 10 wherein said reinforcements, formed at the end of said elastic sheet comprises a tubular portion capable of optionally receiving retaining a rod therethrough, the cross section of which retaining rod being greater than the width of said slot to prevent undesired withdrawal of said end from said recess.

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297-441

Oct. 7, 1969 E. A. MORRISON 3,471,200

CHAIR CONSTRUCTION

Filed Feb. 23, 1968 2 Sheets-Sheet 1

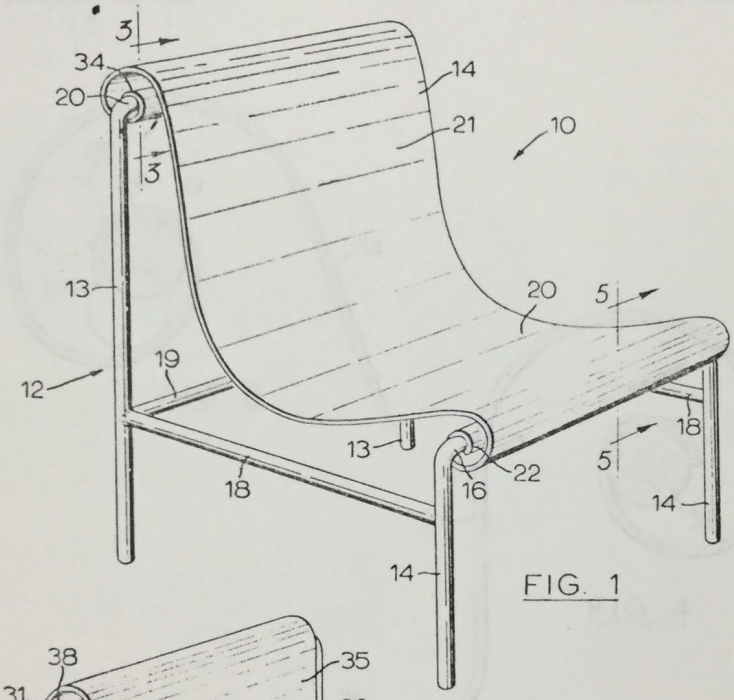


FIG. 1

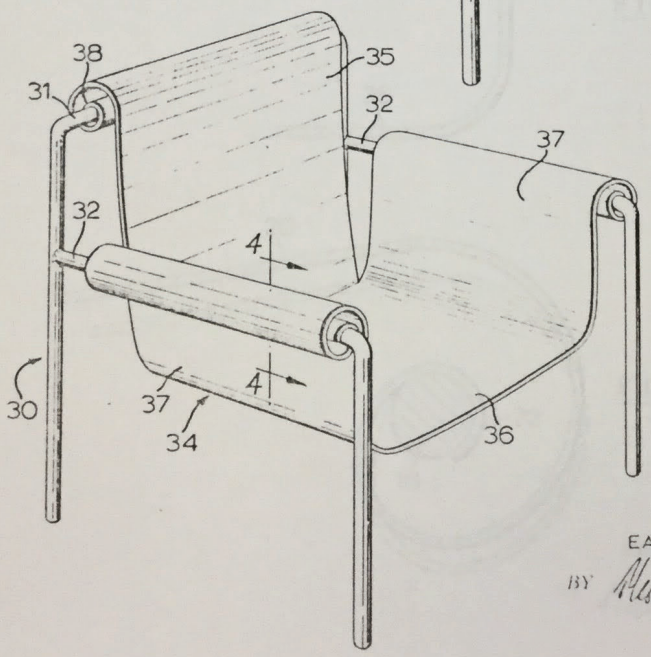


FIG. 2

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Oct. 7, 1969 E. A. MORRISON 3,471,200

CHAIR CONSTRUCTION

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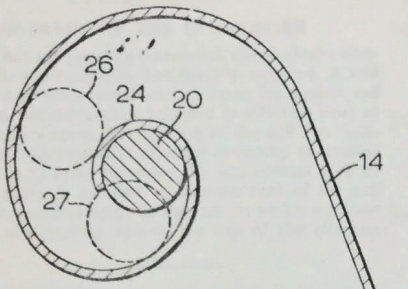


FIG. 3

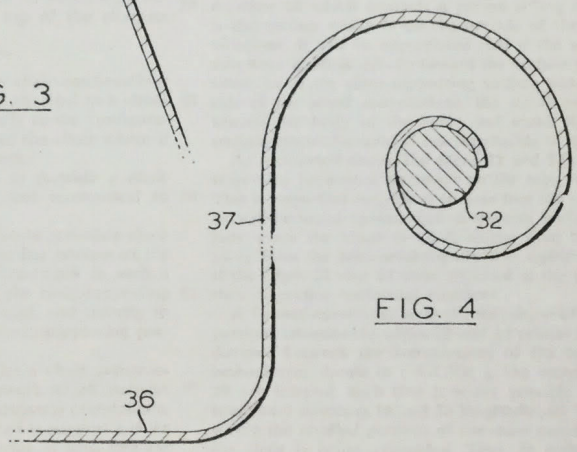


FIG. 4

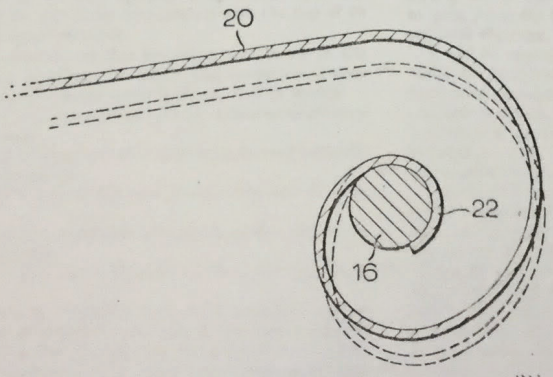


FIG. 5

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United States Patent Office

3,471,200

Patented Oct. 7, 1969

3,471,200

CHAIR CONSTRUCTION

Earle A. Morrison, 3490 Cypress St., Vancouver 9, British Columbia, Canada

Filed Feb. 23, 1968, Ser. No. 707,524

Int. Cl. A47c 7/02

U.S. Cl. 297—441 4 Claims

ABSTRACT OF THE DISCLOSURE

A chair has a supporting framework that includes elongate members substantially horizontally oriented. A stiff but resilient member constitutes a support for a sitter and has at least two extremities attached to different ones of the elongate members. The portion of the stiff but resilient member adjacent each attached extremity is scrolled spirally so as to bring the extremity into contact with its respective elongate member so that the face of the stiff but resilient member opposite the face on which a person sits bears downwardly against the top of the elongate member.

This invention relates generally to chair constructions wherein a body-supporting portion is attached to a structural framework, and more particularly to the configuration of the body-supporting portion of the chair where it is connected to the structural framework.

It is an object of this invention to provide a chair construction which is both simple and economical to manufacture.

It is a further object of this invention to provide a chair construction in which the body-supporting portion of the chair is attached to the structural framework in such a way as to increase the deflection of the body-supporting portion of the chair under a given load, and thereby to enhance the "cushion" effect in the body-supporting portion.

Accordingly, this invention provides a chair construction, comprising: a supporting framework which includes elongate members in substantially horizontal orientations, and a stiff but resilient member adapted to support a sitter on one face thereof, the member having at least two extremities attached to different ones of said elongate members, the portion of the member adjacent each attached extremity being scrolled spirally away from said one face to bring the extremity into contact with the top of its respective elongate member.

Two embodiments of this invention are shown in the accompanying drawings, in which like numerals denote like parts throughout the several views, and in which:

FIGURE 1 is a perspective view of a first embodiment of this invention;

FIGURE 2 is a perspective view of a second embodiment of this invention;

FIGURE 3 is a sectional view taken at the line 3—3 in FIGURE 1;

FIGURE 4 is a sectional view taken at the line 4—4 in FIGURE 2; and

FIGURE 5 is a sectional view taken at the line 5—5 in FIGURE 1.

Turning first to FIGURE 1, a chair generally shown at 10 is seen to comprise generally a supporting framework 12 and a body-supporting sheet member 14. The supporting framework 12 includes two rearward vertical members 13 (of which only one is visible in FIGURE 1), two forward vertical members 14, a forward horizontal member 16 bridging between the upper ends of the forward vertical members 14, two side horizontal members 18 (only one of which is visible in FIGURE 1), a lower rearward horizontal member 19 bridging between the two rearward vertical members 13, and an upper rearward horizontal member 20 bridging between the upper ends of the rearward vertical members 13. In the embodiment shown in FIGURE 1, the body-supporting member 14 is a stiff but resilient sheet member shaped to provide a seat portion 20 and a back portion 21 for supporting the body of a sitter. The forward edge 22 and the rearward edge 24 of the sheet member 14 are attached, respectively, to the forward horizontal member 16 and the upper rearward horizontal member 20. The marginal portion of the sheet member 14 adjacent each edge 22 and 24 is scrolled spirally such that it encircles its respective horizontal member, passes therebeneath, and brings the edge 22 or 24 into contact with the top of the elongate member. This configuration is clearly shown in FIGURE 1. For the sake of clarity of definition in the appended claims, the scrolled portions of the sheet member 14 will be referred to as being scrolled spirally away from the surface of the sheet member 14 which supports the sitter. This terminology means that the surface of the sheet member 14 which contacts a person sitting on the chair is the surface which is on the outside of the scroll convolutions. It will be appreciated that if the scrolled portion were scrolled spirally toward the surface supporting a sitter, i.e. if the sitter-supporting surface were on the inside of the scroll convolutions, the scroll would project toward the body of the sitter and make the chair extremely uncomfortable, if not impossible to use.

As mentioned above, the edges 22 and 24 contact their respective horizontal members on the tops of the latter. This is important because it ensures that the edges 22 and 24 will be urged against their respective horizontal members when the chair is used, rather than being pulled away from the horizontal members as would be the case if the edges 22 and 24 were attached at the underside of their respective horizontal members.

A further consideration in the formation of the scrolled portions adjacent the edges 22 and 24 relates to the radial distance between the convolutions of the scroll. In the embodiment shown in FIGURE 1, the members 13 and 20 are integral, such that it is not possible to slide the horizontal members 16 and 20 longitudinally into position within the scrolled portions of the sheet member 14 when the chair is being assembled. Thus, in order to permit assembly of the chair, the adjacent convolutions of each scrolled portion must be spaced from each other sufficiently far to permit the respective horizontal members to pass inwardly between the convolutions to a position adjacent the edge.

It will be appreciated that other supporting frameworks could be designed in which it was possible to slide the horizontal members longitudinally into position within the scrolled portions, and for this reason the provision of convolution spacing sufficient to permit the horizontal member to pass between convolutions is not considered an essential limitation.

Attention is now directed to FIGURE 3, in which the upper rearward horizontal member 20 is shown in section, and in which the preferred curvature of the scrolled portion of the sheet member 14 is shown. Broken line circles 26 and 27 represent intermediate positions of the upper rearward horizontal member 20 as it is being passed inwardly between the convolutions to the solid line position shown in FIGURE 3. It will be noted that, at every point between the convolutions, there is sufficient spacing for the member 20 to pass without jamming.

The purpose of scrolling the portions of the sheet member 14 adjacent the attached edges 22 and 24 is to permit the sheet member 14 to deflect to a greater degree under load than it would if its edges were attached without being scrolled. In other words, the scrolling of the attached edges gives the sheet member 14 a greater "cushion" effect than it would normally have. Attention

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is directed to FIGURE 5, which shows in solid lines the scroll configuration at the forward horizontal member 16 when the chair is unloaded, and which shows in broken lines the scroll configuration when the chair is loaded. It will be clear from this figure that the "cushion" effect is derived from the distortion of the scroll under load.

Attention is now directed to FIGURES 2 and 4, in which the second embodiment of this invention is shown. A supporting framework 30 includes a rearward horizontal member 31 and two side horizontal members 32. The sheet member 34 include back portion 35, a seat portion 36, and two side portion 37. The back portion 35 is scrolled adjacent the edge 38 in exactly the same manner as the back 21 in FIGURE 1. The sides 37 are scrolled similarly to the back portion 35, as can be seen in FIGURE 4. Again, in FIGURE 2, as in FIGURE 1, the edges which are attached to the horizontal members contact the horizontal members along the top of the latter, in order to ensure a compression load as between the horizontal member and the attached edge.

A large choice of materials is available for the sheet member 14. Reinforced plastics, sheet metal and laminated wood products, for example, could all be employed for the manufacture of the chair construction according to this invention. The use of sheet metal, however, is particularly advantageous with respect to the ease with which a flat edge can be scrolled, and the accurate duplication of a given scroll configuration. In this connection, it will be noted in FIGURES 3, 4 and 5, that the configuration of the three scrolled portions is identical. Note, for example, that the actual edge of each sheet member (the termination point of each scroll) lies in a plane which contains the axis of the respective horizontal member and which is normal to the flat portion of the sheet member immediately adjacent the scrolled portion thereof. This is not, of course, an essential limitation of this invention, but merely a consequence of providing identical scroll portions on the sheet member, which provision is likewise not essential to this invention.

In the embodiment shown in FIGURE 1, it will be readily appreciated that the sheet member 14 could be replaced by a plurality of parallel, spaced-apart bands all having the same general outline and scroll configurations as the sheet member 14, without departing from the essence of this invention. It will further be appreciated that the principle of this invention would be employed if the sheet member 14 were replaced by a plurality of rods having no appreciable lateral dimension. In the appended claim 1, the word "member" is intended to include within its ambit slat-like, band-like or rod-like members, as well as sheet members of the kind illustrated.

In the two embodiments disclosed in this invention, the framework members to which the edges of the sheet members 14 and 34 are attached are shown as horizontal. It will be appreciated that a small departure from horizontal

orientation in these members will not affect the advantages deriving from this invention. Provided that the force being transmitted from the seat member to the framework member has its largest component perpendicular to the framework member, the "cushion" effect will be retained.

The attachment of the edges of the sheet members to the framework members can be accomplished in any number of conventional ways. For example, the edges can be welded to the framework members, or attached thereto by means of mechanical fastening devices such as screws, rivets, bolts, etc.

What I claim as my invention is:

1. A chair construction comprising:

a supporting framework which includes elongate members in substantially horizontal orientations,

and a stiff but resilient member adapted to support a sitter on one face thereof, the resilient member having at least two extremities attached to different ones of said elongate members, the portion of the resilient member adjacent each attached extremity being scrolled spirally away from said one face to encircle its respective elongate member in spaced relation therewith and to bring the extremity into contact with the top of its respective elongate member.

2. A chair construction as claimed in claim 1, in which said stiff but resilient member is a sheet member, the extremities of said sheet member being the edges thereof.

3. A chair construction as claimed in claim 1, in which adjacent convolutions of each scrolled portion are spaced from each other sufficiently far to permit the elongate member to pass inwardly between the convolutions to a position adjacent said opposite face of the extremity.

4. A chair construction as claimed in claim 2, in which adjacent convolutions of each scrolled portion are spaced from each other sufficiently far to permit the elongate member to pass inwardly between the convolutions to a position adjacent said opposite face of the extremity, and in which the elongate members are of circular cross-section.

References Cited

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3,163,467	12/1964	Deneau	297—388
3,167,352	1/1965	Johnson	297—445
3,399,920	9/1968	Hehn	297—452 X

CASMIR A. NUNBERG, Primary Examiner

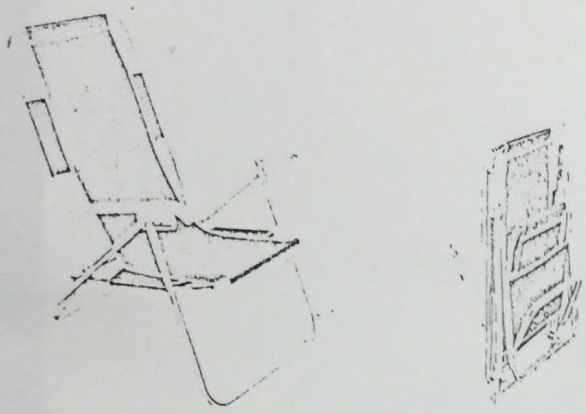
U.S. Cl. X.R.

297—457

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US Chaircraft



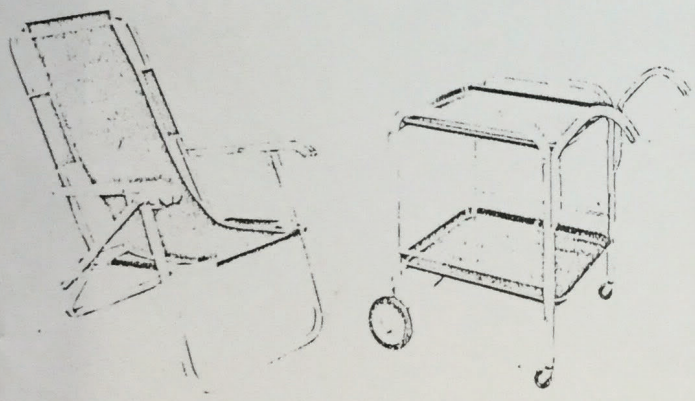
MODEL No. 282

MODEL No. 282
RECLINING CHAIR

SPECIFICATIONS:

TUBING: RD. ALUM. TUBING ¾" O. D.; HIGHLY POLISHED
COVER: 10 OZ. SAILCLOTH, VAT-DYED, WATER REPELLENT
COLORS: RED, BLUE, GREEN, YELLOW
OVERALL SIZE, OPEN: 23½" x 29" x 44"
OVERALL SIZE, FOLDED: 5" x 24" x 32½"
WIDTH: 20½"
LENGTH: 48"
NET WEIGHT: APPROX 6 LBS.
PACKED: 6 TO A CARTON

PATENT OFFICE
APR 2 1952
DESIGN DIVISION



MODEL No. 281 MODEL No. 900

MODEL No. 281
RELAXING CHAIR

SPECIFICATIONS:

TUBING: SQ. ALUM. TUBING ⅞" O. D.. HIGHLY POLISHED
COVER: 10 OZ. SAILCLOTH, VAT-DYED, WATER REPELLENT
COLORS: RED, BLUE, GREEN, YELLOW
OVERALL SIZE, OPEN: 23½" x 29" x 44"
OVERALL SIZE, FOLDED: 5" x 24" x 32½"
WIDTH: 20½"
LENGTH: 48"
NET WEIGHT: APPROX. 6¾ LBS.
PACKED: 6 TO A CARTON

MODEL No. 900
"T-TIME" SERVER

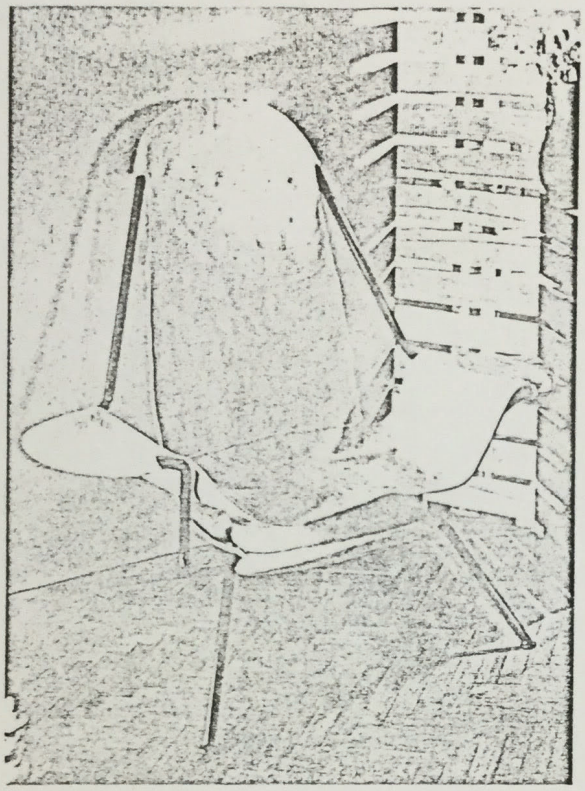
SPECIFICATIONS:

TUBING: ⅞" SQUARE ALUM. TUBING; HIGHLY POLISHED
COLOR OF TRAYS: PAINTED PLASTIC CARMIN
FRONT WHEELS: 6" DIAMETER WITH 1" RUBBER TIRES
BACK WHEELS: 2" HARD RUBBER SWIVEL CASTERS
OVERALL SIZE: 21" x 26" x 27"
NET WEIGHT: APPROX. 11 LBS.
PACKED: 1 TO A CARTON

Nothing finer in aluminum furniture . . .

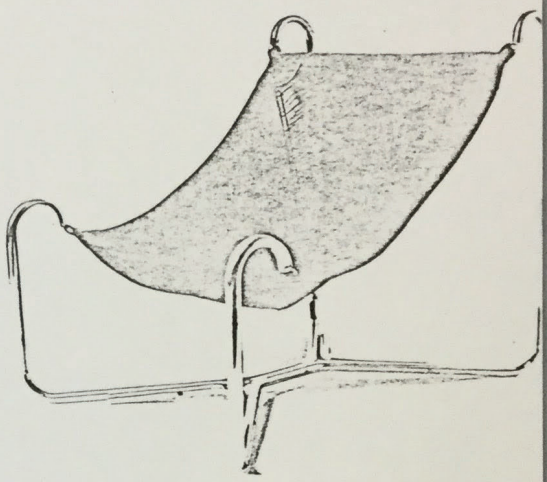
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282 Paolo A. Chessa c. 1950 Italy

Armchair with metal frame, canvas slings and polyfoam cushion
Sessel mit Metallgestell, Segeltuchbespannung und Schaumstoffkissen
J.G. Furniture

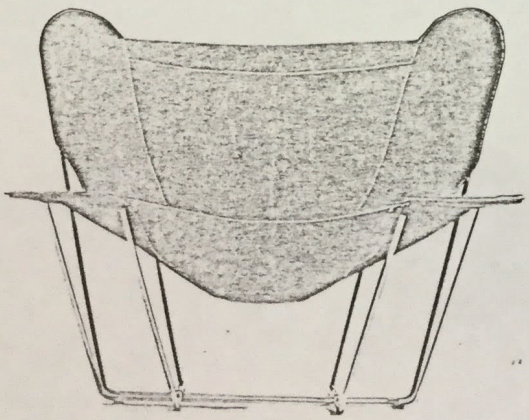


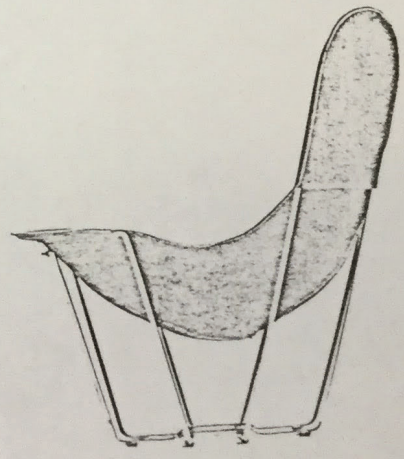
283 DAM (Designers Associati Milano) 1969 Italy

Chair "Baffo" with frame of chrome-plated tubular steel and suspended leather seat
Stuhl »Baffo« mit verchromtem Stahlrohrgestell und eingehängtem Ledersitz
Busnelli

284 + 285 Esko Pajamies 1965 Finland

Knock-down chair with frame of chrome-plated steel and seat slings of canvas
Zerlegbarer Stuhl mit verchromtem Stahlrohrgestell und Sitzbespannung aus Segeltuch
Merva-Tuotanto



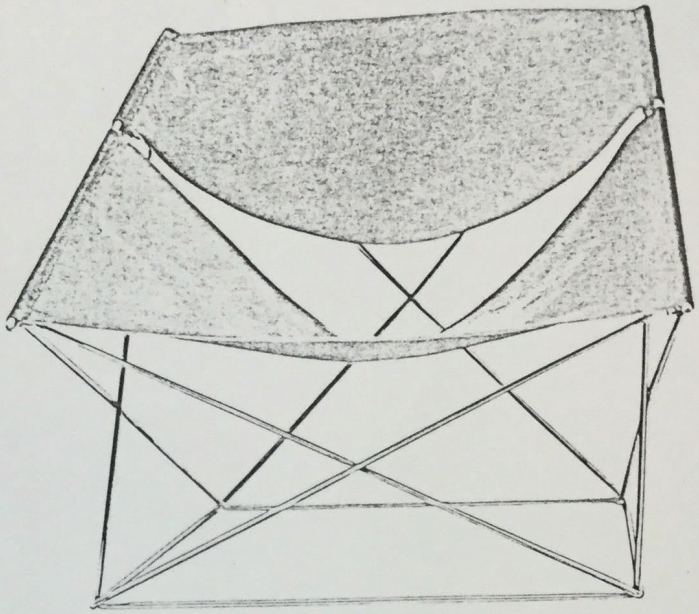


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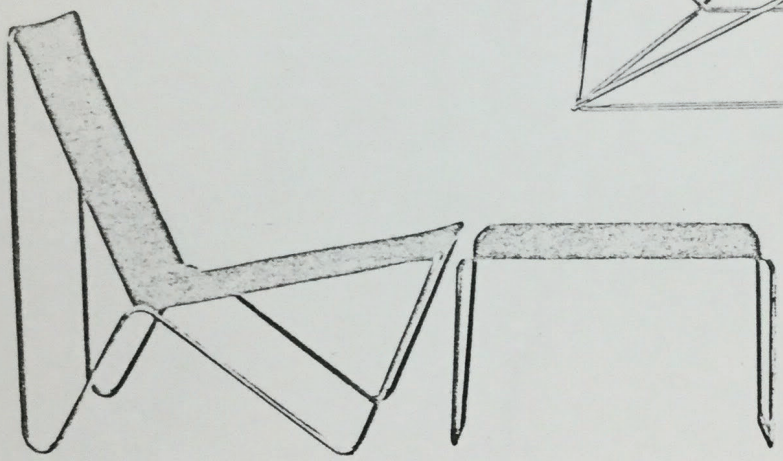
290 Pierre Paulin 1964 France

Folding chair "675" with frame of chrome-plated metal and leather slings
Klappsessel »675« mit verchromtem Stahlrohrgestell und Lederbespannung
Artifort



291 Verner Panton 1956 Denmark

Lounge chair and foot stool with tubular steel frame and canvas slings
Liegestuhl und Hocker aus Stahlrohr mit Segeltuchbespannung
Fritz Hansen

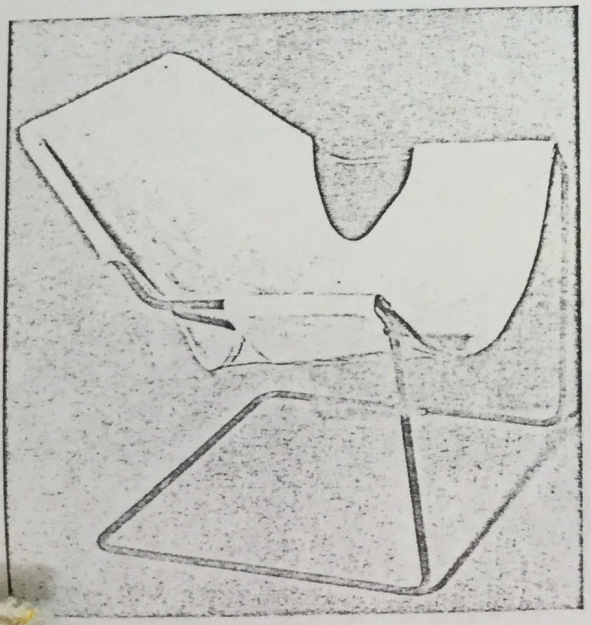


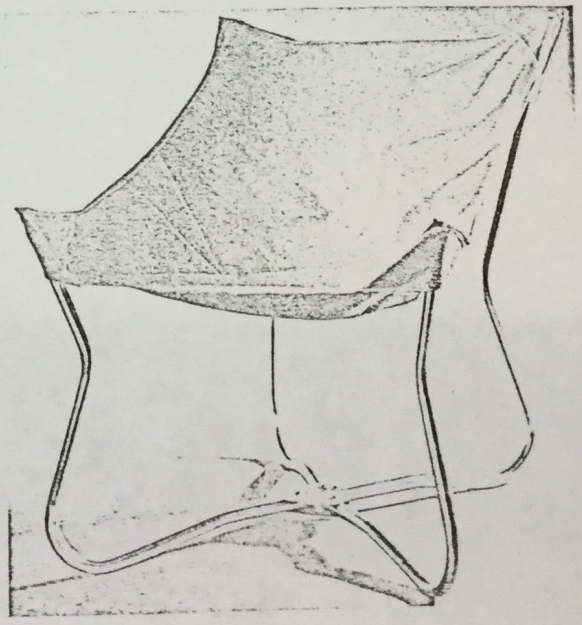
292 Paulo Mendes da Rocha 1956 Brazil

Armchair with lacquered tubular steel frame and leather slings
Sessel mit lackiertem Stahlrohrgestell und Lederbespannung
Interiors Soc.

293 Rolf Gutmann 1954 Switzerland

Folding lounge chair with tubular steel frame and canvas slings
Klappsessel mit Stahlrohrgestell und Segeltuchbespannung
Wico





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FORM PTO-1082

Case Docket No. BURTON-2

THE COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

Sir:

Transmitted herewith for filing is the patent application of

Inventor: SCOTT BURTON

For: CHAIR AND FRAME THEREFOR

Enclosed are:

[XX] 4 sheets of drawing. (Informal) Containing Figs. 1-6.

[ ] An assignment of the invention to _____

_____

[ ] A certified copy of a _____ application.

[ ] An associate power of attorney.

[XX] A verified statement to establish small entity status under 37 CFR 1.9 and 37 CFR 1.27.

[XX] CITATION OF PRIOR ART (Including References, Catalog and Publication).

The filing fee has been calculated as shown below:

FOR:	(Col. 1) NO. FILED	(Col. 2) NO. EXTRA
BASIC FEE		
TOTAL CLAIMS	12 -20=	* 0
INDEP CLAIMS	3 -3=	* 0
[ ] MULTIPLE DEPENDENT CLAIM PRESENTED		

* If the difference in Col. 1 is less than zero, enter "0" in Col. 2

SMALL ENTITY RATE	SMALL ENTITY FEE		OTHER THAN A SMALL ENTITY RATE	OTHER THAN A SMALL ENTITY FEE
	$150	OR		$300
x5=	$ 0	OR	x10=	$
x15=	$ 0	OR	x30=	$
+50=	$	OR	+100=	$
TOTAL	$150.	OR	TOTAL	$

[ ] Please charge my Deposit Account No. _____ in the amount of $_____. A duplicate copy of this sheet is enclosed.

[XX] A check in the amount of $150. to cover the filing fee is enclosed.

[XX] The Commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to Deposit Account No. 19-0812. A duplicate copy of this sheet is enclosed.

[XX] Any additional filing fees required under 37 CFR 1.16.

[ ] Any patent application processing fees under 37 CFR 1.17.

[ ] The Commissioner is hereby authorized to charge payment of the following fees during the pendency of this application or credit any overpayment to Deposit Account No. _____. A duplicate copy of this sheet is enclosed.

[ ] Any patent application processing fees under 37 CFR 1.17.

[ ] The issue fee set in 37 CFR 1.18 at or before mailing of the Notice of Allowance, pursuant to 37 CFR 1.311(b).

[ ] Any filing fees under 37 CFR 1.16 for presentation of extra claims.

Respectfully submitted,

Robert Scobey Reg.No. 19838
Attorney for Applicant
261 Madison Avenue-N.Y.,N.Y. 10016
Tele: 212-687-0911

16 November 1982
Date

[XX] SPECIFICATION (Pgs. 1-5) 1 Pg. of ABSTRACT
[XX] CLAIMS (1-12)
[XX] DECLARATION/POWER OF ATTORNEY

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Docket:Burton-2

TITLE: CHAIR AND FRAME THEREFOR

ABSTRACT OF THE DISCLOSURE

A chair formed from a frame and a chair body slung therefrom, in which the chair frame constitutes a continuous rod all the parts of which lie in two spaced-apart vertical planes and a third inclined plane perpendicular to the vertical planes. The parts in each of the vertical planes define two U-shaped legs of the chair constituting front and rear legs joined by a straight-line arm rest. The parts in the inclined plane constitute horizontal, spaced-apart, straight-line rod segments, one of which joins together the rear legs of the frame and the other of which joins together the front legs of the frame. The chair body is slung from the straight-line arm rest in each vertical plane and from the horizontal, spaced-apart straight-line rod segments in the third or inclined plane, one of which is at the top of the backrest of the chair and the other of which is at the front of the chair seat. The chair body is formed from material lying essentially in four planes defining a seat and a backrest and two side arm pieces.

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BACKGROUND AND BRIEF DESCRIPTION OF THE INVENTION

This invention relates to a chair, and more particularly to a chair formed from a frame and a chair body which is slung from the frame.

Chairs formed from a frame and a chair body slung therefrom are known, and perhaps one of the most well known is the "butterfly" chair which is formed from a fabric chair body that is slung essentially from four apices in a chair frame to produce a concave supporting sack for the body. The present invention is directed, in distinction, to a chair body slung from a frame in which the concavity of the "butterfly" chair is avoided, and weight is distributed by the use of planes of body-supporting material which in turn are supported by the frame along ~~the~~ lines of support, rather than apices of support as in the "butterfly" chair.

In the present invention, a chair frame is utilized formed from a continuous rod ("rod" is intended to include solid or tubular frame material), all the parts of which form four inverted generally U-shaped sections joined together by segments that form the bottoms of four legs of the chair. Each inverted U-shaped section defines parts of adjacent legs of the chair and, in addition, a line of support for a chair body which is slung from the frame. In a presently preferred embodiment of the invention, all the parts of the frame lie in two spaced-apart vertical planes and a third inclined plane perpendicular to the vertical planes. The parts in each of the vertical planes define two U-shaped legs, which constitute front and rear legs of the chair, joined together by a straight-line arm rest. The parts in the inclined plane constitute horizontal, spaced-apart, straight-line rod segments, one of which joins together the rear legs of the frame and the other of which joins together the front legs of the frame. Thus the frame is continuous and utilizes no separate and distinct stretchers which are found in many chair frames. Distinct legs are provided, something which is not found in many chair frames. The structural integration of arms and legs provide a simple structure, and the three-plane location of all parts of the frame provides a simple structure which is relatively easy to fabricate.

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The chair body which is slung from the frame preferably is of a "fabric" material, "fabric" being defined in this case as any flexible material such as leather, canvas, synthetic and natural materials, and the like, although a rigid chair body may be employed. The material of the chair body preferably lies essentially in four planes in the completed chair, which planes define a seat and a backrest and side arm pieces. In fabricating the chair body, it essentially may be produced in "flat" condition, thereby avoiding sewing along compound curves in the case of fabric material. In the case of a rigid chair body, the material from which it is formed may be easily bent into the appropriate shape. A chair body of fabric may be preferably formed from one to four pieces of material or from any number of pieces of webbing, as desired, to form the distinct sections of the chair body.

The chair body sections are supported by the frame along lines of support. In a presently preferred embodiment of the invention, the lines of support for the chair body are: (a) generally horizontal at the top of the backrest, (b) generally horizontal at the front of the seat (lower than the backrest support line), and (c) generally horizontal at the top of each of the side arm pieces at a level between the backrest and seat-front support lines. These four lines of support provide considerable support for the chair, e.g., 50 to 60 linear inches of total chair body support in a typical chair to ensure the essentially planar configuration of the various parts of the chair body. Additionally, the parts of the frame defining the lines of support are enclosed by the edges of the chair body, which thereby insulates the chair frame from a person sitting in the chair. If the chair body is produced by a layered fabric material (e.g., two layers of leather with an intermediate canvas layer), significant padding is provided thereby.

The invention will be more completely understood by reference to the following detailed description of a presently preferred embodiment thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view of a chair formed from a frame and a chair body slung from the frame in accordance with the invention.

Figs. 2 to 4 are respectively top, front, and right-side views of the chair of Fig. 1.

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Fig. 5 is a perspective view of the chair frame of Fig. 1.

Fig. 6 is a perspective view of the chair body of Fig. 1.

DETAILED DESCRIPTION

Referring to Figs. 1 to 4, which show a completed chair, the chair is formed from a frame 10 and a chair body 12 which is slung from the frame. The chair body is preferably made of fabric material, as shown (as defined above), or from rigid material, such as sheet plastic material, for example. The chair body 12 defines a seat 14, a backrest 16, and two side arm pieces 18. The chair body thus essentially involves four planes of support, namely, the planes defined by the seat 14, the backrest 16, and the two side arm pieces 18. The chair body 12 is also shown in Fig. 6, which will be described in more detail below.

The frame 10 for supporting the chair body 12 is shown in Figs. 1 to 4 and also in Fig. 5. That frame in a presently preferred embodiment of the invention constitutes a continuous rod, all the parts of which lie in two spaced-apart vertical planes 20 (shown in Fig. 2) and a third inclined plane 22 (shown in Fig. 4) perpendicular to the planes 20. Thus in each of the vertical planes 20, the frame 10 includes two U-shaped legs 24 and 26 (see also Fig. 5). The leg 24 in each vertical plane constitutes a rear leg of the chair frame, while the leg 26 constitutes a front leg. The U-shaped legs 24 and 26 are joined together by a straight-line arm rest 28 in each of these vertical planes. The remaining parts of the chair frame are horizontal, spaced-apart, straight-line rod segments 30 and 32 which are included in the inclined plane 22. The rod segment 30 joins together the rear legs 24 of the frame, while the rod segment 32 joins together the front legs 26.

Thus four lines of support are provided by the frame 10 for the chair body 12, namely, a horizontal line of support at the top of the backrest 16 constituted by the rod segment 30, another lower support line at the front of the seat 14 constituted by the rod segment 32, and support lines horizontal and parallel to each other at a level between the levels of the rod segments 30 and 32 and extending transverse to those rod segments. As shown in Fig. 1, the material along the edges of the chair body 12 is wrapped around the adjacent sections of the frame

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10 which provide the lines of support. In the case of a fabric chair body, it may be stitched in place, as at 34, 36, and 38.

Significant support for the chair body is provided by the supporting lines in the frame 10, so that planes of support for the human body are provided in the chair of Fig. 1, namely, the plane of the seat 14, the plane of the backrest 16, and the planes of the side arm pieces 18.

The chair body 12 is shown in Fig. 6 with the stitching 34, 36, and 38, although stitching does not normally take place until after a fabric chair body 12 has been positioned in place on the chair frame. This assumes that the chair frame is a permanently continuous piece and includes no severed parts, which is what is shown in Fig. 5. Obviously, the frame could be fabricated in individual sections which telescope together, in which case the chair body 12 might be presewn to form loops 40, 42, and 44 which wrap about corresponding parts of the frame 10, those frame parts being slid into the pre-formed loops. Other forms of connection could be employed, e.g., buckles, ties, and the like.

It will be appreciated that the chair body 12 of Fig. 6 may be formed from one or multiple pieces of material, or from webbing if desired. Thus, the seat 14, the backrest 16, and the side arm pieces 18 might be a single piece or two or more individual pieces, suitably fastened together. The pieces are joined, preferably (by sewing or 5/12/82 gluing, for example, in the case of a fabric chair body) at their zones 11/16/82 of overlap. A chair body 12 of fabric may advantageously be formed of a sandwich of materials, e.g., two pieces of leather 12a and 12b, with a canvas piece 12c sandwiched therebetween (Fig. 6).

It will be appreciated that the presently preferred embodiment of the invention described above is susceptible of modification. To elaborate, it will be appreciated from the description above that the chair frame 10 broadly may be considered to be formed from four inverted generally U-shaped sections that are joined together by segments that form the bottoms of four legs of the chair. With reference to Fig. 5, these four inverted generally U-shaped sections may be identified as

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follows: (a) frame segments 40, 30, and 42; (b) frame segments 44, 32, and 46; (c) frame segments 48, 28, and 50 at each side of the frame. The segments that form the bottom of the four legs of the chair are designated 52, 54, 56 and 58. Thus each of these inverted U-shaped sections defines parts of adjacent legs of the chair, and each of these sections also defines one of the lines of support described above. The frame is simple to construct and utilizes a minimum member of sections, since no section is utilized only as a "stretcher" as is common with conventional frame-type chairs. In the present invention, the frame segments 28, 30, and 32, which may be considered as functioning as "stretchers", serve as the lines of support for the chair body. While the segments of the frame are all straight-line in the presently preferred embodiment shown in the drawings, curved lines could be employed, as desired, to provide outwardly ~~flaired~~ flared arm rests, for example, or an outwardly ~~flaired~~ flared upper back support, to name another example. These changes and others will be apparent to workers skilled in the art of furniture manufacture. Accordingly, the invention should be taken to be defined by the following claims.

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CLAIMS

1. A chair comprising a frame and a chair body slung therefrom, said chair body defining a seat and a backrest and side arm pieces, said frame supporting said chair body in lines of support, a first one of said support lines being generally horizontal at the top of said backrest, a second one of said support lines being generally horizontal at the front of said seat and lower than said first support line, and third and fourth ones of said support lines at the top of said side arm pieces being generally horizontal and generally transverse to said first and second support lines and at a level between the first and second support lines.

2. A chair according to claim 1, in which said frame is formed from a continuous rod having sections thereof which define said lines of support.

3. A chair according to claim 1, in which said chair body is formed from material lying essentially in four planes defining said seat and said backrest and said side arm pieces.

4. A chair according to claim 1, in which all the parts of said frame lie in two spaced-apart vertical planes and a third inclined plane perpendicular to said vertical planes, the parts in each of said vertical planes defining two U-shaped legs of said chair frame constituting front and rear legs joined by a straight-line arm rest, the parts in said inclined plane constituting horizontal, spaced-apart, straight-line rod segments one of which joins together the rear legs of said frame and the other of which joins together the front legs of said frame.

5. A chair according to claim 1, in which said frame comprises four inverted generally U-shaped sections joined together by segments that form the bottoms of four legs of the chair.

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6. A chair frame comprising a continuous rod all the parts of which lie in two spaced-apart vertical planes and a third inclined plane perpendicular to said vertical planes, the parts in each of said vertical planes defining two U-shaped legs of said chair frame constituting front and rear legs joined by a straight-line arm rest, the parts in said inclined plane constituting horizontal, spaced-apart, straight-line rod segments one of which joins together the rear legs of said frame and the other of which joins together the front legs of said frame.

7. A chair formed from a frame as defined in claim 6, including a chair body slung from said frame.

8. A chair according to claim 7, in which said chair body is slung from said straight-line arm rest in each vertical plane and from said horizontal, spaced-apart, straight-line rod segments.

9. A chair according to claim 8, in which said chair body is formed from material lying essentially in four planes defining a seat and a backrest and two side arm pieces.

10. A chair frame comprising a continuous rod all the parts of which form four inverted generally U-shaped sections joined together by segments that form the bottoms of four legs of the chair, each inverted U-shaped section defining parts of adjacent legs of said chair, a first pair of said inverted U-shaped sections also defining arm rests, and the remaining inverted U-shaped sections also defining an upper backrest support and a seat front support.

11. A chair formed from a frame as defined in claim 10, including a chair body slung from said frame.

12. A chair according to claim 11, in which said chair body is slung from those parts of said frame defining said arm rests and said upper backrest support and said seat front support.

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Declaration and Power of Attorney

I, SCOTT BURTON
declare that I am a citizen of the United States of America
residing at 86 Thompson Street, New York, New York 10012

that I have read the specification entitled: CHAIR AND FRAME THEREFOR

and the claims thereof; that I understand the content of the foregoing specification, and I verily believe I am the original, first, and sole inventor of the invention described and claimed therein; that I do not know and do not believe that this invention was ever known or used in the United States before my invention thereof, or patented or described in any printed publication in any country before my invention thereof, or more than one year prior to this application, or in public use or on sale in the United States more than one year prior to this application; that this invention has not been patented or made the subject of an inventor's certificate in any country foreign to the United States on an application filed by me or my legal representatives or assigns more than twelve months before this application; and that no application for patent or inventor's certificate on this invention has been filed in any country foreign to the United States by me or my representatives or assigns, except as follows:

NONE

I further declare that I acknowledge my duty to disclose information of which I am aware which is material to the examination of this application.

And I hereby appoint:

Robert Scobey(Reg.No.19838), Guy W. Shoup(Reg.No. 26805), Henry T. Burke (Reg.No. 18975), Gerard F. Dunne(Reg. No. 27286), Eliot S.Gerber (Reg.No. 18115), Douglas W. Wyatt(Reg. No. 21041), James W. Badie (Reg.No. 20968) of 261 Madison Avenue, New York, New York 10016
Telephone: 212-687-0911

my attorneys, each with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent and Trademark Office connected therewith.

Lastly I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Inventor's full name Scott Burton
SCOTT BURTON *(Signature)*

Date March 16, 1982

Post Office Address 86 Thompson Street
New York, New York 10012

This form may be executed only when attached to a complete application as the last page thereof.

(Sole Inventor)

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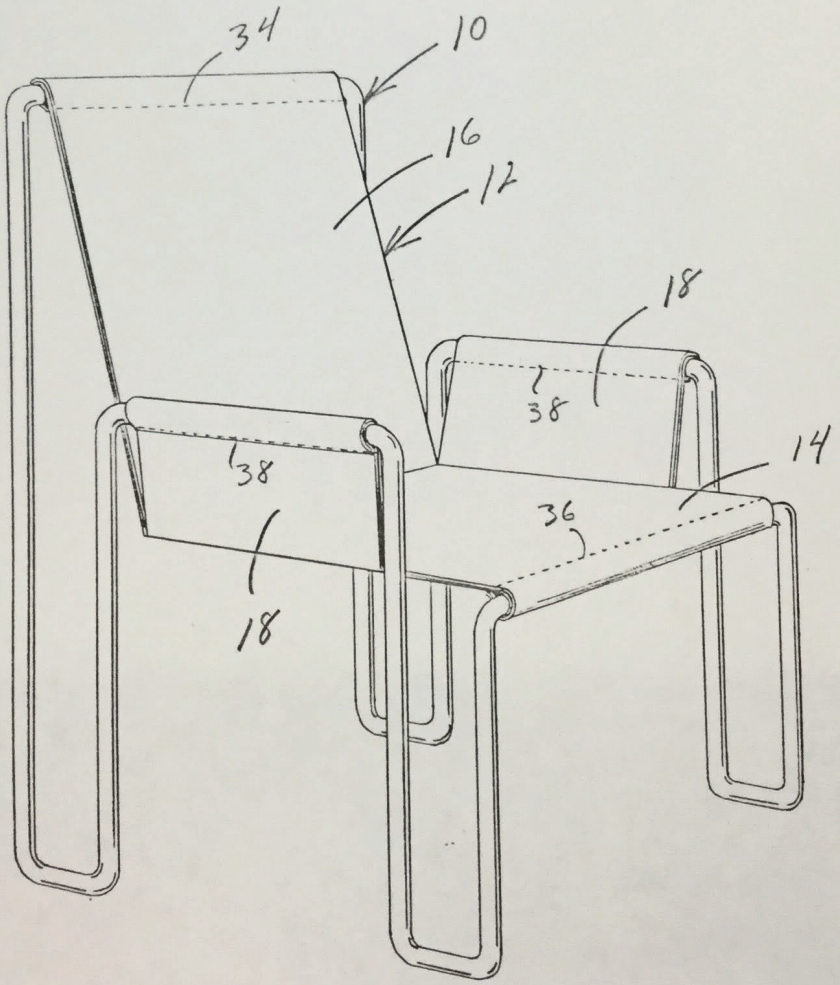


Fig. 1

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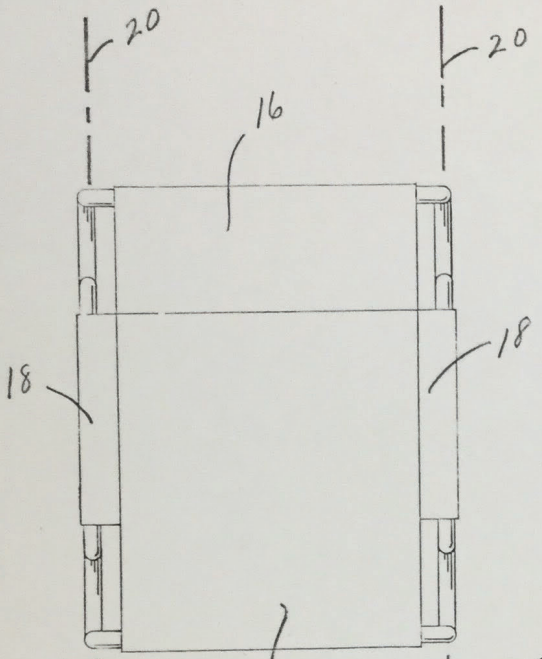


Fig. 2

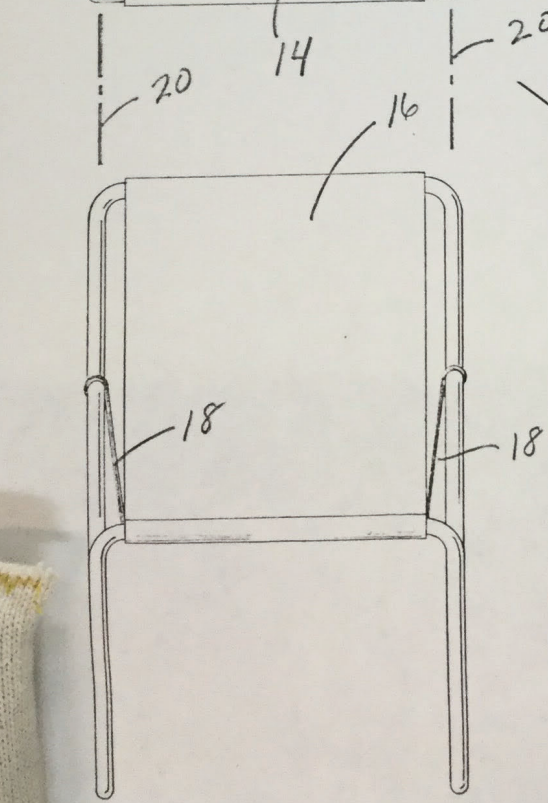


Fig. 3

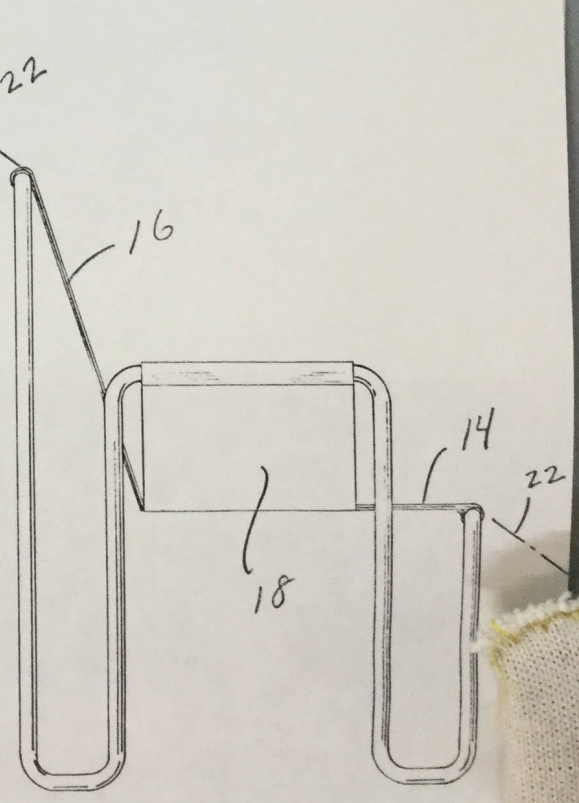


Fig. 4

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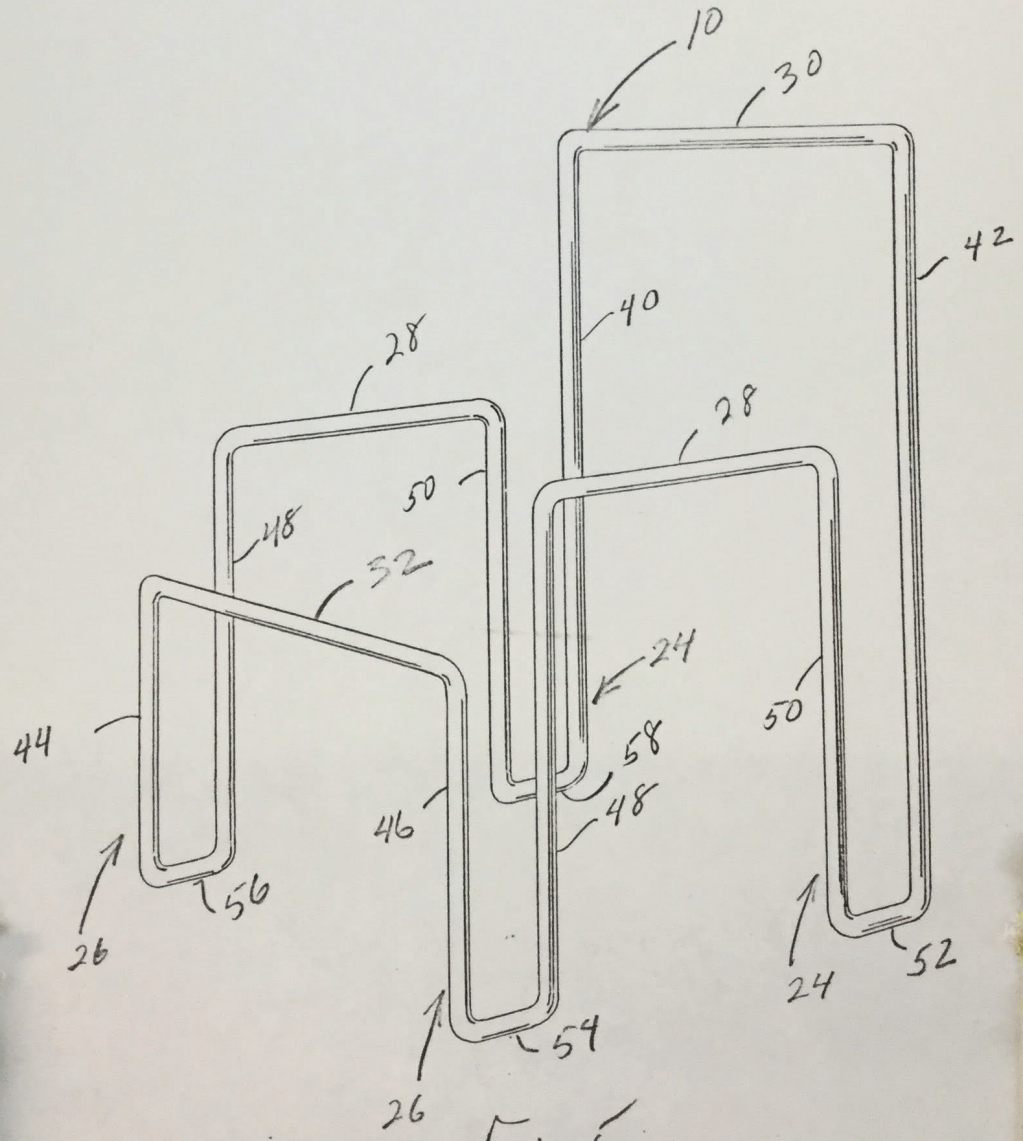


Fig. 5

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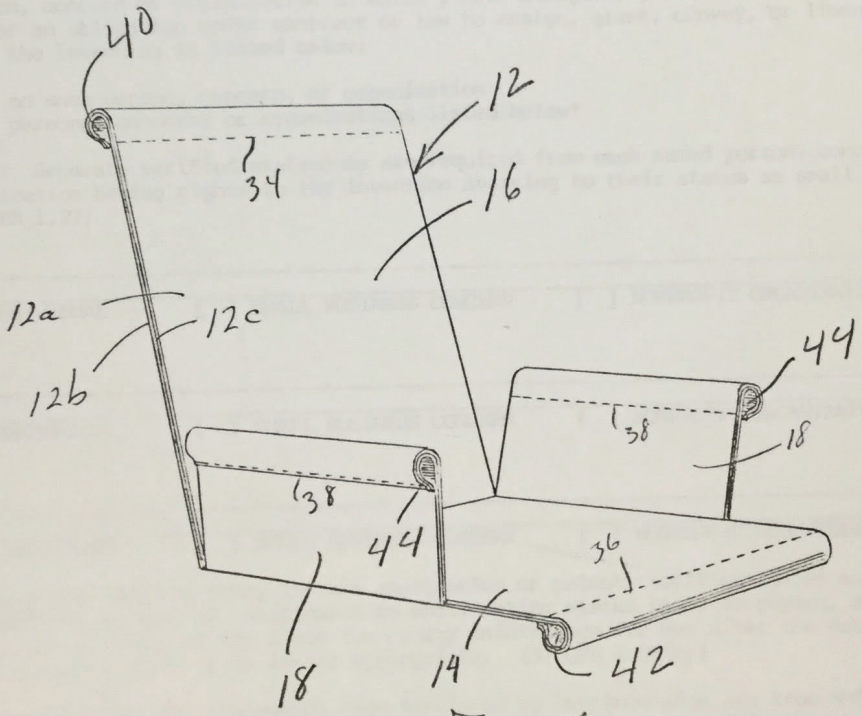


Fig. 6

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VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS (37 CFR 1.9(f) and 1.27(b) - INDEPENDENT INVENTOR

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled: CHAIR AND FRAME THEREFOR described in

[XX] the specification filed herewith
[ ] application serial no._____, filed_____
[ ] patent no._____, issued_____

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

[XX] no such person, concern, or organization
[ ] persons, concerns or organizations listed below*

*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

FULL NAME_____
ADDRESS_____
[ ]INDIVIDUAL [ ] SMALL BUSINESS CONCERN [ ] NONPROFIT ORGANIZATION

FULL NAME_____
ADDRESS_____
[ ]INDIVIDUAL [ ] SMALL BUSINESS CONCERN [ ] NONPROFIT ORGANIZATION

FULL NAME_____
ADDRESS_____
[ ] INDIVIDUAL [ ] SMALL BUSINESS CONCERN [ ] NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

SCOTT BURTON		
NAME OF INVENTOR	NAME OF INVENTOR	NAME OF INVENTOR
Scott Burton		
Signature of Inventor	Signature of Inventor	Signature of Inventor
November 16, 1982		
Date	Date	Date

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : SCOTT BURTON

Serial No. : Not yet assigned

Filed : Concurrently herewith

For : CHAIR AND FRAME THEREFOR

CITATION OF PRIOR ART

Hon.Commissioner of Patents & Trademarks

Washington, D.C. 20231

Sir:

It is desired to make of record the following references, a copy of each of which is enclosed:

U.S.Patent No.	Applicant	Issue Date
2,150,429	De Sanno,Jr.	03/14/39
2,725,096	Granby	11/29/55
3,471,200	Morrison	10/07/69
3,591,233	Turcksin	07/06/71
D-106,384	Vavrik	10/05/37
D-220,908	Smith	06/15/71
D-233,963	Welton	12/24/74
D-238,030	Welton	12/16/75
D-238,636	Olson et al	02/03/76

Catalog

U.S. CHAIRCRAFT MFG.CORP. Catalog, P.4, Received April 2, 1952, D6-69

Publication

CONTEMPORARY FURNITURE, An International Review Of Modern Furniture, 1950 to the Present, edited by Klaus-Jürgen Sembach, published by Architectural Book Pgblishing Co., New York, New York 10016 (1982), Pages 87 and 89.

The invention is believed to be patentable over the references.

Respectfully submitted,

Robert Scobey

Robert Scobey - Reg. No. 19838
Attorney for Applicant
261 Madison Avenue
New York,New York 10016
Tele: 212-687-0911

16 November, 1982

Date

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CROSS REFERENCE SEARCH ROOM

March 14, 1939. A. P. DE SANNO, JR 2,150,429

CHAIR

Filed Sept. 11, 1937

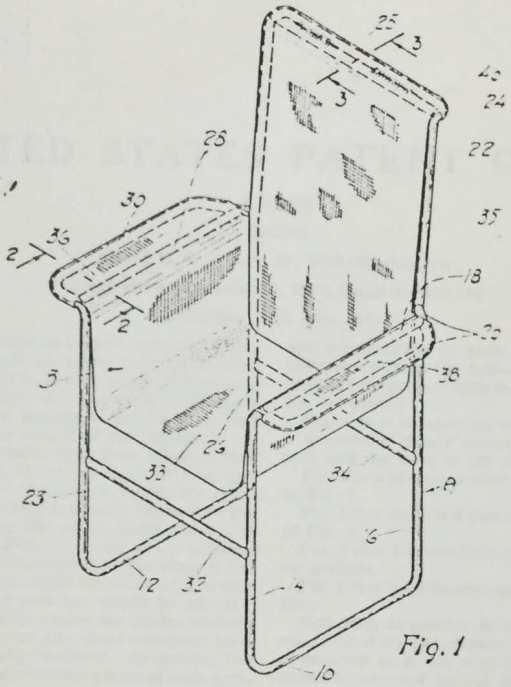


Fig. 1

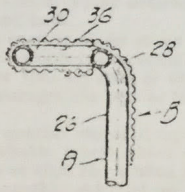


Fig. 2

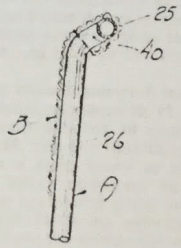


Fig. 3

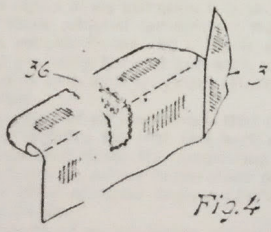


Fig. 4

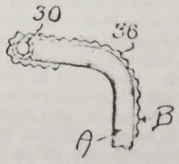


Fig. 5

INVENTOR.
Albert P. de Sanno Jr.

BY Harry Langsam
ATTORNEY.

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Patented Mar 14, 1939

2,150,429

UNITED STATES PATENT OFFICE

2,150,429

CHAIR

Albert P. de Sanno, Jr., Philadelphia, Pa.

Application September 11, 1937, Serial No. 163,311

3 Claims. (Cl. 155—187)

My invention relates to a chair and relates particularly to a detachable fabric seat for a chair.

Heretofore, chairs have been made so they have a flexible fabric attached to the chair framework, but the framework usually is arranged so that it directly bears the weight of the occupant.

Lawn and deck chairs have been made so they are foldable; hence, the entire chair may be carried from one place to another, but in the event of rain, the entire chair is usually exposed to the elements. To carry the entire chair indoors in order to prevent it from becoming wet is both inconvenient and at times difficult, therefore if the fabric covering alone could be removed a saving in convenience and patience would be effected. Heretofore, detachable covers for chairs wherein the cover alone carries the chair occupant have not been commercially exploited. Invariably, the suggested prior art devices have been of such complex construction that a very long period of time must be expended in attaching or detaching the fabric cover to the framework of the chair.

It is an object of my invention to provide a chair with an easily detachable combined fabric seat and back.

It is another object of my invention to provide a fabric which is supported by the chair in such manner that no part of the framework of the chair engages the seat or the back of the occupant.

It is another object of my invention to provide a detachable fabric which does not utilize any clamps or clips for holding it to the framework.

It is another object of my invention to provide an improved chair, or the like, in which the fabric, canvas, or other material forming the seat is detachable from the frame.

Another object of my invention is to provide an improved chair adapted for outdoor use which includes a suitable frame and a fabric covering or the like providing the seat and back rest constructed so as to permit an easily attached and taut covering.

Another object of my invention is that the fabric covering defining the seat and back rest are wholly suspended from the supporting frame whereby a teetering action in the chair does not permit the chair occupant from contacting the supporting frame.

Other objects of my invention are to provide an improved device of the character described of simple and economical construction and which possesses a maximum amount of serviceability.

With the above and related objects in view, my invention consists in the details of construction and combination of parts, as will be more fully understood from the following description, when read in conjunction with the accompanying drawing in which:

Fig. 1 is a perspective view of a chair having a detachable fabric covering which defines the seat and the back of the chair.

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1.

Fig. 4 is a fragmentary view of one of the fabric pockets.

Fig. 5 is a modification of an arm of my invention.

Referring in greater detail to my invention as exemplified in the drawing, a frame, generally designated as A, for a chair which is more particularly adapted for use outdoors, such as in a porch, a deck, a lawn, or garden chair, has a fabric covering, generally designated as B, attached to the frame. The frame A is constructed so that there are no sharp corners, thus the covering forming the seat and back of the chair will not wrinkle or bind.

The base of the chair framework includes suitable ground engaging members 10, 12. From the ends of the ground member 10 extend vertical uprights 14 and 16, and the upright rods 14 and 16 are joined by a cross brace or side or arm member 18 the latter providing an arm rest. Within the same horizontal plane of the cross brace or arm rest 18 is an outwardly spaced cross arm 20; hence, the construction hereinbefore described provides an arm rest of two closely spaced parallel cross-arms or side members 18 and 20. However, the innermost cross-arm 18 may be omitted if it is desired to provide greater lateral space for the occupant's arm, as in those cases where the occupant does not wish to engage any portion of the frame. The rear upright 16 continues upwardly above the arm rest, and then turns rearwardly from 22, the rod continues rearwardly and then turns at right angles as at 24 to serve as the upper cross-brace of the framework.

I have hereinbefore described the right-hand side of the framework, as Fig. 1 is viewed, and I shall now describe the left-hand side of the framework which is complementary to the right-hand side of the frame. From the ends of the left-hand ground member 12 extend the vertical upright rods 23, 26 which are arranged similarly to the uprights 14, 16 respectively. Two spaced arm rests or side members 28 and 30 are ar-

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ranged similarly to the left hand arm rests 18 and 20. The inside arm 28, like arm 18 may be optionally omitted or used.

A lower cross brace 32 joins the front vertical uprights 14 and 23 but the brace is located so that the occupant of the chair does not sag enough to bodily engage the brace. A lower cross brace 34 joins the rear vertical uprights 16 and 26 and is also located out of contact with the seat covering.

The fabric covering B which defines the seat 33 and the back 35 of the chair is constructed of suitable sturdy material, and is easily and rapidly attachable or detachable from the frame A. The seat also has side portions extending from the seat and back portions of the covering. The fabric has three pockets 36, 38 and 40 therein. The pockets 36 and 38 being on each side of the fabric to slip over the rods 30 and 20, respectively, and the pocket 40 slips over the upper cross member 25 (Figs. 1 and 3). Hence, an occupant of the chair may comfortably sit and lean against the back without engaging any hard or rigid members constituting the chair frame. Even if a small teetering action is established by the occupant of the chair the fulcrum points of support do not rigidly hold the fabric in position and still none of the chair framework is engaged. Thus, the chair is strong, durable and extremely comfortable to the occupant.

Each fabric pocket is formed by overlapping a portion of the fabric, at the place where the pocket is to be formed and then stitching the side edges together. With this arrangement of the pockets in the fabric, the latter may be easily slipped off or on the frame and any tension imposed upon the seat 33 or the back 35 will not result in the fabric B either slipping or wrinkling but will enable the fabric to be drawn taut.

The sewing of overlapping portions of the fabric covering B to form retaining pockets disposes of all metallic detachable means which otherwise may rust or rip through the fabric; straps and holding tapes are likewise unnecessary in my invention. The single construction of the fabric covering and its ease of attachment and detachment makes it easy to wash and launder.

The frame A, illustrated in Fig. 1 and hereinbefore described is of tubular construction but any other suitable frame construction may be employed.

Although my invention has been described in considerable detail, such description is intended as illustrative rather than limiting, since the invention may be variously embodied, and the scope of the invention is to be determined as claimed.

I claim as my invention:

1. A chair comprising a frame, said frame consisting of spaced interconnected side members, a portion of the frame being adapted to engage the ground, a horizontally extending arm member connected to each side member at the height of an arm rest and extending laterally outwardly from said side member, a rear upright on each side member extending above the arm rest member, a cross brace connected to the upper ends of each of the rear uprights and extending rearwardly of said rear uprights, a fabric covering defining the seat and back of said chair and having side portions extending from said seat and back, and a plurality of pockets in the fabric, said pockets complementarily receiving the laterally extending arm members and the upper cross brace whereby the occupant of the chair will be swingably suspended in the lower portion of the covering, said pockets being easily and rapidly removable from the interfitting portions of the frame.

2. A chair comprising a frame having spaced connected side members, each side member comprising a ground engaging member, a front and a rear upright rod connected to the ground engaging member, a single member connected to said uprights at the height of an arm rest and extending laterally outwardly from said uprights, a cross brace connected to the upper ends of the rear uprights of both side members, said upper cross brace extending rearwardly of said rear uprights, a fabric covering defining the seat and back of said chair and having side portions extending upwardly from said seat and back, a plurality of pockets in said fabric, said pockets complementarily receiving the laterally extending members and the upper cross brace whereby the occupant of the chair will be swingably suspended in the lower portion of the covering.

3. A chair comprising a frame, said frame having a plurality of vertically extending side members arranged to form opposite side members, a horizontally extending arm member connected to each of the vertical members comprising one side member, and said arm member extending laterally outwardly from said side member at about the height of an arm rest, the rear vertically extending members extending above the arm members, a cross brace extending rearwardly and joining the upper ends of said rear members, a fabric covering defining the seat and the back of said chair, a plurality of pockets in said fabric, said pockets complementarily receiving the horizontally extending arm members and the cross brace whereby the occupant of the chair will be pivotally suspended in said covering, and said pockets being detachably suspended from the interfitting portion of the frame.

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Nov. 29, 1955 M. GRANBY 2,725,096

DECK CHAIR CANVAS

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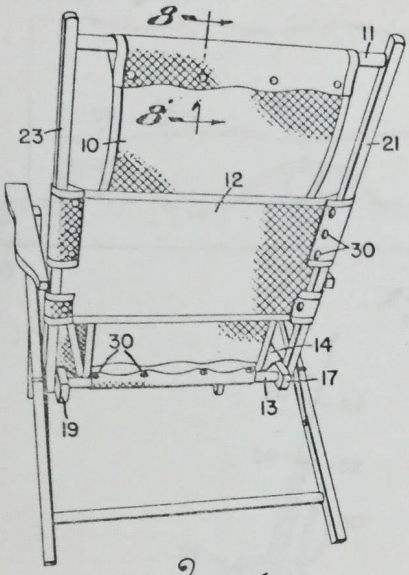


Fig. 1

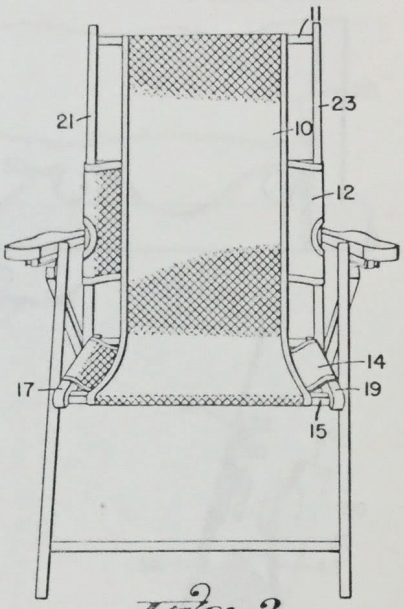


Fig. 2

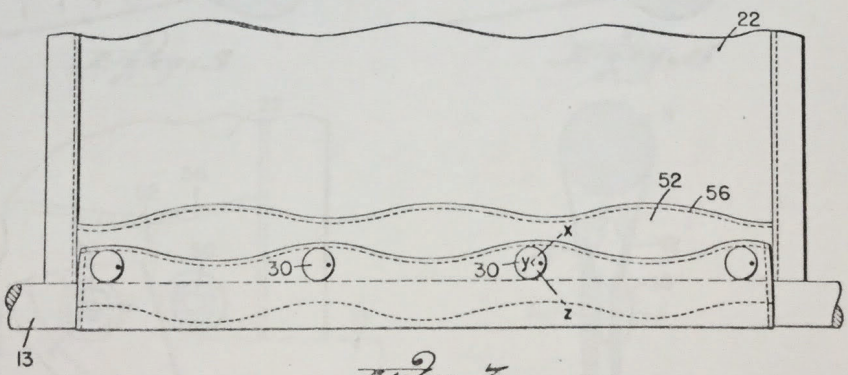


Fig. 3

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Nov. 29, 1955 M. GRANBY 2,725,096

DECK CHAIR CANVAS

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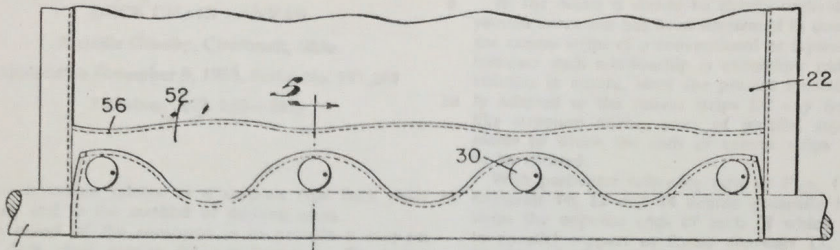


Fig. 4

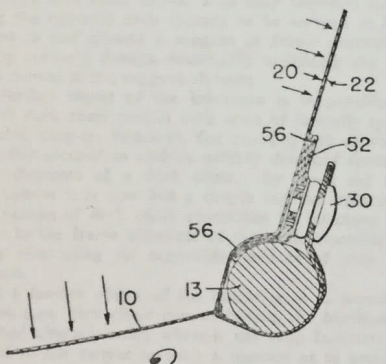


Fig. 5

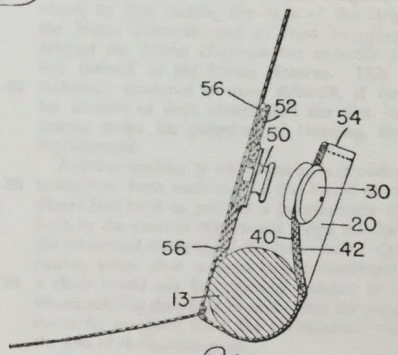


Fig. 6

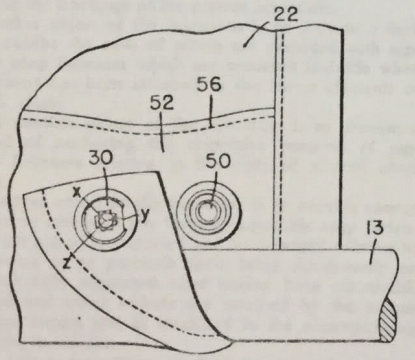


Fig. 7

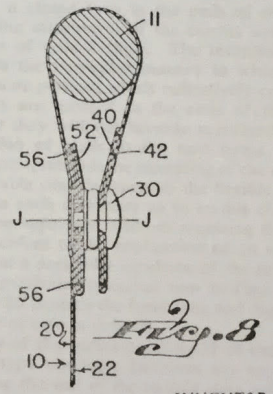


Fig. 8

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DECK CHAIR CANVAS

Melville Granby, Cincinnati, Ohio

Application December 9, 1953, Serial No. 397,204

3 Claims. (Cl. 155—187)

This invention relates to a snap-on type deck chair canvas, and to the method of making same.

An object of the invention is to provide a snap-on type deck chair canvas for attachment to the frame elements of a deck chair.

Another object of the invention is to provide lengths of flexible deck chair canvas with snap fasteners for enabling the opposite ends thereof to be secured in loop-fashion to and around a support or frame element for thereby securely though detachably anchoring the ends of the canvas to the support element.

A further object of the invention is to provide the ends of deck chair canvas with rows of laterally spaced separable snap-on fasteners, for enabling the canvas to be readily secured to and/or quickly detached from the frame elements of a deck chair. By using my deck chair canvas it is now but a simple task to replace the worn canvas of deck chair assemblies by attaching new canvas to the frame elements of the chair assembly, by merely connecting the separable portions of snap type fasteners.

Still a further object of the invention is to provide a snap-on type deck chair canvas having the hereinabove described characteristics wherein the snap fasteners are secured to the canvas in such a manner as to preclude said fastener elements from touching the body of a person seated in a deck chair provided with canvas embodying the teachings of the present invention.

Another object of the invention is to provide a deck chair canvas the ends of which are provided with separable snap fasteners which are rendered invisible when the canvas has been attached to the frame elements of a deck chair.

Still another object of the invention is to provide a method of anchoring the respective portions of separable fasteners relative to the ends of a deck chair canvas.

A further object of the invention is to provide canvas attachment means in the form of separable snap fasteners which are so constructed and so arranged relative to the canvas as to preclude their being accidentally or unintentionally separated after having been connected.

These and other objects are attained by the means described herein and as disclosed in the accompanying drawings, in which:

Fig. 1 is a perspective view of the rear of a typical deck chair provided with snap-on type canvas strips embodying the teachings of the present invention.

Fig. 2 is a perspective view of the front of the chair of Fig. 1.

Fig. 3 is an enlarged fragmentary view of the lower end of the chair back as seen in Fig. 1.

Fig. 4 is a view similar to Fig. 3 showing the relationship of the various parts when a load has been applied to the back and seat panels of the chair.

Fig. 5 is a sectional view taken on line 5—5 of Fig. 4.

Fig. 6 is a sectional view similar to Fig. 5 but illustrating the fasteners in separated position.

Fig. 7 is an enlarged fragmentary view of the lower right corner of Fig. 3 showing the snap fastener portions in separated position.

Fig. 8 is a sectional view taken on line 8—8 of Fig. 1.

At the outset it should be clearly understood that the present invention has been illustrated in connection with the canvas strips of a conventional or typical deck chair, however such relationship is exemplary rather than restrictive in nature, since the present invention is equally adapted to the canvas strips for any type of chair-like structure having pairs of parallel supporting elements to which the ends of canvas strips are adapted to be secured.

With particular reference now to Figs. 1 and 2, the numerals 10, 12 and 14 denote generally three canvas strips the opposite ends of each of which are secured to parallel support or frame elements 11, 13, 15, 17, 19, 21 and 23, respectively.

Heretofore it has been customary to secure the ends of canvas strips relative to their respective frame elements by first tacking the ends of the strips directly to the frame elements and of then wrapping the canvas around the frame elements for securely anchoring the end thereof to the frame element. This mode of attachment rendered it most difficult, if not impossible, for owners of deck chairs, and the like, to remove the canvas strips for purposes of cleaning, storage and/or replacement.

Another manner in which the ends of canvas strips have heretofore been anchored to the frame elements of deck chairs has been to provide a permanently closed loop or hem in the ends of the canvas strips for the reception of the structural elements of the deck chair. Quite obviously canvas strips thus secured to the structural elements of a chair could not be removed without at least partially disassembling the chair in order that the support elements could be removed from the permanently closed loops in the end of the canvas strips.

The primary object of the present invention is to provide strips of canvas the ends of which are provided with snap-type separable fasteners which when fastened will provide a closed loop in the ends of the strip, thereby facilitating attachment of the canvas strips to the frame elements of a deck chair. The invention likewise comprehends the particular manner in which the separable elements or portions which collectively comprise the snap fasteners are secured to the ends of the canvas strips whereby they will not become separated incident to the application of loads to the said strips. The invention further comprehends the mounting of the component parts of separable snap fasteners to the flexible canvas strips or panels in such a manner as to enable them to be easily opened or separated, without requiring the use of special tools, incident to the application of an opening pressure applied in a particular quadrant of the snap fasteners.

With particular reference now to Figs. 5, 6 and 8, the numeral 20 denotes the front face and the numeral 22 the rear face of canvas strip 10.

A row of the socket-portions 30 of each of a plurality of snap-type separable fasteners are secured directly to and along the end of the canvas strip with the open part of the socket portion facing outwardly of the rear face 22. In the preferred embodiment of the invention the socket portions 30 extend through the canvas strip and through a reinforcing strip which may, if desired, be formed by folding the end of the strip upon itself as at 40, thence back upon itself as at 42, for thereby providing a reinforced edge, note Fig. 6.

The stud portions 50 of the snap fasteners are secured directly to a reinforcing or carrier strip denoted generally by the numeral 52, said strip preferably comprising four plies of material which may, if desired, be similar to the

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material from which strips 10, 12 and 14 are fabricated.

Carrier strip 52 is permanently fastened to rear face 22 in spaced parallelism with t[illegible]nd 54 of the canvas strip such as by means of stitching [illegible]enoted generally by the numerals 56. As clearly evident from an inspection of Figs. 5, 6 and 8, no part of the socket portions extends through or is visible through front face 20 of the canvas strip.

With particular reference [illegible]ow to Fig. 3, the broken lines X—Y—Z define a qu[illegible]rant of the socket portion 30 of the fastener elements, [illegible]hich is so constructed and arranged as to effectively re[illegible]t lateral separation except in response to the applicatio[illegible]of opposing axial forces in the quadrant defined by th[illegible]ines X—Y—Z. In other words, the socket and stud [illegible]rtions are constructed and arranged whereby to effectiv[illegible] resist separation incident to the application of opposing [illegible]orces in planes at substantial right angles with common axis J—J, see Fig. 8, through the stud and socket portions. The present invention is neither directed to nor concerned with the particular structural details of such fastener means, which are commercially available, being known to the trade as "Lift-A-Dot" type of separable fasteners.

With further reference to Fig. 3, it will be noted that the quadrant defined by broken lines X—Y—Z is bisected by a line normal to the forces applied to the connected portions of the fasteners by a load supported on the front face of the canvas strip. The dot within the apex of quadrant X—Y—Z of Fig. 3 is on a line which bisects said quadrant, said dot indicating the center thereof.

The use of separable fasteners secured to the ends of canvas strips provides quick, easy means for securely anchoring the ends of the strips relative to the frame elements of a chair whereby accidental or unintentional separation of the fastener portions is positively precluded incident to the application of loads onto the canvas strips since, as a matter of fact, the greater the load applied to the canvas strips, the greater will be the force by which the respective socket and stud portions of the individual fasteners are locked together.

The canvas strips may be quickly removed from the chair frame incident to application of a lifting force applied to the socket portions 30 within the quadrant defined, in Fig. 3, by the lines X—Y—Z.

From the foregoing, it will be noted that I have provided simple yet highly effective means for enabling a canvas strip to be quickly secured to and removed from a chair frame by means of separable snap fasteners secured to the ends of the strips as heretofore indicated.

What is claimed is:

1. In a deck chair having a pair of spaced, parallel frame uprights connected at one end by an upper horizontal frame member and at the other end by a lower horizontal frame member to provide a back rest framework, a pair of horizontal side members extending forwardly from the lower ends of said uprights, a forward frame member interconnecting the forward ends of said side members to define therewith a seat framework, a length of canvas adapted to extend between said upper frame member and said forward frame member and having a medial portion adapted to be disposed adjacent said lower frame member to provide a seat and back rest, each end of the canvas having a row of socket portions of a plurality of snap-type fasteners secured thereto and a row of stud portions secured thereto in spaced relation to the socket portions, the marginal end portions of the canvas being adapted to be looped about the associated upper and forward frame members with the studs engaged in the sockets to firmly secure such end portions to the stated frame member, and a strip of material secured along one longitudinal edge to said medial portion of the canvas and adapted to be looped about said lower frame member, said strip and said medial portion having cooperable snap-type fastener portions secured thereto and interengaged with each other to firmly secure said medial portion to the lower frame member.

2. In a deck chair as defined in claim 1, a second length of canvas adapted to extend between said uprights and transversely behind the first mentioned length of canvas, each end of the second canvas having a row of socket portions of a plurality of snap-type fasteners secured thereto and a row of stud portions secured thereto in spaced relation to the socket portions, the marginal end portions of the second canvas being adapted to be looped about the associated uprights with the studs engaged in the sockets to firmly secure such end portions to the stated uprights.

3. In a deck chair as defined in claim 2, a third length of canvas adapted to extend between said horizontal side members and transversely beneath the first mentioned canvas, each end of the third canvas having a row of socket portions of a plurality of snap-type fasteners secured thereto and a row of stud portions secured thereto in spaced relation to the socket portion, the marginal end portions of the third canvas being adapted to be looped about the associated side members with the studs engaged in the sockets to firmly secure such end portions to the stated side members.

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297-441

Oct. 7, 1969 E. A. MORRISON 3,471,200

CHAIR CONSTRUCTION

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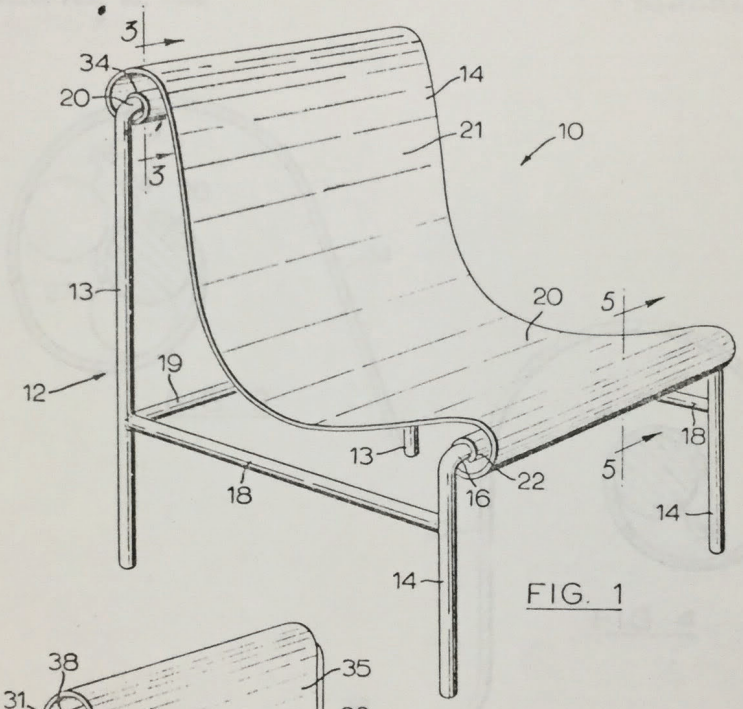


FIG. 1

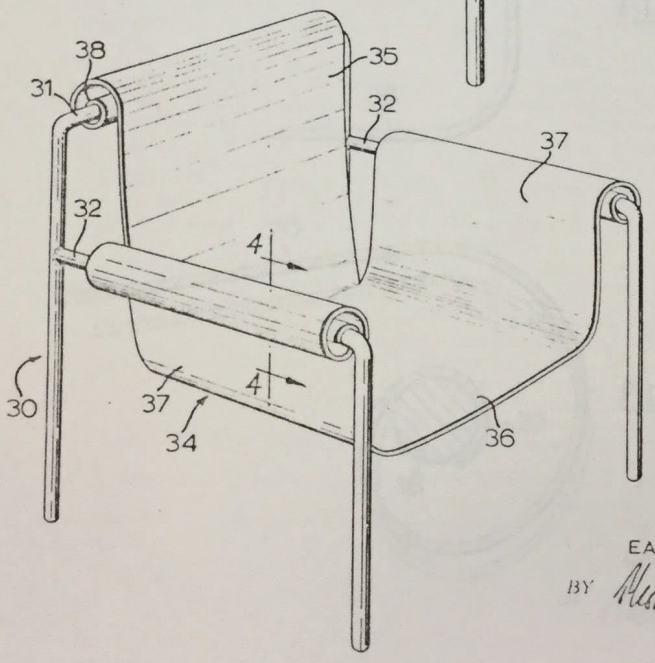


FIG. 2

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CHAIR CONSTRUCTION

Filed Feb. 23, 1968 2 Sheets-Sheet 1

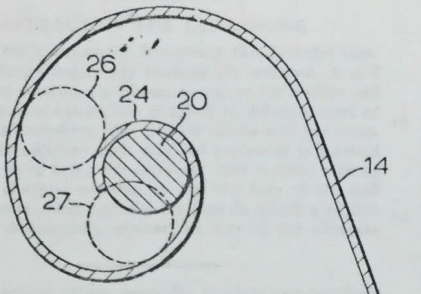


FIG. 3

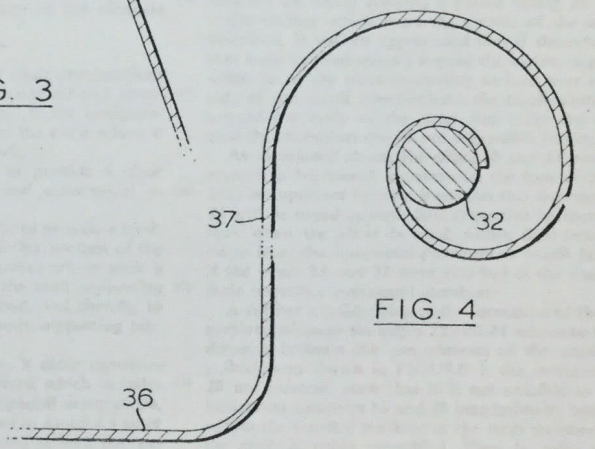


FIG. 4

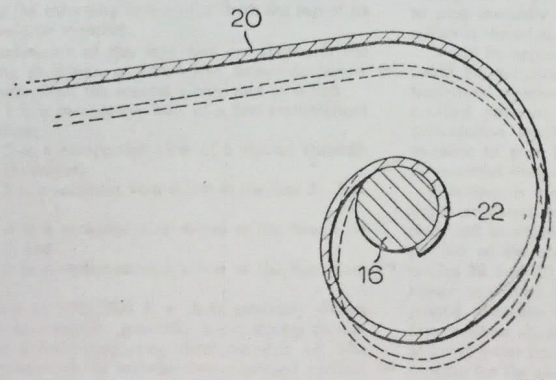


FIG. 5

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3,471,200

Patented Oct. 7, 1969

3,471,200

CHAIR CONSTRUCTION

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Filed Feb. 23, 1968, Ser. No. 707,524

Int. Cl. A47c 7/02

U.S. Cl. 297—441 4 Claims

ABSTRACT OF THE DISCLOSURE

A chair has a supporting framework that includes elongate members substantially horizontally oriented. A stiff but resilient member constitutes a support for a sitter and has at least two extremities attached to different ones of the elongate members. The portion of the stiff but resilient member adjacent each attached extremity is scrolled spirally so as to bring the extremity into contact with its respective elongate member so that the face of the stiff but resilient member opposite the face on which a person sits bears downwardly against the top of the elongate member.

This invention relates generally to chair constructions wherein a body-supporting portion is attached to a structural framework, and more particularly to the configuration of the body-supporting portion of the chair where it is connected to the structural framework.

It is an object of this invention to provide a chair construction which is both simple and economical to manufacture.

It is a further object of this invention to provide a chair construction in which the body-supporting portion of the chair is attached to the structural framework in such a way as to increase the deflection of the body-supporting portion of the chair under a given load, and thereby to enhance the "cushion" effect in the body-supporting portion.

Accordingly, this invention provides a chair construction, comprising: a supporting framework which includes elongate members in substantially horizontal orientations, and a stiff but resilient member adapted to support a sitter on one face thereof, the member having at least two extremities attached to different ones of said elongate members, the portion of the member adjacent each attached extremity being scrolled spirally away from said one face to bring the extremity into contact with the top of its respective elongate member.

Two embodiments of this invention are shown in the accompanying drawings, in which like numerals denote like parts throughout the several views, and in which:

FIGURE 1 is a perspective view of a first embodiment of this invention;

FIGURE 2 is a perspective view of a second embodiment of this invention;

FIGURE 3 is a sectional view taken at the line 3—3 in FIGURE 1;

FIGURE 4 is a sectional view taken at the line 4—4 in FIGURE 2; and

FIGURE 5 is a sectional view taken at the line 5—5 in FIGURE 1.

Turning first to FIGURE 1, a chair generally shown at 10 is seen to comprise generally a supporting framework 12 and a body-supporting sheet member 14. The supporting framework 12 includes two rearward vertical members 13 (of which only one is visible in FIGURE 1), two forward vertical members 14, a forward horizontal member 16 bridging between the upper ends of the forward vertical members 14, two side horizontal members 18 (only one of which is visible in FIGURE 1), a lower rearward horizontal member 19 bridging between the two rearward vertical members 13, and an upper rearward horizontal member 20 bridging between the upper ends of the rearward vertical members 13. In the embodiment shown in FIGURE 1, the body-supporting member 14 is a stiff but resilient sheet member shaped to provide a seat portion 20 and a back portion 21 for supporting the body of a sitter. The forward edge 22 and the rearward edge 24 of the sheet member 14 are attached, respectively, to the forward horizontal member 16 and the upper rearward horizontal member 20. The marginal portion of the sheet member 14 adjacent each edge 22 and 24 is scrolled spirally such that it encircles its respective horizontal member, passes therebeneath, and brings the edge 22 or 24 into contact with the top of the elongate member. This configuration is clearly shown in FIGURE 1. For the sake of clarity of definition in the appended claims, the scrolled portions of the sheet member 14 will be referred to as being scrolled spirally away from the surface of the sheet member 14 which supports the sitter. This terminology means that the surface of the sheet member 14 which contacts a person sitting on the chair is the surface which is on the outside of the scroll convolutions. It will be appreciated that if the scrolled portion were scrolled spirally toward the surface supporting a sitter, i.e. if the sitter-supporting surface were on the inside of the scroll convolutions, the scroll would project toward the body of the sitter and make the chair extremely uncomfortable, if not impossible to use.

As mentioned above, the edges 22 and 24 contact their respective horizontal members on the tops of the latter. This is important because it ensures that the edges 22 and 24 will be urged against their respective horizontal members when the chair is used, rather than being pulled away from the horizontal members as would be the case if the edges 22 and 24 were attached at the underside of their respective horizontal members.

A further consideration in the formation of the scrolled portions adjacent the edges 22 and 24 relates to the radial distance between the convolutions of the scroll. In the embodiment shown in FIGURE 1, the members 13 and 20 are integral, such that it is not possible to slide the horizontal members 16 and 20 longitudinally into position within the scrolled portions of the sheet member 14 when the chair is being assembled. Thus, in order to permit assembly of the chair, the adjacent convolutions of each scrolled portion must be spaced from each other sufficiently far to permit the respective horizontal members to pass inwardly between the convolutions to a position adjacent the edge.

It will be appreciated that other supporting frameworks could be designed in which it was possible to slide the horizontal members longitudinally into position within the scrolled portions, and for this reason the provision of convolution spacing sufficient to permit the horizontal member to pass between convolutions is not considered an essential limitation.

Attention is now directed to FIGURE 3, in which the upper rearward horizontal member 20 is shown in section, and in which the preferred curvature of the scrolled portion of the sheet member 14 is shown. Broken line circles 26 and 27 represent intermediate positions of the upper rearward horizontal member 20 as it is being passed inwardly between the convolutions to the solid line position shown in FIGURE 3. It will be noted that, at every point between the convolutions, there is sufficient spacing for the member 20 to pass without jamming.

The purpose of scrolling the portions of the sheet member 14 adjacent the attached edges 22 and 24 is to permit the sheet member 14 to deflect to a greater degree under load than it would if its edges were attached without being scrolled. In other words, the scrolling of the attached edges gives the sheet member 14 a greater "cushion" effect than it would normally have. Attention

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is directed to FIGURE 5, which shows in solid lines the scroll configuration at the forward horizontal member 16 when the chair is unloaded, and which shows in broken lines the scroll configuration when the chair is loaded. It will be clear from this figure that the "cushion" effect is derived from the distortion of the scroll under load.

Attention is now directed to FIGURES 2 and 4, in which the second embodiment of this invention is shown. A supporting framework 30 includes a rearward horizontal member 31 and two side horizontal members 32. The sheet member 34 include back portion 35, a seat portion 36, and two side portion 37. The back portion 35 is scrolled adjacent the edge 38 in exactly the same manner as the back 21 in FIGURE 1. The sides 37 are scrolled similarly to the back portion 35, as can be seen in FIGURE 4. Again, in FIGURE 2, as in FIGURE 1, the edges which are attached to the horizontal members contact the horizontal members along the top of the latter, in order to ensure a compression load as between the horizontal member and the attached edge.

A large choice of materials is available for the sheet member 14. Reinforced plastics, sheet metal and laminated wood products, for example, could all be employed for the manufacture of the chair construction according to this invention. The use of sheet metal, however, is particularly advantageous with respect to the ease with which a flat edge can be scrolled, and the accurate duplication of a given scroll configuration. In this connection, it will be noted in FIGURES 3, 4 and 5, that the configuration of the three scrolled portions is identical. Note, for example, that the actual edge of each sheet member (the termination point of each scroll) lies in a plane which contains the axis of the respective horizontal member and which is normal to the flat portion of the sheet member immediately adjacent the scrolled portion thereof. This is not, of course, an essential limitation of this invention, but merely a consequence of providing identical scroll portions on the sheet member, which provision is likewise not essential to this invention.

In the embodiment shown in FIGURE 1, it will be readily appreciated that the sheet member 14 could be replaced by a plurality of parallel, spaced-apart bands all having the same general outline and scroll configurations as the sheet member 14, without departing from the essence of this invention. It will further be appreciated that the principle of this invention would be employed if the sheet member 14 were replaced by a plurality of rods having no appreciable lateral dimension. In the appended claim 1, the word "member" is intended to include within its ambit slat-like, band-like or rod-like members, as well as sheet members of the kind illustrated.

In the two embodiments disclosed in this invention, the framework members to which the edges of the sheet members 14 and 34 are attached are shown as horizontal. It will be appreciated that a small departure from horizontal

orientation in these members will not affect the advantages deriving from this invention. Provided that the force being transmitted from the seat member to the framework member has its largest component perpendicular to the framework member, the "cushion" effect will be retained.

The attachment of the edges of the sheet members to the framework members can be accomplished in any number of conventional ways. For example, the edges can be welded to the framework members, or attached thereto by means of mechanical fastening devices such as screws, rivets, bolts, etc.

What I claim as my invention is:

1. A chair construction comprising:
a supporting framework which includes elongate members in substantially horizontal orientations,
and a stiff but resilient member adapted to support a sitter on one face thereof, the resilient member having at least two extremities attached to different ones of said elongate members, the portion of the resilient member adjacent each attached extremity being scrolled spirally away from said one face to encircle its respective elongate member in spaced relation therewith and to bring the extremity into contact with the top of its respective elongate member.

2. A chair construction as claimed in claim 1, in which said stiff but resilient member is a sheet member, the extremities of said sheet member being the edges thereof.

3. A chair construction as claimed in claim 1, in which adjacent convolutions of each scrolled portion are spaced from each other sufficiently far to permit the elongate member to pass inwardly between the convolutions to a position adjacent said opposite face of the extremity.

4. A chair construction as claimed in claim 2, in which adjacent convolutions of each scrolled portion are spaced from each other sufficiently far to permit the elongate member to pass inwardly between the convolutions to a position adjacent said opposite face of the extremity, and in which the elongate members are of circular cross-section.

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CASMIR A. NUNBERG, Primary Examiner

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297-06-71 XR 3,591,233

United States Patent

[11] 3,591,233

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[45] Patented July 6, 1971
[32] Priority June 17, 1968
[33] Austria
[31] A5794/68

[54] ARTICLE OF FURNITURE
11 Claims, 12 Drawing Figs.

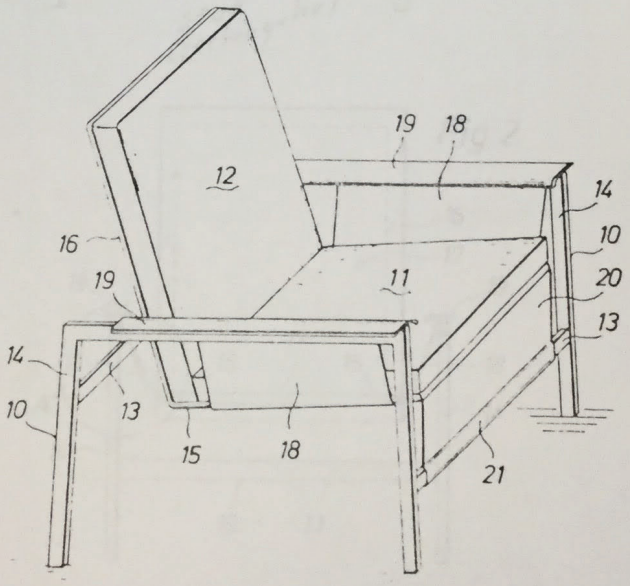
[52] U.S. Cl. 297/276, 297/282, 297/452
[51] Int. Cl. A47c 3/025
[50] Field of Search 297/445, 452, 441, 281, 273, 276, 282

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Primary Examiner – Reinaldo P. Machado
Attorney Richard G. Stephens

ABSTRACT: An article of furniture, such as a chair, comprising a base frame formed from at least two spaced-apart side sections interconnected by at least one cross-strut; at least one back and seat unit universally displaceable between said side sections by the suspension of said back and seat unit between said side sections by means of at least one elastic sheet secured at at least one end to at least one side section and being in supporting engagement with said back and seat unit and optionally provided with an elastic retaining strip securable at one end to said back seat unit and at its other end to a cross-strut in the front region of said base frame so as to limit the rising movement of the front of said back and seat unit when loaded.



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SHEET 1 OF 5

Fig.1

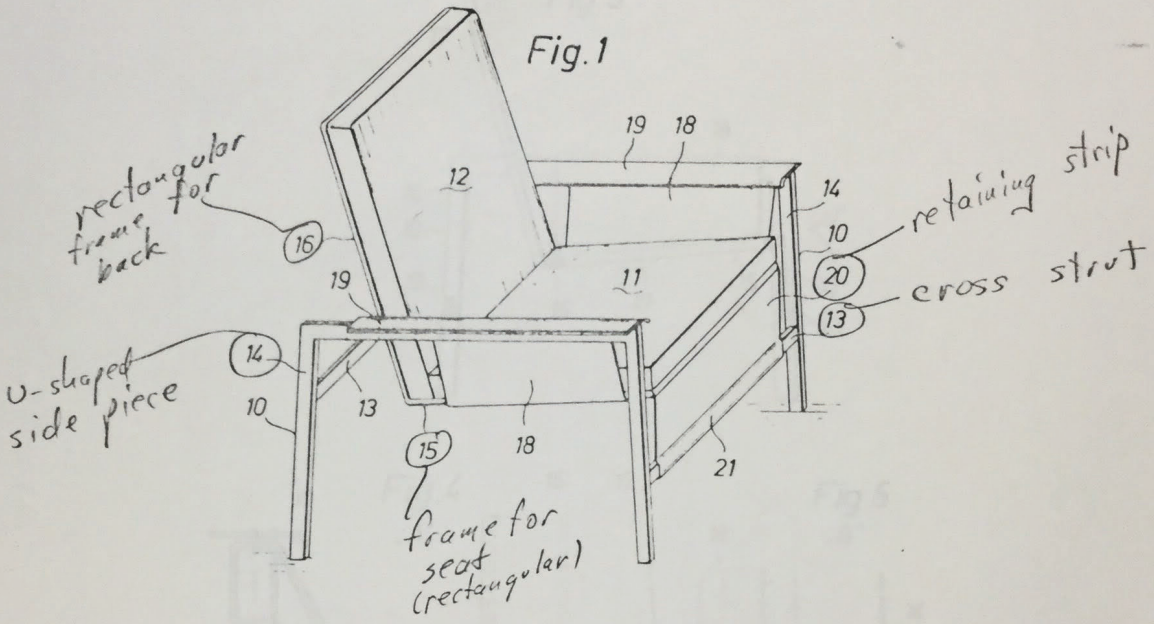
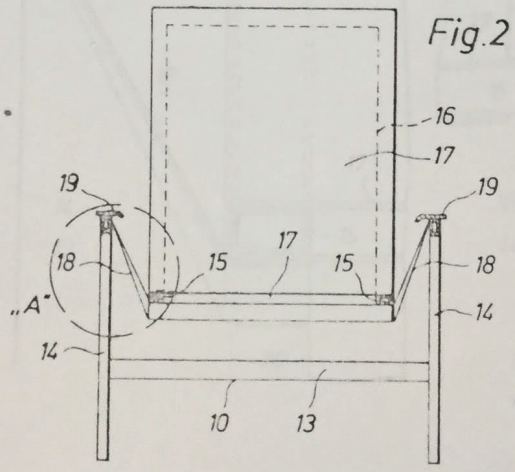


Fig.2



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Fig.3

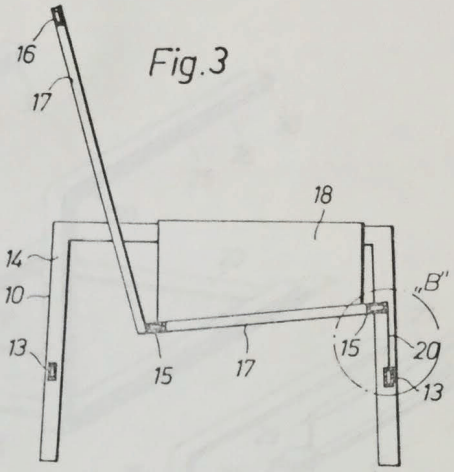


Fig.4

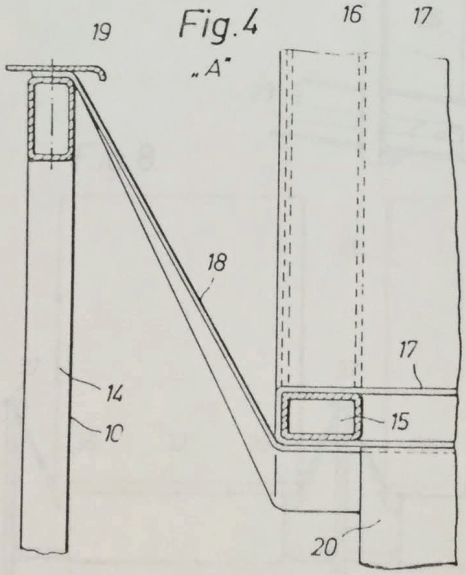
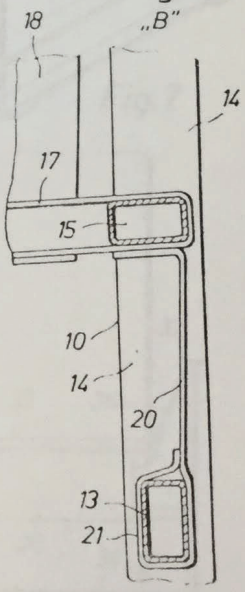


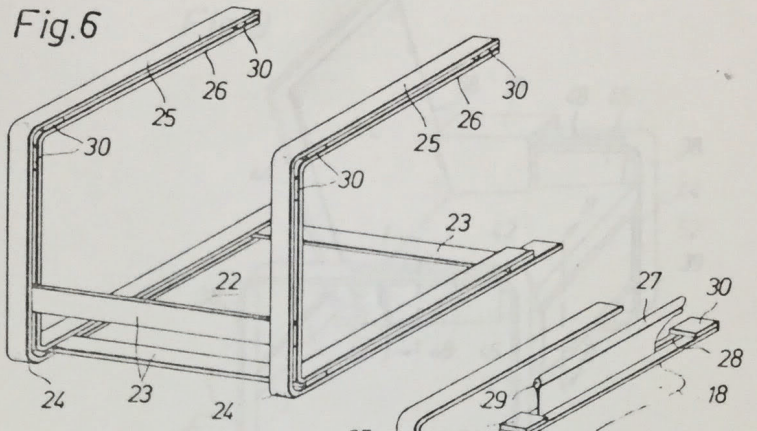
Fig.5



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Fig.6



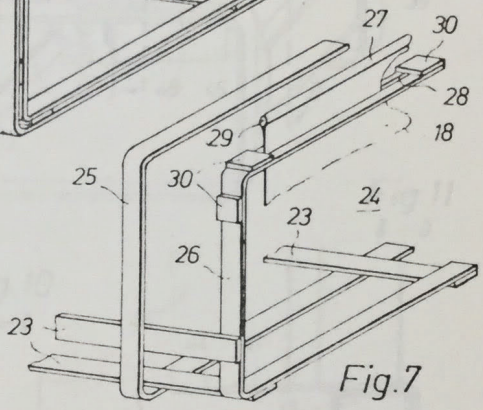
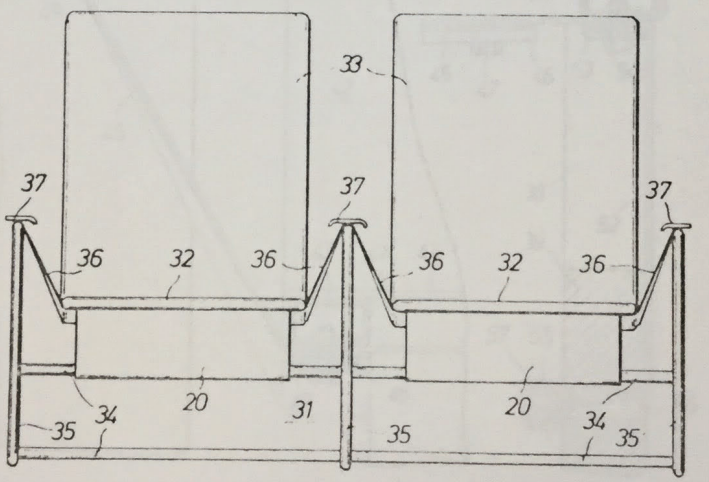


Fig.7

Fig.8



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Fig.9

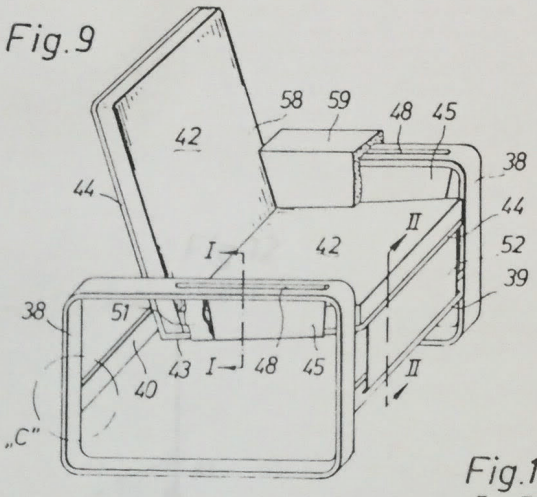


Fig.10
I ÷ I

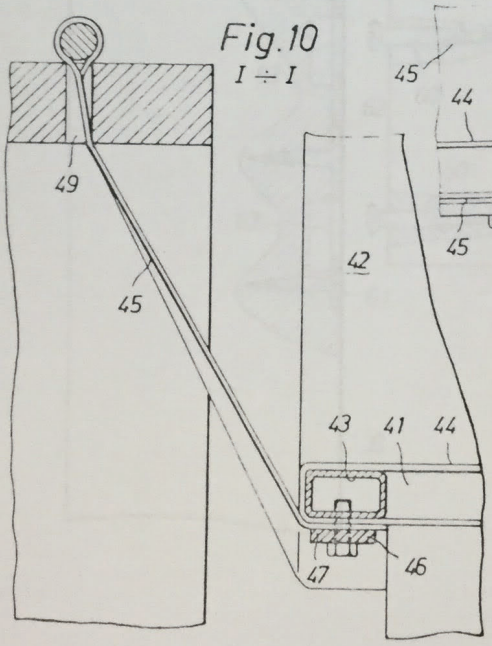
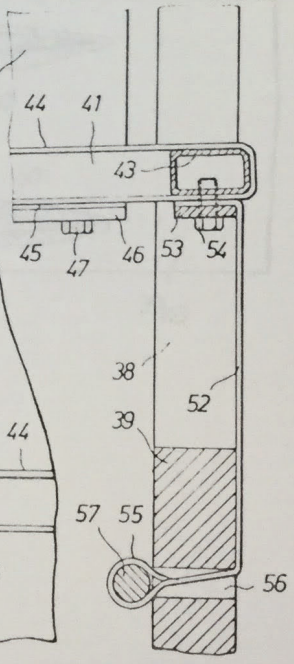


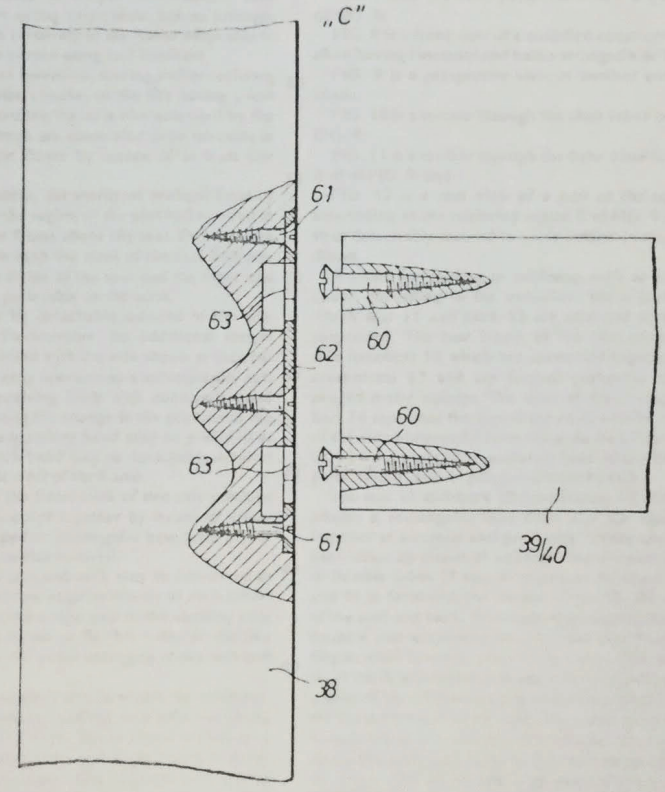
Fig.11
II ÷ II



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Fig. 12



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ARTICLE OF FURNITURE

The present invention concerns an item of furniture for sitting and/or reclining, such as an arm chair or couch, having a seating surface and a back between the sides of a base frame.

In the case of conventional chairs, the seat and back are movable only in a certain direction relatively to the suspension since the back and the seat are connected to one end of the base frame and the connecting area is suspended freely displaceable between the back and the seat.

Such known chairs have efficient spring suspension but do not permit a frequently desirable change of position of the seat and back relative to the frame.

It is an object of the present invention to provide an item of furniture which, in addition to simple construction, easy manufacture and efficient spring suspension, has an arrangement of the seat and back relatively to the frame adaptable to the desired position of the person using said furniture.

According to the present invention, seating and/or reclining furniture such as arm chairs, couches or the like having a seat and back arranged between the frame is characterized by the feature that the seat and back are suspended to be movable in all directions between the frame by means of at least one elastic band.

In a preferred embodiment, the elastic or resilient band or sheet may be arranged in the region of the seat and secured in the region of its end to the frame above the seat. One or more bands may be provided on both the sides of the seat with one end being secured on the frame of the seat and the other end on the frame of the chair, preferably on the arms.

The elastic sheets may be detachably secured to the side portions and the seat. Furthermore, an additional longer elastic strip may be associated with the side sheets at the rear of the seat, which longer strip operates as a subsequently acting spring element for receiving loads with constantly good spring properties; for limiting the change in the position of the seat and back an elastic supporting band may be provided at the front of the chair, which band may be detachably secured to the seat and a transverse strut of the frame.

It is preferable to form the framework of two side portions rigidly or detachably connected together by means of cross-struts and having a U-shaped or rectangular base form of, for example, metal, wood or plastics material.

The frames forming the seat and back may be connected at a certain and preferably obtuse angle relatively to each other, by welding or the like to form a rigid unit in the abutting area and provided with elastic bands or flexible tubes or the like resilient members to form the under springing of the seat and back.

The chair of the present invention is simple to construct, easy and economical to produce and has very efficient spring characteristics of its seat and back. The seat and back form a unit which is preferably arranged to be displaceable in every direction between the base frame. This seat and back is held on the base frame in a simple and reliable manner by means of one or more elastic sheets which permit movement of the seat and back according to the position of the body of the person using the chair. Because of the resilient and floating arrangement of the seat and back, these two loading surfaces, which are rigidly connected together, adapt themselves to the position of the body so that this seating and/or reclining chair may be used as a multipurpose item of furniture. The loading capacity of the seat and the back is desirably very great and designed according to actual requirements, whilst at the same time, gentle suspension is ensured.

The construction of the base frame is very simple and assembly thereof is easy and attachment of the seat and back extremely simple.

The chair has an extremely efficient spring capacity and great loading capacity in addition to long life without signs of fatigue of the elastic sheets, tubes, bands or strips and represents a convenient chair, providing a favorable seating, reclining and leaning surface for the person using it.

The invention will be described further, by way of example, with reference to the accompanying drawings, in which:

FIG. 1 is a perspective view of an arm chair having a seat and back unit suspended in a base frame;

FIG. 2 is a partial front view of the chair of FIG. 1;

FIG. 3 is a side view partly in section of the chair of FIG. 1;

FIG. 4 is a front view partly in section, of the securing region of the seat and back with the base frame according to the encircled region A in FIG. 2;

FIG. 5 is a side view, partly in section, of a portion of the seat with attachment to the base frame according to the encircled region B of FIG. 3;

FIG. 6 is a perspective view of another embodiment of a base frame;

FIG. 7 is an exploded perspective view of part of the frame of FIG. 6;

FIG. 8 is a front view of a modified construction of a seat or chair having two seats and backs arranged side by side;

FIG. 9 is a perspective view of another embodiment of a chair;

FIG. 10 is a section through the chair taken on the line I–I of FIG. 9;

FIG. 11 is a section through the same chair taken on the line II–II of FIG. 9; and

FIG. 12 is a rear view of a part of the same chair corresponding to the encircled region C of FIG. 9 having a cross-strut detachably secured to a side portion in the exploded condition.

A chair for seating or reclining such as an armchair or couch according to the invention, has a base frame 10 in which seat 11 and back 12 are arranged so as to be freely suspended. The base frame 10 has two, preferably parallel, side members 14 which are connected together by means of cross-struts 13 and are formed preferably of inverted U-shaped metal stirrups. The sides of the U-shaped side members 14 represent the legs of the chair and the top crosspieces of the side portions 14 form the arms (see FIG. 1). The members 14 are preferably produced from tubing having a rectangular, round, oval or polygonal cross section.

The seat 11 and back 12 have frames 15 and 16 of, for example, a rectangular base form and are rigidly connected together at a certain and preferably obtuse angle relatively to each other by means of welding. One or several elastic bands or flexible tubes 17 may be drawn round these two frames 15 and 16 to form with the frames 15 and 16, the underspringing of the seat and back. This underspringing of the seat and back forms a unit suspended between the base frame 10 which is displaceable in every direction by means of at least one elastic sheet 18. It is preferable to provide the elastic sheet 18 in the region of the underspringing of the seat (seat frame 15), and the sheet 18 may extend under the entire width of the seat and be secured at its ends extending beyond the width of the seat, above the underspringing, to the base frame 10, preferably to the arms. The elastic sheet 18 preferably extends over substantially the entire depth of the seat and thus supports the entire surface of the underspringing of said seat.

The elastic sheet 18 may be formed of two parts which are provided in the two side regions of the seat 11 and be connected at one end to the base frame 10, preferably the arm, and at the other end to the seat frame 15.

A plurality of elastic sheets 18 arranged adjacent one another at spaced intervals to provide the floating suspension for the seat 11 and back 12, extend as strips in the side areas of the seat from the base frame 10 to the seat frame 15 or, alternatively, from one side of the frame under the seat frame 15 as far as the other side of the base frame.

The sheet 18 is elastic in one direction and is provided with elastic threads extending in the direction of the axis of symmetry of the chair so that the sheet is elastic in the direction of the standing surface of the seating and/or reclining chair.

The elastic band or tube 17, serving as seat and back band, and the elastic sheet 18 consist in each case of an elastic web of fabric, the weft and/or warp threads of which have

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preferably and at least partially, cores of vulcanized rubber threads round which textile threads are spirally wound.

The sheet **18** is secured at one end by means of screws between the arm and a strip **19** provided thereon and can be secured at the other end to the band **17** of the seat frame **15** by, for example, vulcanizing.

It is preferable to manufacture the frames **15** and **16**, the side members **14** and the cross-struts **13** of rectangular tubing. In the front area of the seat frame at least one elastic retaining strip **20** may be provided which limits the upward movement of the seat frame **15** when a person seated thereon leans back, and can be attached at one end to the seat frame **15** and at the other end to the front cross-strut **13** of the base frame **10**. The retaining strip **20**, or a plurality of retaining strips arranged by vulcanizing side by side at spaced intervals, is secured at one end to the band **17** of the seat **11** and at the other end is disposed round the cross-struts **13** and formed by vulcanizing into an attachment loop **21** (see FIG. **5**).

A different type of base frame **22** is shown in FIGS. **6** and **7** which is formed of two spaced apart side portions **24** connected together by cross-struts **23**. The side members **24** preferably have a U-form, one side of each portion forming the leg (standing surface) and the other side, the arm.

Each side member **24** may be made of wood for example and have two telescoping stirrups **25**, **26** which may be connected together by screws, glue or the like securing means: **25** representing the outer stirrup into which stirrup **26** may be inserted. The elastic web **18** supporting seat **11** and back **12**, or the seat and back underspringing, is secured at its ends to the side members **24**, the web **18** being enlarged or thickened in the region of its ends, extends through the inner stirrup **26** and is supported by its reinforcement **27** on the inner stirrup **26**.

The inner stirrup **26** has a recess, such as slot **28**, through which the web **18** is passed by its ends. The reinforcement **27** of the web **18** is supported between the outer and inner stirrups **25**, **26** on the inner stirrup **26**, whereby this web **18** is suspended at both ends from the side members **24**. It is preferable to provide reinforcement **27** of the sheet **18** at its two ends by loops through which there extend a retaining rod **29** of, for example, metal or wood. The cross section of the retaining rod **29** and the sheet loop is greater than the width of the longitudinal slot **28** so as to prevent the end of the sheet **18** slipping through. The retaining sheet **18** may also be formed as a sheet extending over the entire depth of the seat or be formed by several strips extending over the entire width of the seat. Furthermore, the sheet **18** may be formed of two parts provided in the side areas of the seat underpsringing, said parts being secured at their other ends to the band **17** of the seat frame **15** by e.g. vulcanizing or adhesion. The cross-struts **23** are preferably provided on the inner stirrups **26** and extend, when the side portions **24** are pushed together, between the outer and inner stirrups **25** and **26**. The inner stirrups **26** may be provided with several spacers **30** which determine the spacing between the two stirrups **25** and **26** to be connected.

The seat **11** and back **12** and the seat and back underspringing are displaceably suspended in the base frame **22**, corresponding to the base frame **10** of FIG. **1** by means of the elastic sheet **18**. Pads **31** may be disposed on the seat and back underspringing.

An alternative embodiment of the invention is shown in FIG. **8** and comprises a base frame **31** in which, for example, two seats **32** with backs **33** are displaceably suspended. The base frame **31** is composed of three side members **35** connected together by cross-struts **34** and has a U-shaped stirrup form and U-shaped members may be arranged to stand on the legs or rest on one leg.

The basic form of the seats **32** and backs **33** and the suspension thereof correspond to the embodiments shown in FIGS. **1** to **5**. The suspension of the seat **32** and back **33** is also provided by means of elastic sheets **36** which are secured to the side members **35** in the region of the arms **37**. The sheets **36** may be secured by means of screws or adhesives between the side members **35** and the associated arms or, according to the embodiment shown in FIGS. **6** and **7**, in slots formed in the side members **35**. The center side member **35** serves to secure two elastic sheets **36** so that only three side members **35** are required for the two seats **32**. In the adjacent marginal areas of the two seats **32**, two sheets **36** may be provided which extend from the respective seats **32** to the side members **35**, or one sheet **36** may be provided which is secured at both its ends to the seats **32** and is secured in the center area between the side member **35** and arm **37** or extend through a slot into the center member **35**.

It is preferable to form the side members **35** of tubes of circular cross section.

Furthermore, a plurality of seats **32** and backs **33** may be arranged adjacent to each other, the adjacent marginal areas of two seats being always secured to one side member **35**.

A further embodiment is illustrated in FIGS. **9** to **12** in which the chair has two side frame members **38** having, for example, an angular and preferably rounded rectangular section. The two side frame members **38** are spaced from each other by means of front and rear transverse struts **39**, **40**.

In FIGS. **9** to **12** a seat **41** with back **42**, similar to that of FIGS. **1** to **5**, is shown displaceably suspended between the two side members **38**, the seat **41** and back **42** having rectangular frames **43** which abut each other at certain and preferably obtuse angle and which are rigidly connected together. One or possibly more elastic bands or tubes **44** representing the underspringing of the seat and back are drawn round the two frames **43**.

The seat **41** with back **42** is floatably suspended so as to be displaceable in all directions between the side members **38** by means of lateral elastic sheets **45**. Each lateral sheet **45** is detachably connected at its upper ends to the side members **38** and at the lower end to the seat **41**, and at its lower end to the lower side of the seat **41** in its lateral marginal areas by means of a clamping strip **46** and screws **47** or the like securing means engaging therewith and extending into the seat frame **43**. The upper ends of the side sheets **45** are formed into loops **48** which extend through slots **49** (only one shown) in the upper horizontal part of the frames **38** and are each secured by means of a retaining rod **50** of metal, plastics material or wood passing through loop **48**. It is preferable for the cross section of the retaining rod **50** to be slightly larger than the width of the slot **49** so that the retaining rod **50** disposed in the loop **48** rests on top of the members **38**, and when the sheet **45** is under tension, it cannot be pulled through the slot **49** with its loop **48**, thus preventing undesirable detachment (see FIG. **10**).

Towards the rear of the seat **41** an auxiliary elastic strip **51** of smaller width than sheet **45** is associated with each sheet **45** and is detachably secured to the members **38** and the seat **41** in a similar manner as sheet **45**. The strip **51** is longer than the adjacent band **45** by sufficient amount so that it remains untensioned until sheet **45** received a certain load. If the sheet **45** is loaded beyond this certain load, tensioning of the longer strip **51** ensues so that the loading forces are received by both the sheet **45** and the strip **51** so that, because of their difference in length, different loads may be received with a satisfactory spring property and additional spring elements are rendered unnecessary. Sheet **45** and strip **51** can absorb heavy loads; smaller loads being compensated by the sheet **45** with the strip **51** serving as a (delayed action) spring in the event of increasing loads.

At least one retaining band **52** is provided in the front region of the seat and extends almost over the entire width of the seat thus limiting the upward movement of the seat **41** when under the load of a person leaning back, and also limiting the swiveling movement of the seat and back unit directed downwardly. The retaining band **52** is detachably secured at its upper end to the underside of the seat frame **43** by means of a clamping strip **53** and screws **54** passing through the strip **53** and the band **52** extending into the seat frame **43**. The other end of the plastic band **52** is formed into a loop **55** which extends from the front of the chair through a slot **56** in the cross-

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strut 39 and is detachably secured to the cross-strut 39 by means of a retaining rod 57. The retaining rod 57 extends through the loop in the retaining band 52 at the rear of strut 39 and prevents the band 52 slipping out of the slot 56 when under tension.

The arrangement of the side sheets 45 and strips 51 of different length in both side areas, and of the retaining band 52 in the front region of the chair provides satisfactory spring capacity and absorption of loads of different weight with a constant spring suspension. Furthermore, the seat 41 with back 42 can be removed from the side members 38 as a unit in a simple and rapid manner. Additional cushions 58 may be disposed on the seat 41 and the back 42 and loose arm cushioning 59 may be laid over the regions of the frame housing the retaining rods 50 in the sheet loops 48.

In order to make it possible to transport the chair in a simple and space saving manner, the side members 38 are detachably connected to the cross struts 39 and 40 by means of mounting fittings. Two head screws or pins 60 are set in the fronts of the cross-struts 39, 40 and arranged at a space one above the other. The insides of the side members 38 each have a connecting plate 62 countersunk by means of screws 61. The connecting plates 62 each have two slots 63 arranged one above the other and enlarged at one end for inserting the head screws 60 which can be inserted in the slot 63 at right angles to the plane of the plate and thereafter displaced downwardly by a certain amount for connecting the side members 38 to the cross-struts 39,40. The shafts of the head screws 60 when in engagement extend into the slots 63 with their heads or attachments being disposed behind the slots 63 in contact with the plate 62 so that axial displacement of the head screws 60 is prevented. The front ends of the cross-struts 39, 40 extend along the plates 62 without a clearance and the head screws 60 resting in the slots 63 of the connecting plates 62, establish a firm but detachable connection between the side frames 38 and the transverse struts 39 and 40. Because of this detachable connection, the base frame sections formed on side members 38 and cross-struts 39,40 may be rapidly, simply and compactly packed a feature which makes them convenient for transportation.

The chair of the invention is advantageously provided with a simple but gentle and constant spring suspension of the seat and back which is obtained by means of an elastic sheet which is easy to manufacture and to secure and is also resistant to stresses.

The seat and back preferably form a spring-suspended unit and can be changed jointly, in any desired manner, in their position relatively to the base frame of the chair. The attachment of the elastic sheet to the seat and back, and also to the base frame, can be carried out in any other different manner. In addition, the shape of the base frame may be of any desired type and be formed of any material such as for example plastics material.

Such a seat may be fitted with either a rigid or resilient seat and back.

The floating suspension for seating according to the invention is particularly suitable for use in omnibusses and long distance coaches since the universally displaceable suspension of the seat and back unit gives not only considerable technical advantages, but also a great saving in weight of at least 50 percent and greater safety in respect of the risk of injury.

On bad roads jolts or bumps are absorbed by the elastic sheets and not transmitted to the passengers. The base frame can be easily and simply fitted in an omnibus by virtue of its shape. Since a rigid back is unnecessary, serious damage to persons is avoided in a favorable manner in the event of accidents, because the seat and back are suspended as a unit in a floating manner which thus yields under loads or absorbs jolts. When the seat is fitted in a vehicle, the cross-struts may be omitted so that freedom of movement for the legs of the passengers is ensured. In addition, seats are also suitable as chairs in large halls.

I claim:

1. An article of furniture, such as a chair, comprising: a base frame formed from at least two spaced apart side sections interconnected by at least one cross-strut; at least one back and seat unit comprising a rigid angle frame carrying resilient seat and back cushioning means in planes arranged at an obtuse angle relative to each other, and means for resiliently suspending said back and seat unit from said base frame to allow universal displacement of said back and seat unit relative to said base frame consisting of at least one elastic sheet having one end attached to said rigid angle frame adjacent the seat portion of said angle frame and an opposite end attached to one of said side sections, thereby to allow universal displacement of said back and seat unit relative to said base frame.

2. An article according to claim 1 wherein said means for resiliently suspending said back and seat unit comprises elastic sheet means having edges attached to said back and seat unit and opposite edges attached to portions of said side sections of said base frame which form arm rests, whereby said back and seat unit is resiliently suspended from said arm rest portions of said article of furniture.

3. An article of furniture according to claim 1 wherein at least one elastic sheet extending almost over the entire depth of the seat and at least one auxiliary elastic strip associated with the sheet in the rear area of the seat are provided for the universally displaceable suspension of said back and seat unit between said two side members, said auxiliary strip being longer than said elastic sheet for delayed spring action when said seat and back unit is loaded.

4. An article of furniture according to claim 1 wherein each side section is of a substantially U-shaped form with one lower shank thereof forming a supporting surface, the other upper shank forming an arm and the crosspiece forming a leg and wherein each side section comprises two telescopic interconnectable U-shaped members, one U-shaped member being provided in the region of said arm (upper shank) with a recess such as a longitudinal slot through which one end of said elastic sheet passes and is secured, by means of terminal reinforcements of said elastic sheet, between the inner and outer telescopic U-shaped members of said side members.

5. An article according to claim 1 having an elastic retaining strip extending across the front of said seat portion of said angle frame, said elastic retaining strip having one end connected to said back and seat unit and an opposite end connected to said base frame, thereby to resiliently oppose upward movement of the front edge of said seat portion of said back and seat unit.

6. An article of furniture according to claim 5 wherein said back and seat unit comprises a framework having at least one elastic sheet, tube or the like cover drawn thereover and said elastic sheet is securable at one end by means of screws or the like between a portion of said side section forming an arm and an arm ledge and at its other end by vulcanizing to said elastic sheet, tube or the like drawn over said seat frame; and wherein said retaining strip is connected at one end to the back and seat cover by vulcanizing or mechanical means and at its other end, formed as a tubular portion, is optionally retained on said cross-strut.

7. An article of furniture according to claim 6 wherein said elastic sheet is secured at at least one end to at least one side section above the plane of the seat portion.

8. An article of furniture according to claim 6 wherein said elastic sheet consists of a web which is elastic in one direction and has elastic threads extending in the direction of the center longitudinal plane of the chair (axis of symmetry).

9. An article of furniture according to claim 8 wherein said elastic web is of a fabric whose warp and/or weft threads preferably have at least in part, cores of vulcanized rubber threads round which textile threads are spirally wound.

10. An article of furniture according to claim 1 wherein each side section is of a substantially U-shaped form with the U-shanks being formed as legs and the crosspiece thereof as an arm and wherein each side section comprises two telescopic interconnectable U-shaped members, one U-shaped member

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being provided in the region of said arm (crosspiece) with a recess such as a longitudinal slot through which one end of said elastic sheet passes and is secured, by means of terminal reinforcements of said elastic sheet, between the inner and outer telescopic U-shaped members of said side members.

11. An article of furniture according to claim 10 wherein said reinforcements, formed at the end of said elastic sheet comprises a tubular portion capable of optionally receiving retaining a rod therethrough, the cross section of which retaining rod being greater than the width of said slot to prevent undesired withdrawal of said end from said recess.

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Oct. 5, 1937. L. VAVRIK Des. 106,384

CHAIR

Filed Aug. 23, 1937

Fig. 1.

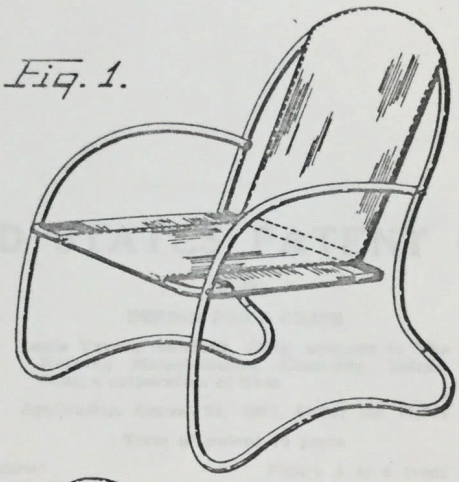
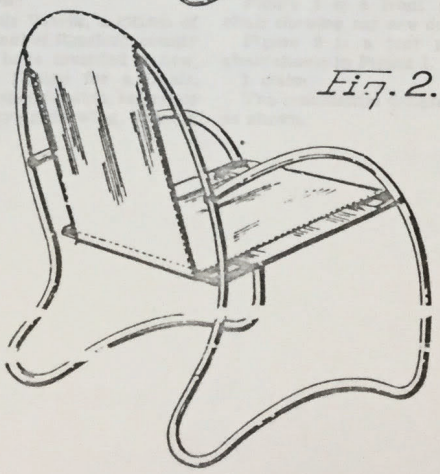


Fig. 2.



Inventor
Louis Vavrik

By Malcolm Mc. Fraser
Atty

10634

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Patented Oct. 5, 1937

Des. 106,384

UNITED STATES PATENT OFFICE

106,384

DESIGN FOR A CHAIR

Louis Vavrik, Rossford, Ohio, assignor to The Hettrick Manufacturing Company, Toledo, Ohio, a corporation of Ohio

Application August 23, 1937, Serial No. 71,249

Term of patent 14 years

To all whom it may concern:

Be it known that I, Louis Vavrik, a citizen of the United States and resident of Rossford, county of Wood, State of Ohio, have invented a new, original, and ornamental Design for a Chair, of which the following is a specification, reference being had to the accompanying drawing, forming a part thereof.

Figure 1 is a front perspective view of the chair showing my new design; and

Figure 2 is a rear perspective view of the chair shown in Figure 1.

I claim:

The ornamental design for a chair substantially as shown.

LOUIS VAVRIK.

106384

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United States Patent

Des. 238,636
Patented Feb. 3, 1976

238,636

CHAIR

Ogden R. Olson and Roy E. Knoedler, Columbus, Ind., assignors to Cosco, Inc., Columbus, Ind.

Filed July 29, 1974, Ser. No. 492,505

Term of patent 14 years

Int. Cl. D6—01

U.S. Cl. D6—67

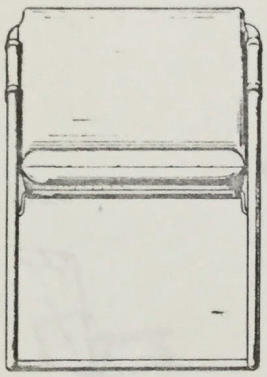


Fig. 1

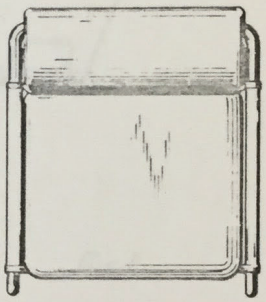


Fig. 3

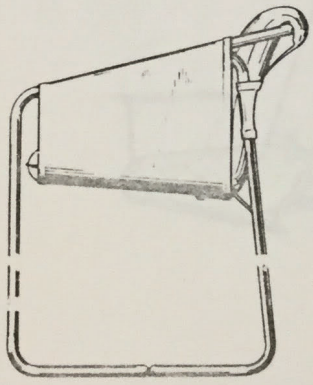


Fig. 2

FIG. 1 is a front elevation of a chair showing our new design;

FIG. 2 is a side elevation thereof; and

FIG. 3 is a top plan view thereof.

The side not shown in FIG. 2 is a mirror image of the side shown while the undisclosed rear is conventional.

We claim:

The ornamental design for a chair, as shown and described.

References Cited

UNITED STATES PATENTS

D. 234,279	2/1975	Relling	D6—67
3,594,041	7/1971	Rye	D6—67 X

OTHER REFERENCES

Industrial Design, October 1965, p. 55, bottom left.

Selig Catalog of "Imperial Import Tables," rec'd Mar. 23, 197[illegible] sheet D17A-3, "Afra Chair"

BRUCE W. DUNKINS, Primary Examiner

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United States Patent

Des. 238,030
Patented Dec. 16, 1975

238,030

STACKABLE CHAIR BODY

Gerry D. Welton, 910 E. Tripp, Peoria, Ill. 61603

Filed May 1, 1973, Ser. No. 356,107

Term of patent 14 years

Int. Cl. D6—06

U.S. Cl. D6—197

FIG. 3

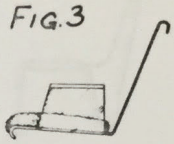


FIG. 2

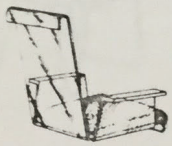


FIG. 1

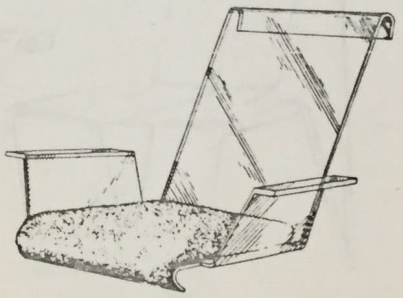


FIG. 1 is a front perspective view of a stackable chair body embodying my new design.

FIG. 2 is a rear perspective view of the stackable body shown in FIG. 1.

FIG. 3 is a side elevation of the stackable chair body shown in FIG. 1 and FIG. 2.

I claim:

The ornamental design for stackable chair body, as shown.

References Cited

UNITED STATES PATENTS

D. 174,503	4/1955	Kolb et al.	D6—67
D. 210,939	5/1968	Schwarz, Jr.	D6—66
D. 221,146	7/1971	McComas	D6—66

OTHER REFERENCES

House and Garden, December 1962, p. 43, chair, bottom right, by Crafter.

Industrial Design, June 1970, p. 52, chair in panel 16.

Domus Catalog, February 1962, chair on outside back cover.

BRUCE W. DUNKINS Primary Examiner

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United States Patent Office

Des. 233,963
Patented Dec. 24, 1974

233,963

T-SLING CHAIR

Gerry D. Welton, 910 E. Tripp, Peoria, Ill. 61603
Filed May 1, 1973, Ser. No. 356,104

Term of patent 14 years

Int. Cl. D6—01

U.S. Cl. D6—55

FIG. 3

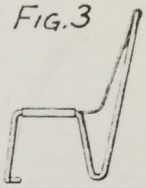


FIG. 2

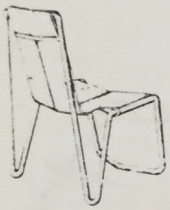


FIG. 1

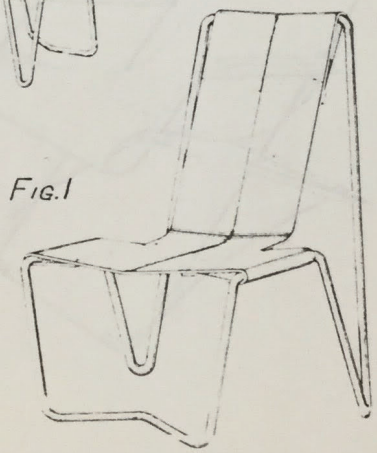


FIG. 1 is a front perspective view of a T-sling chair embodying my new design.

FIG. 2 is a rear perspective view of the T-sling chair shown in FIG. 1.

FIG. 3 is a side elevation of the T-sling chair shown in FIG. 1 and FIG. 2.

The ornamental design for [illegible]

References Cited

UNITED STATES PATENTS

D. 107,271	11/1937	Vavrik	D6—49
D. 173,881	1/1955	Pearl	D6—50
D. 210,939	5/1968	Schwarz, Jr.	D6—66
D. 122,311	[illegible]	Rogers	D6—56

OTHER REFERENCES

House & Garden, December 1962, p. 43, chair bottom right by Crafter.

House & Garden, April 1957, p. 122, chair top right by Landes Mfg. Co.

Interiors, October 1965, p. 73, chair top right.

BRUCE W. DUNKINS, Primary Examiner

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United States Patent Office

Des. 220,908
Patented June 15, 1971

220,908

FOLDING CHAIR

Alexander Ralph Smith, East Molesey, England, assignor to Unique Mail Order Company Limited, East Molesey, Surrey, England

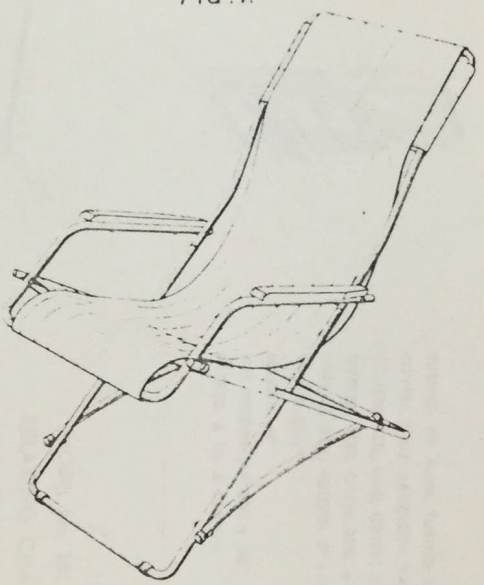
Filed Nov. 28, 1969, Ser. No. 20,299

Term of patent 14 years

Int. Cl. D6—01

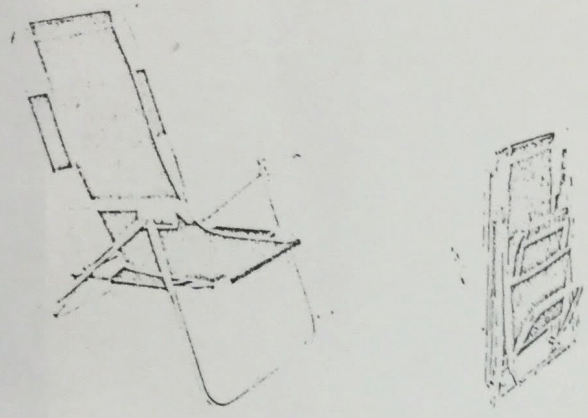
U.S. Cl. D15—11

FIG. 1.



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MODEL No. 282

MODEL No. 282

RECLINING CHAIR

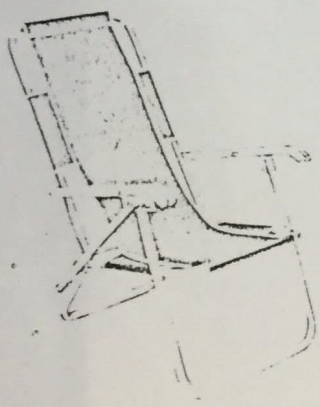
SPECIFICATIONS:

TUBING: RD. ALUM. TUBING ¾" O. D.; HIGHLY POLISHED
COVER: 10 OZ. SAILCLOTH, VAT-DYED, WATER REPELLENT
COLORS: RED, BLUE, GREEN, YELLOW
OVERALL SIZE, OPEN: 23½" x 29" x 44"
OVERALL SIZE, FOLDED: 5" x 24" x 32½"
WIDTH: 20½"
LENGTH: 48"
NET WEIGHT: APPROX 6 LBS.
PACKED: 6 TO A CARTON

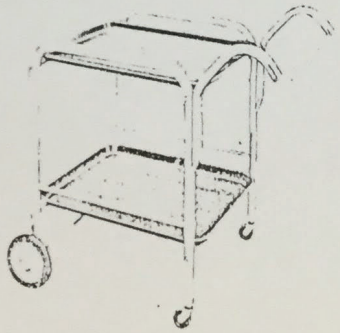
PATENT OFFICE

APR 2 1952

DESIGN DIVISION



MODEL No. 281



MODEL No. 900

MODEL No. 281

RELAXING CHAIR

SPECIFICATIONS:

TUBING: SQ. ALUM. TUBING ⅞" O. D.. HIGHLY POLISHED
COVER: 10 OZ. SAILCLOTH, VAT-DYED, WATER REPELLENT
COLORS: RED, BLUE, GREEN, YELLOW
OVERALL SIZE, OPEN: 23½" x 29" x 44"
OVERALL SIZE, FOLDED: 5" x 24" x 32½"
WIDTH: 20½"
LENGTH: 48"
NET WEIGHT: APPROX. 6¾ LBS.
PACKED: 6 TO A CARTON

MODEL No. 900

"T-TIME" SERVER

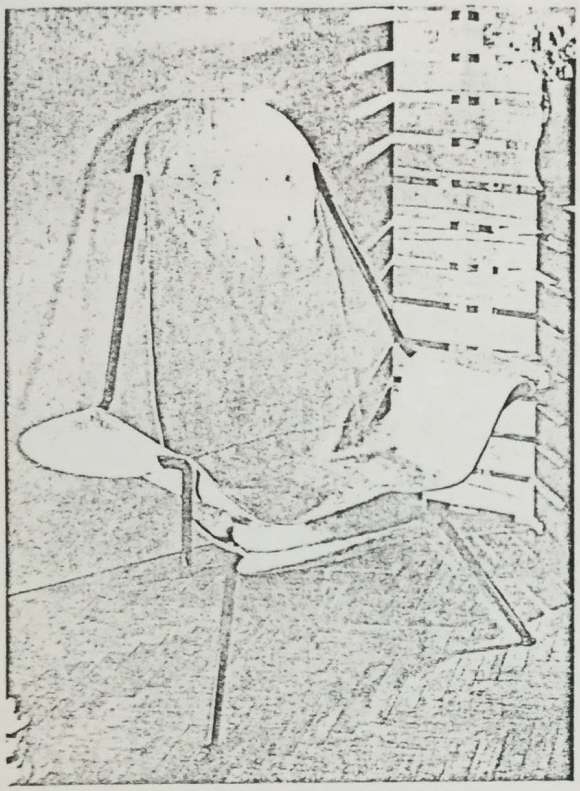
SPECIFICATIONS:

TUBING: ⅞" SQUARE ALUM. TUBING; HIGHLY POLISHED
COLOR OF TRAYS: PAINTED PLASTIC CARMIN
FRONT WHEELS: 6" DIAMETER WITH 1" RUBBER TIRES
BACK WHEELS: 2" HARD RUBBER SWIVEL CASTERS
OVERALL SIZE: 21" x 26" x 27"
NET WEIGHT: APPROX. 11 LBS.
PACKED: 1 TO A CARTON

Nothing finer in aluminum furniture . . .

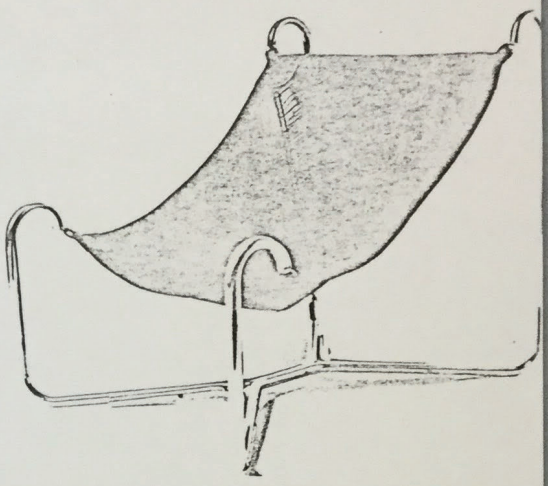
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282 Paolo A. Chessa c. 1950 Italy

Armchair with metal frame, canvas slings and polyfoam cushion
Sessel mit Metallgestell, Segeltuchbespannung und Schaumstoffkissen
J.G. Furniture

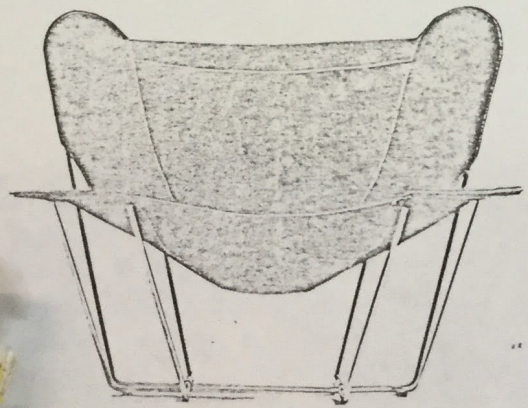


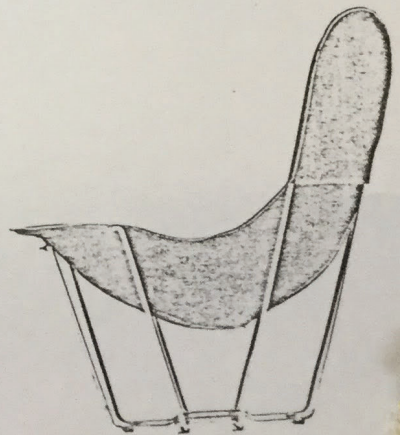
283 DAM (Designers Associati Milano) 1969 Italy

Chair "Baffo" with frame of chrome-plated tubular steel and suspended leather seat
Stuhl »Baffo« mit verchromtem Stahlrohrgestell und eingehängtem Ledersitz
Busnelli

284 + 285 Esko Pajamies 1965 Finland

Knock-down chair with frame of chrome-plated steel and seat slings of canvas
Zerlegbarer Stuhl mit verchromtem Stahlrohrgestell und Sitzbespannung aus Segeltuch
Merva-Tuotanto



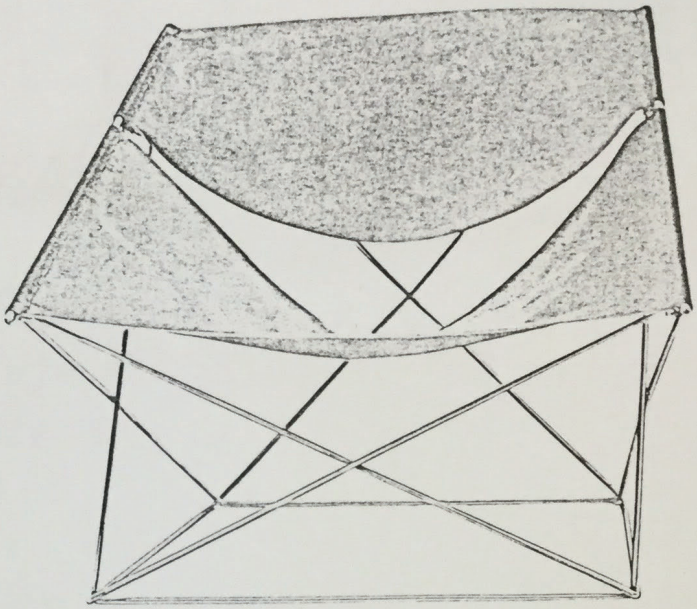


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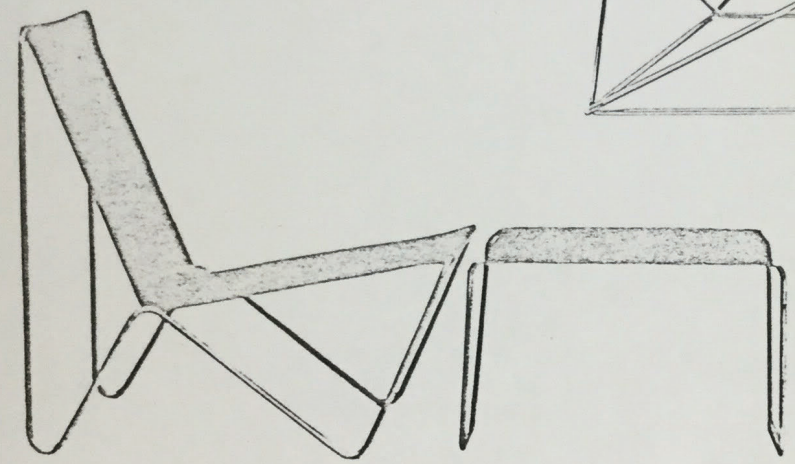
290 Pierre Paulin 1964 France

Folding chair "675" with frame of chrome-plated metal and leather slings
Klappsessel »675« mit verchromtem Stahlrohrgestell und Lederbespannung
Artifort



291 Verner Panton 1956 Denmark

Lounge chair and foot stool with tubular steel frame and canvas slings
Liegestuhl und Hocker aus Stahlrohr mit Segeltuchbespannung
Fritz Hansen

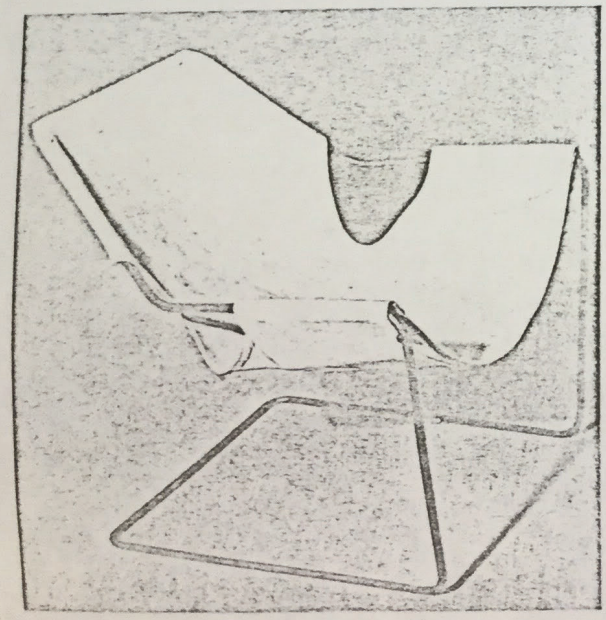


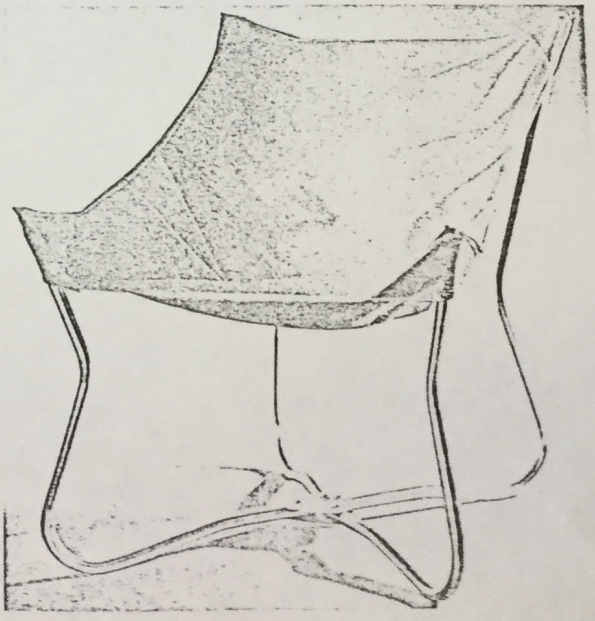
292 Paulo Mendes da Rocha 1956 Brazil

Armchair with lacquered tubular steel frame and leather slings
Sessel mit lackiertem Stahlrohrgestell und Lederbespannung
Interiors Soc.

293 Rolf Gutmann 1954 Switzerland

Folding lounge chair with tubular steel frame and canvas slings
Klappsessel mit Stahlrohrgestell und Segeltuchbespannung
Wico





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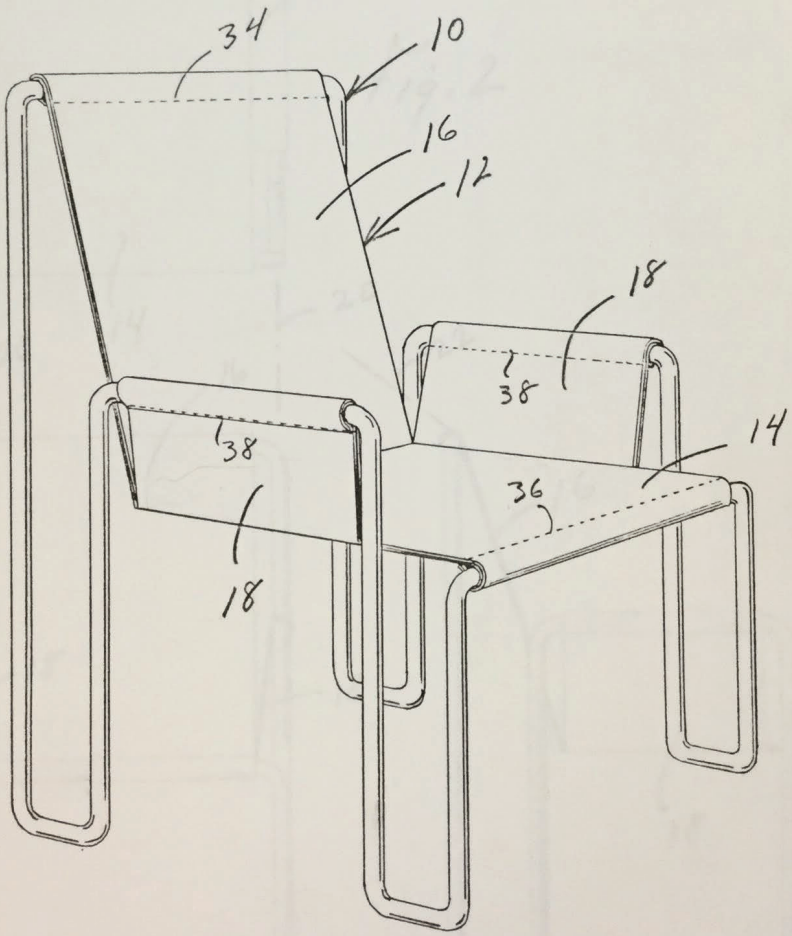


Fig. 1

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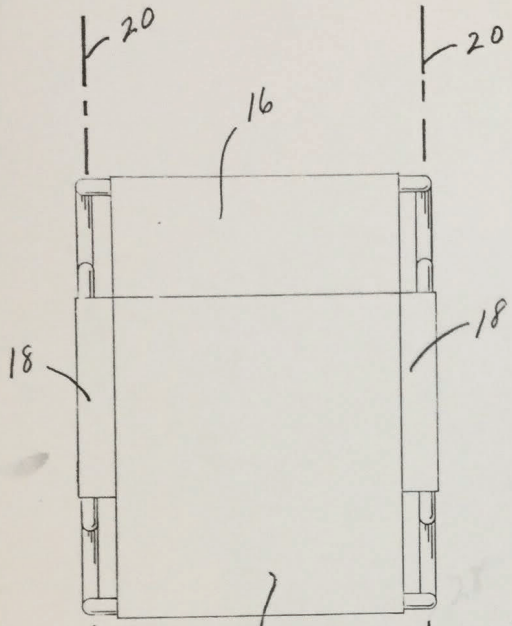


Fig. 2

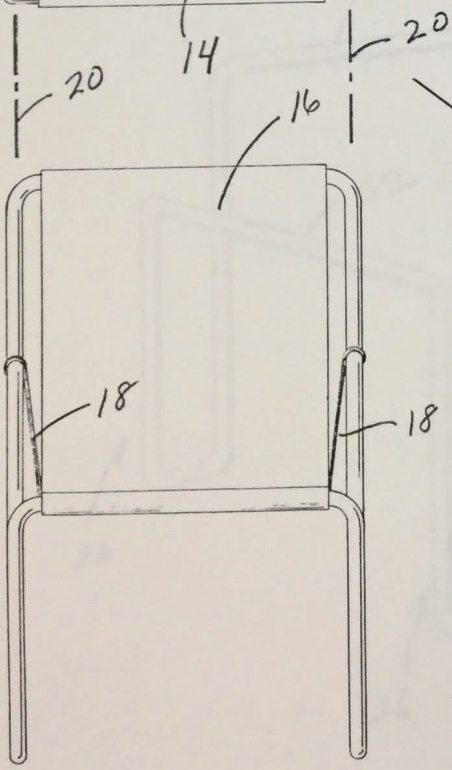


Fig. 3

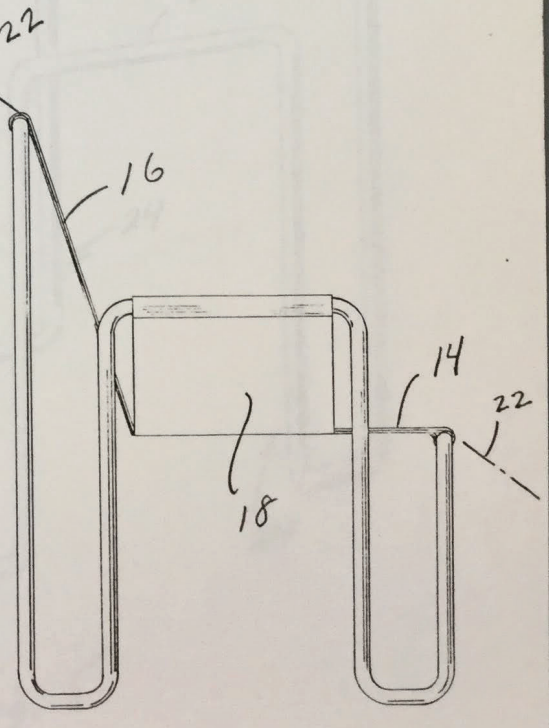


Fig. 4

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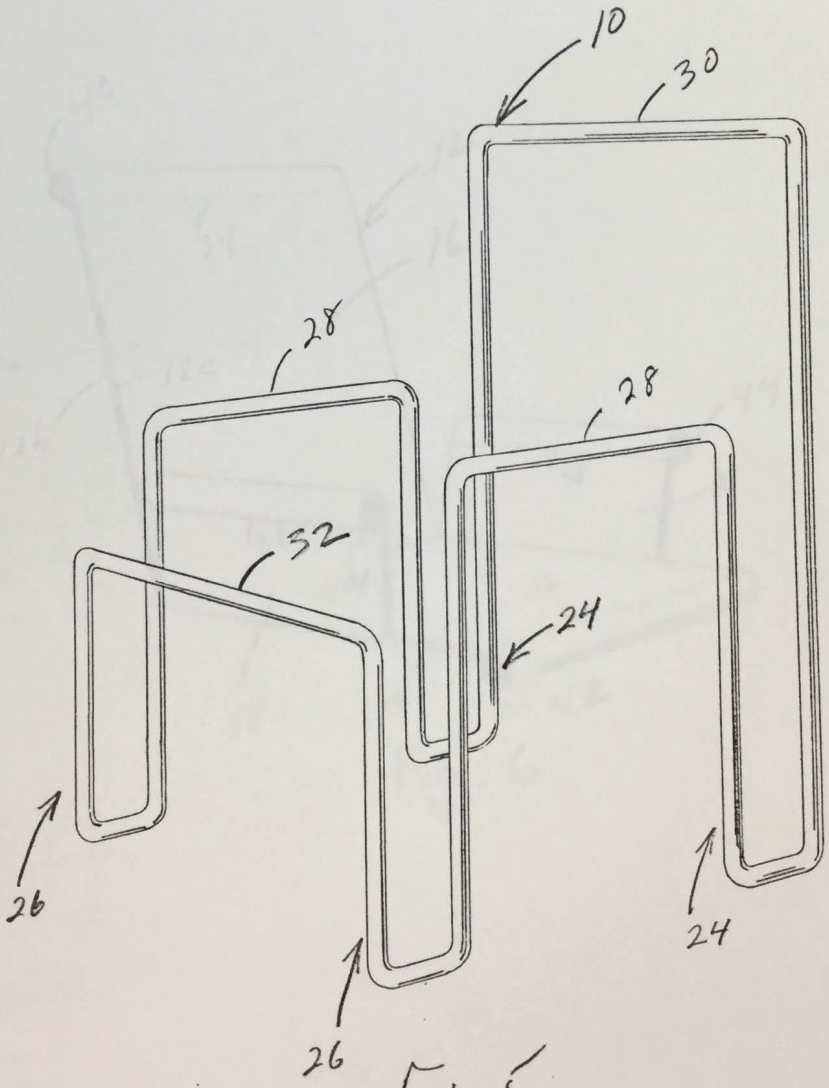


Fig. 5

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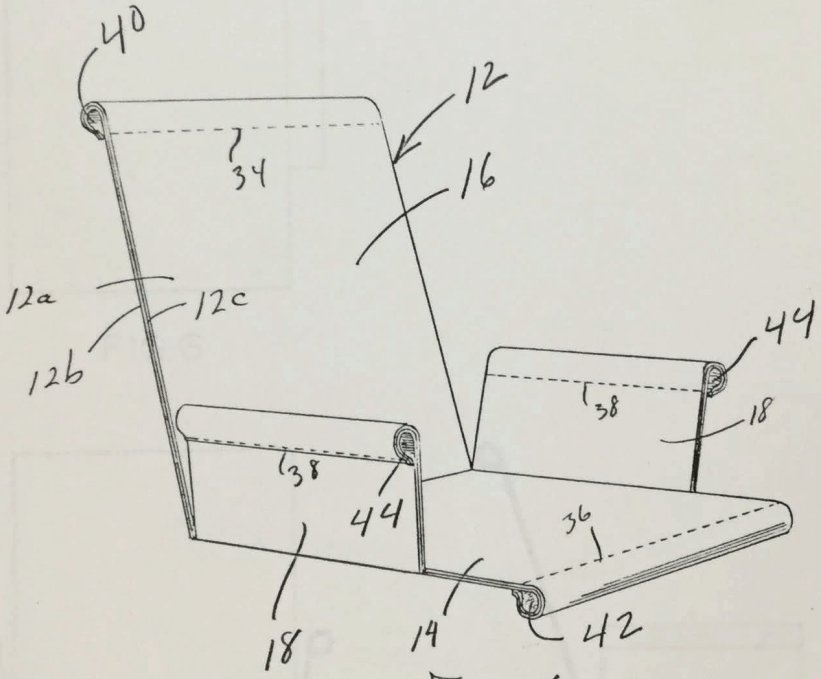


Fig. 6

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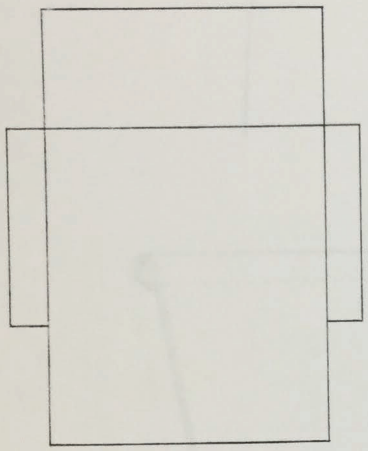


FIG. 6

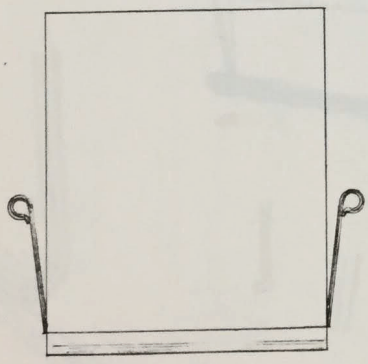


FIG. 7

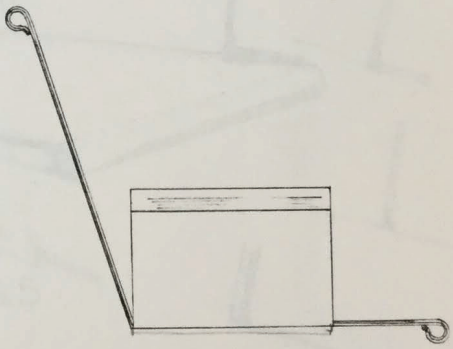


FIG. 8

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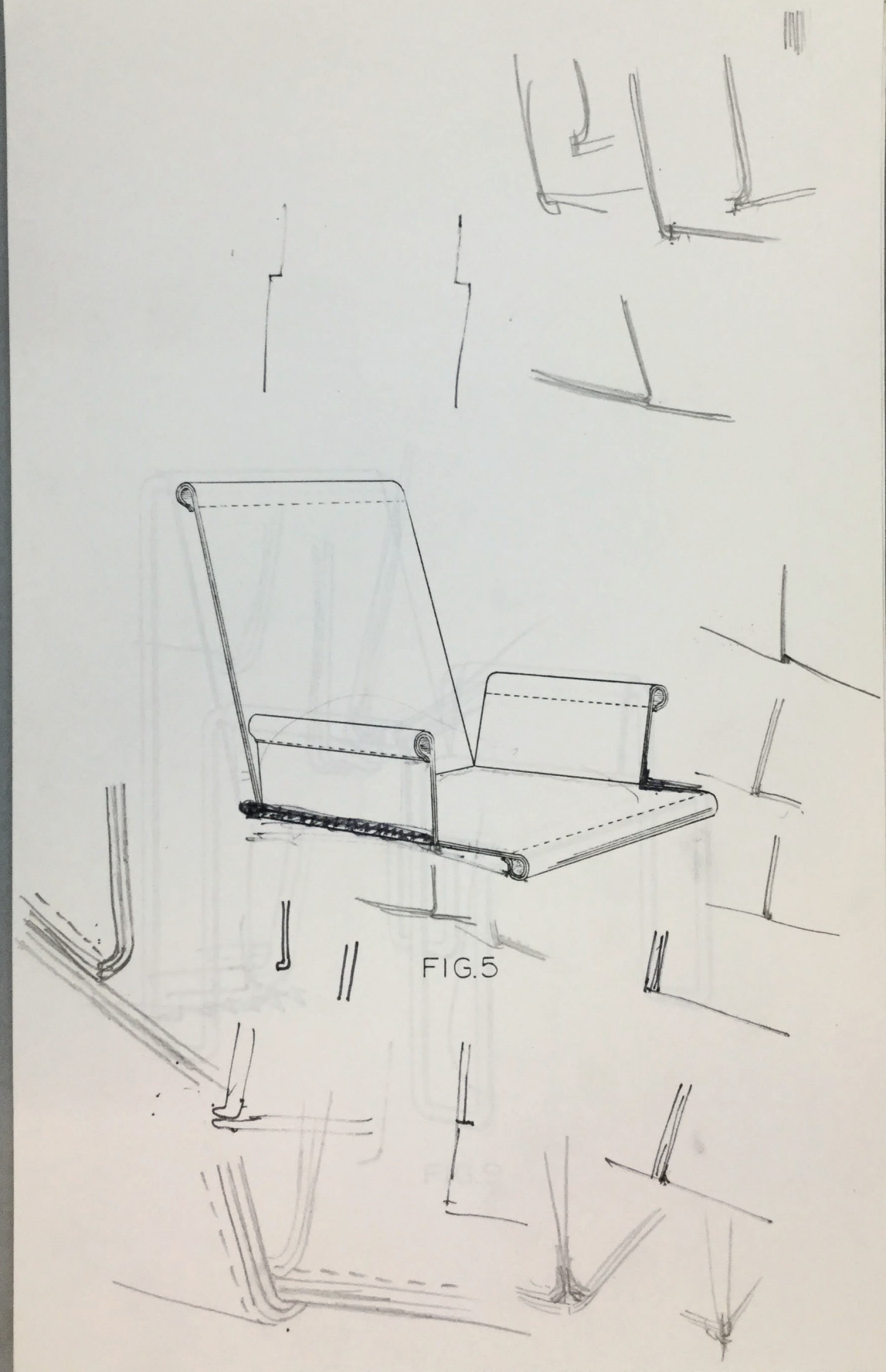
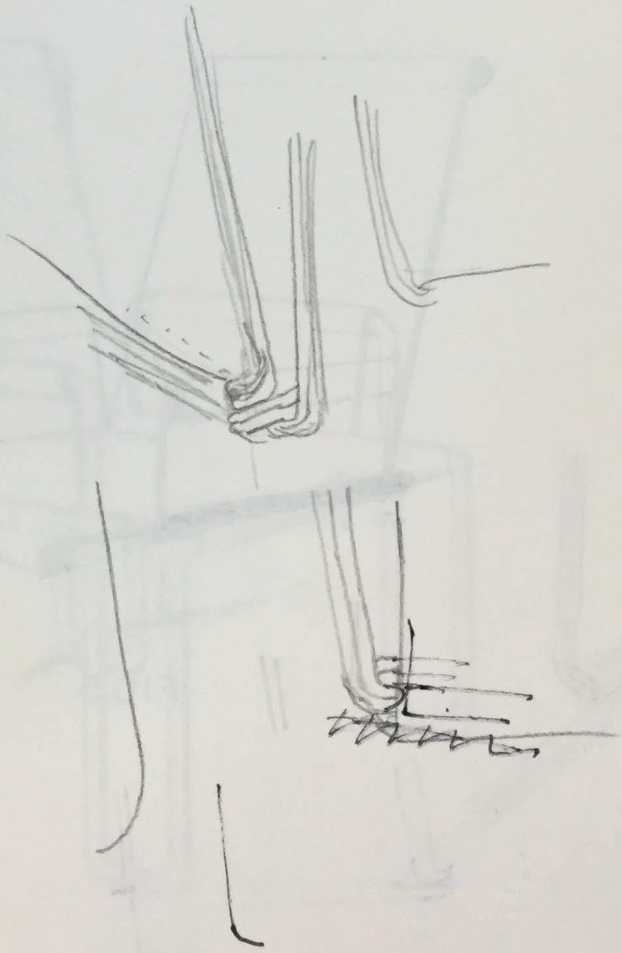


FIG.5

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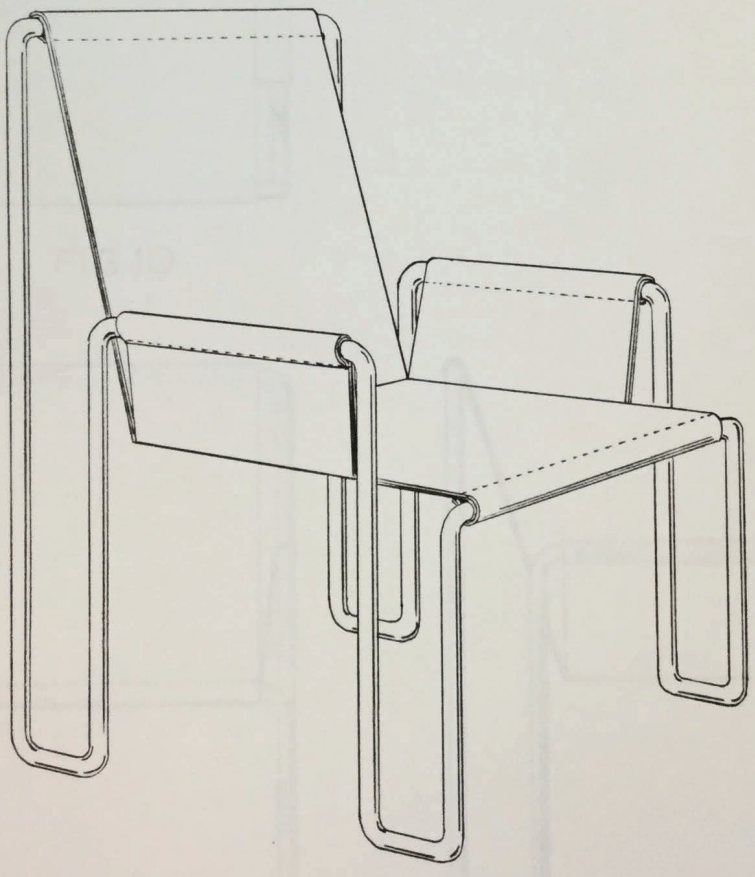


FIG. 9

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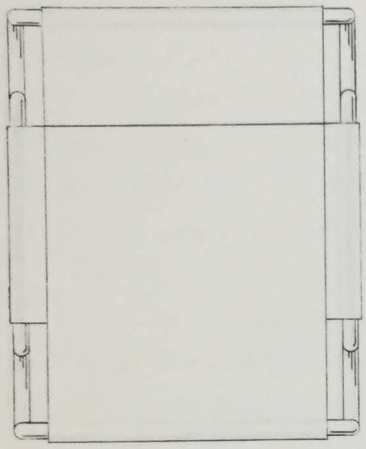


FIG. 10

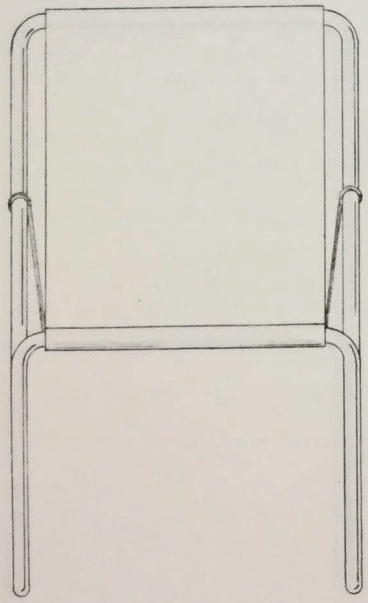


FIG. 11

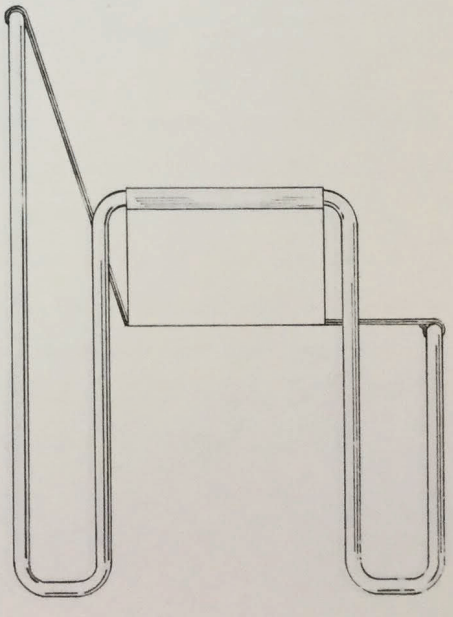


FIG. 12

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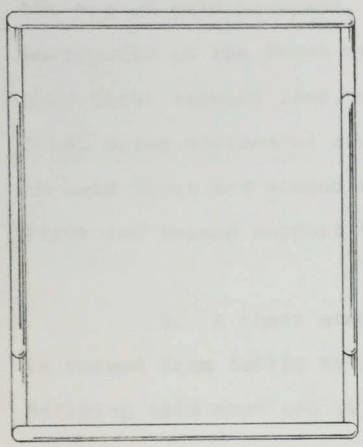


FIG. 2

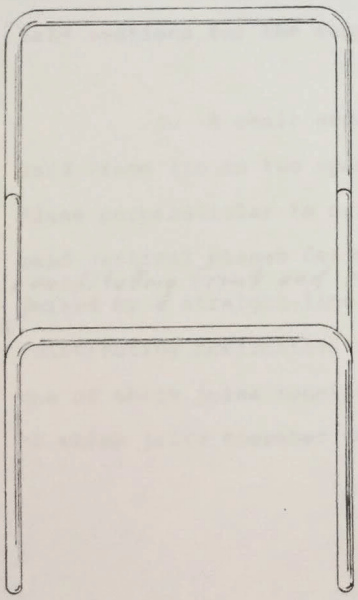


FIG. 3

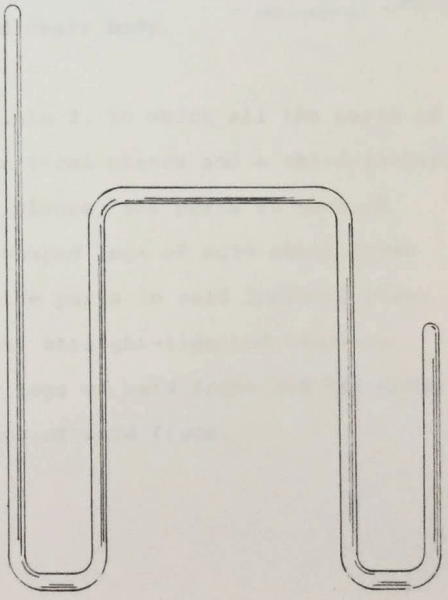


FIG. 4

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CLAIMS

1. A chair comprising a frame and a chair body slung therefrom, said chair body defining a seat and a backrest and side arm pieces, said frame supporting said chair body in lines of support, a first one of said support lines being horizontal at the top of said backrest, a second one of said support lines being horizontal at the front of said seat and parallel to and lower than said first support line, and third and fourth ones of said support lines being horizontal and parallel to each other and transverse to said first and second support lines and at a level between the first and second support lines at the top of said side arm pieces.

2. A chair according to claim 1, in which said chair body is formed from fabric material lying essentially in four planes defining said seat and said backrest and said side arm pieces.

3. A chair according to claim 2, in which said frame is formed from a continuous rod having sections thereof which define said lines of support, and said fabric material is wrapped around or otherwise attached to said sections for the support of said chair body.

4. A chair according to claim 3, in which all the parts of said frame lie in two spaced-apart vertical planes and a third inclined plane perpendicular to said vertical planes, the parts in each of said vertical planes defining two U-shaped legs of said chair frame constituting front and rear legs joined by a straight-line arm rest, the parts in said inclined plane constituting horizontal, spaced-apart, straight-line rod segments one of which joins together the rear legs of said frame and the other of which joins together the front legs of said frame.

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5. A chair frame comprising a continuous rod all the parts of which lie in two spaced-apart vertical planes and a third inclined plane perpendicular to said vertical planes, the parts in each of said vertical planes defining two U-shaped legs of said chair frame constituting front and rear legs joined by a straight-line arm rest, the parts in said inclined plane constituting horizontal, spaced-apart, straight-line rod segments one of which joins together the rear legs of said frame and the other of which joins together the front legs of said frame.

6. A chair formed from a frame as defined in claim 5, including a chair body slung from said frame.

7. A chair according to claim 6, in which said chair body is slung from said straight-line arm rest in each vertical plane and from said horizontal, spaced-apart, straight-line rod segments.

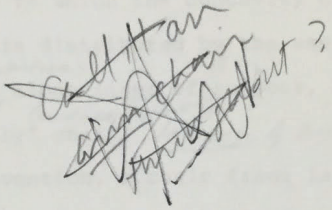
8. A chair according to claim 7, in which said chair body is formed from fabric material lying essentially in four planes defining a seat and a backrest and two side arm pieces.

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TITLE: CHAIR AND FRAME THEREFOR



ABSTRACT OF THE DISCLOSURE

A chair formed from a frame and a chair body slung therefrom, in which the chair frame constitutes a continuous rod, all the parts of which lie in two spaced-apart vertical planes and a third inclined plane perpendicular to the vertical planes. The parts in each of the vertical planes define two U-shaped legs of the chair constituting front and rear legs joined by a straight-line arm rest. The parts in the inclined plane constitute horizontal, spaced-apart, straight-line rod segments, one of which joins together the rear legs of the frame and the other of which joins together the front legs of the frame. The chair body is slung from the straight-line arm rest in each vertical plane and from the horizontal, spaced-apart straight-line rod segments, one of which is at the top of the backrest of the chair and the other of which is at the front of the chair seat. The chair body is formed from fabric material lying essentially in four planes defining a seat and a backrest and two side arm pieces.

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BACKGROUND AND BRIEF DESCRIPTION OF THE INVENTION

This invention relates to a chair, and more particularly to a chair formed from a frame and a chair body which is slung from the frame.

Chairs formed from a frame and a chair body slung therefrom are known, and perhaps one of the most well known is the "butterfly" chair which is formed from a fabric chair body that is slung essentially from four points in a chair frame to produce a concave supporting sack for the body. The present invention is directed, in distinction, to a chair body slung from a frame in which the concavity of the "butterfly" chair is avoided, and weight is distributed by the use of planes of supporting material supported from the frame along lines of support, rather than points of support as in the "butterfly" chair (or called "apices") location of four points of support?

In the present invention, a chair frame is utilized formed from a continuous rod, all the parts of which lie in two spaced-apart vertical planes and a third inclined plane perpendicular to the vertical planes. The parts in each of the vertical planes define two U-shaped legs, which constitute front and rear legs of the chair, joined together by a straight-line arm rest. The parts in the inclined plane constitute horizontal, spaced-apart, straight-line rod segments, one of which joins together the rear legs of the frame and the other of which joins together the front legs of the frame. Thus the frame is continuous and utilizes no separate and distinct stretchers which are found in many chair frames. Distinct legs are provided, something which is not found in many chair frames. The structural integration of arms and legs provide a simple structure, and the three-plane location of all parts of the frame provides a simple structure which is relatively easy to fabricate.

The chair body which is slung from the frame preferably is of a "fabric" material, "fabric" being defined in this case as any flexible material such as leather, canvas, synthetic and natural materials, and the like. The fabric material lies essentially in four planes in

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the completed chair which define a seat and a backrest and side arm pieces. In fabricating the chair body, it essentially may be produced in "flat" condition, thereby avoiding sewing along compound curves. The chair body may be formed from one, two, three, or four pieces of material or webbing, as desired, to form the distinct sections of the chair body. These chair body sections are supported by the frame, the latter providing the lines of support for the chair body, with the fabric material being wrapped around these sections for its support and fastened in place, for example, by sewing. Thus the lines of support for the chair body are horizontal at the top of the backrest, horizontal at the front of the seat (parallel to and lower than the backrest support line), and horizontal at the top of each of the side arm pieces at a level between the backrest and seat-front support lines. These four lines of support provide considerable support for the chair, e.g., 50 to 60 linear inches of total chair body support in a typical chair to ensure the planar configuration of the various parts of the chair body. Additionally, the wrapping of the frame by the fabric insulates the chair frame from the body, and if the chair body is produced by a layered fabric material (e.g., two layers of leather with an intermediate canvas layer), significant padding is provided thereby.

The invention will be more completely understood by reference to the following deatiled description of a presently preferred embodiment thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view of a chair formed from a frame and a chair body slung from the frame in accordance with the invention.

Figs. 2 to 4 are respectively top, front, and right-side views of the chair of Fig. 1.

Fig. 5 is a perspective view of the chair frame of Fig. 1.

Fig. 6 is a perspective view of the chair body of Fig. 1.

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DETAILED DESCRIPTION

Referring to Figs. 1 to 4, which show a completed chair, the chair is formed from a frame 10 and a chair body 12 which is slung from the frame. The chair body is preferably made of fabric material, as defined above, which defines a seat 14, a backrest 16, and two side arm pieces 18. The chair body thus essentially involves four planes of support, namely, the planes defined by the seat 14, the backrest 16, and the two side arm pieces 18. The chair body 12 is also shown in Fig. 6, which will be described in more detail below.

The frame 10 for supporting the chair body 12 is shown in Figs. 1 to 4 and also in Fig. 5. That frame constitutes a continuous rod, all the parts of which lie in two spaced-apart vertical planes 20 (shown in Fig. 2) and a third inclined plane 22 (shown in Fig. 4). Thus in each of the vertical planes 20, the frame 10 includes two U-shaped legs 24 and 26 (see also Fig. 5). The leg 24 in each vertical plane constitutes a rear leg of the chair frame, while the leg 26 constitutes a front leg. The U-shaped legs 24 and 26 are joined together by a straight-line arm rest 28 in each of these vertical planes. The remaining parts of the chair frame are horizontal, spaced-apart, straight-line rod segments 30 and 32 which are included in the inclined plane 22. The rod segment 30 joins together the rear legs 24 of the frame, while the rod segment 32 joins together the front legs 26.

Thus four lines of support are provided by the frame 10 for the chair body 12, namely, a horizontal line of support at the top of the backrest 16 constituted by the rod segment 30, another lower support line at the front of the seat 14 constituted by the rod segment 32, and support lines horizontal and parallel to each other at a level between the levels of the rod segments 30 and 32 and extending transverse to those rod segments. Typically the fabric material of the chair body 12 is wrapped around the sections of the frame 10 and stitched, as at 34, 36, and 38 in Fig. 1.

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By providing the lines of support in the chair, significant support for the fabric chair body is provided, so that planes of support are achieved in the chair of Fig. 1 in the seat 14, the backrest 16, and side arm pieces 18 of the chair.

The chair body 12 is shown in Fig. 6 with the stitching 34, 36, and 38 shown, although stitching does not normally take place until after the chair body 12 has been positioned in place on the chair frame. This assumed that the chair frame is a continuous piece and includes no severed parts, which is what is shown in Fig. 5. Obviously, the frame could be fabricated in individual sections which telescope together, in which case the chair body 12 might be presewn to form loops 40, 42, and 44 which wrap about corresponding parts of the frame 10, those frame parts being slit into the pre-formed loops.

It will be appreciated that the chair body 12 of Fig. 6 may be formed from one to four pieces of material, or from webbing if desired. Thus, the seat 14, the backrest 16, and the side arm pieces 18 might all be individual pieces, sewn together. Alternatively, the seat 14 and backrest 16 might be one piece, and the two side arm pieces 18 a second piece. Still further, the seat 14 and backrest 16 might be one piece, with the side arm pieces 18 as two individual pieces, or the side arm pieces 18 could be a single piece, and the seat 14 and backrest 16 could be individual pieces. The pieces are joined, preferably by sewing or glueing at their zones of overlap.

The chair body 12 may advantageously be formed of a sandwich of materials, e.g., two pieces of leather 12a and 12b, with a canvas piece 12c sandwiched therebetween (Fig. 6).

It will be appreciated that the presently preferred embodiment of the invention described above is susceptible of modification, some specific changes having been noted in the description above. The invention, accordingly, should be taken to be defined by the following claims.

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Docket: Burton-2

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS (37 CFR 1.9(f) and 1.27(b) - INDEPENDENT INVENTOR

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under section 41(a) and (b) of Title 35, Un
invention e
describ

Bennett chair, wood. frame. Basket..

might searcher have missed anything?

check figure numbers:

add detail stitching sling?

3-plane descrip: why?

Cf. 4-plane descrip--ie 4 inverted V's.)

don't include chair body possibility of rigid or non-fabric material ..eg plywood or acrylic?

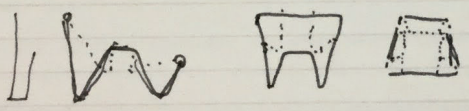
two pairs the pairs being perpendicular to each other parallel lines

support constituted by:

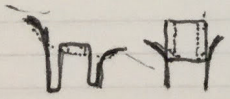
7. "two pairs of parallel lines, the pairs being perpendicular to each other" [but arm pair don't have to be parallel]

(in butterfly chair, support is from apices of points)

copier of frame could introduce diagonal design elements



or Flare nape, arm + under-knee rods out



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As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled: CHAIR FRAME, CHAIR BODY, AND CHAIR described in

[x] the specification filed herewith

[ ] application serial no. _____, filed _____

[ ] patent no. _____, issued _____

[ ] invention under contract

6 mo des
1 yr mech

foreign pt's

Wind Bennett

pat "envelope chair" 1960

S. Diamondstein Interior Design Rizzoli 1982

Date

Date

Date

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As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled: CHAIR FRAME, CHAIR BODY, AND CHAIR described in

[x] the specification filed herewith
[ ] application serial no._____, filed_____
[ ] patent no._____, issued_____

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

[x] no such person, concern, or organization
[ ] persons, concerns or organizations listed below*

*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

FULL NAME_____
ADDRESS_____
[ ]INDIVIDUAL [ ] SMALL BUSINESS CONCERN [ ] NONPROFIT ORGANIZATION

FULL NAME_____
ADDRESS_____
[ ]INDIVIDUAL [ ] SMALL BUSINESS CONCERN [ ] NONPROFIT ORGANIZATION

FULL NAME_____
ADDRESS_____
[ ] INDIVIDUAL [ ] SMALL BUSINESS CONCERN [ ] NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

SCOTT BURTON		
NAME OF INVENTOR	NAME OF INVENTOR	NAME OF INVENTOR
Signature of Inventor	Signature of Inventor	Signature of Inventor
Date	Date	Date

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Docket: Burton-2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: SCOTT BURTON

Serial No. : Not yet assigned

Filed : Concurrently herewith

For : CHAIR AND FRAME THEREFOR

CITATION OF PRIOR ART

Hon. Commissioner of Patents & Trademarks

Washington, D.C. 20231

Sir:

It is desired to make of record the following references, a copy of each of which is enclosed:

U.S.Patent No.	Applicant	Issue Date
2,150,429	De Sanno,Jr.	03/14/39
2,725,096	Granby	11/29/55
3,471,200	Morrison	10/07/69
3,591,233	Turcksin	07/06/71
D-106,384	Vavrik	10/05/37
D-220,908	Smith	06/15/71
D-233,963	Welton	12/24/74
D-238,030	Welton	12/16/75
D-238,636	Olson et al	02/03/76

Catalog

U.S. CHAIRCRAFT MFG. CORP. Catalog, P.4,
Received April 2, 1952, D6-69

The invention is believed to be patentable over the references.

Respectfully submitted,

Robert Scobey - Reg. No. 19838
Attorney for Applicant
261 Madison Avenue
New York,New York 10016
Tele: 212-687-0911

Date

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(SOLE)
Docket Burton-1

P E T I T I O N

TO THE COMMISSIONER OF PATENTS
AND TRADEMARKS

Your petitioner, SCOTT BURTON a citizen of United States of America and a resident of 86 Thompson Street, New York, New York prays that Letters Patent may be granted to him/~~her~~ for the term of fourteen years for the new and original design for CHAIR FRAME, CHAIR BODY, AND CHAIR set forth in the following specification.

S P E C I F I C A T I O N

Be it known that I, SCOTT BURTON have invented a new, original and ornamental design for CHAIR FRAME, CHAIR BODY, AND CHAIR, of which the following is a specification, reference being had to the accompanying drawing(s), forming a part hereof:

Fig. 1 is a perspective view of a chair frame embodying my design.

Figs. 2 to 4 are respectively top, front, and right-side views of the chair frame of Fig. 1.

Fig. 5 is a perspective view of a chair body embodying my design.

Figs. 6, 7, and 8 are respectively top, front, and right-side views of the chair body of Fig. 5.

Fig. 9 is a perspective view of a chair embodying my design, formed from the chair frame of Fig. 1 and the chair body of Fig. 5.

Figs. 10, 11, and 12 are respectively top, front, and right-side views of the chair of Fig. 9.

THE CLAIM

The ornamental design for CHAIR FRAME, CHAIR BODY, AND CHAIR as shown and described.

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DECLARATION AND POWER OF ATTORNEY

SCOTT BURTON, the above-named petitioner, declares that he/~~she~~ is a citizen of the United States of America, and resident of 86 Thompson Street, New York, New York that he/~~she~~ verily believes himself/~~herself~~ to be the original, first and sole inventor of the design for CHAIR FRAME, CHAIR BODY, AND CHAIR described and claimed in the foregoing specification; that he/~~she~~ does not know and does not believe that the same was ever known or used before his/~~her~~ invention thereof, or patented or described in any printed publication in any country before his invention thereof, or more than one year prior to this application, or in public use or on sale in the United States more than one year prior to this application; that said design has not been patented or made the subject of an inventor's certificate in any country foreign to the United States on an application filed by him/~~her~~ or his/~~her~~ legal representatives or assigns more than six months prior to this application; that he/~~she~~ acknowledges his/~~her~~ duty to disclose information of which he/~~she~~ is aware which is material to the examination of this application; and that no application for patent or inventor's certificate on said design has been filed by him/~~her~~ or his/~~her~~ representatives or assigns in any country foreign to the United States except as follows: NONE

And he/~~she~~ hereby appoints, individually and collectively, Robert Scobey (Reg. 19838), Guy W. Shoup (Reg. 26,805), Henry T. Burke (Reg. 18975), Gerard F. Dunne (Reg. 27286), Eliot S. Gerber (Reg. 18115), Douglas W. Wyatt (Reg. 21041) and James W. Badie

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(Reg. 20968), and each c/o Wyatt, Gerber, Shoup, Scobey & Badie of 261 Madison Avenue, New York, New York 10016, telephone 212-687-0911, his/her attorneys, each with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to sign the drawings, to receive the patent, and to transact all business in the Patent and Trademark Office connected therewith.

The undersigned petitioner declares further that all statements made herein of his/her own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereof.

Date: _____

_____
SCOTT BURTON

Post Office Box: 86 Thompson Street
New York, New York 10012

Residence Address: 86 Thompson Street
New York, New York 10012

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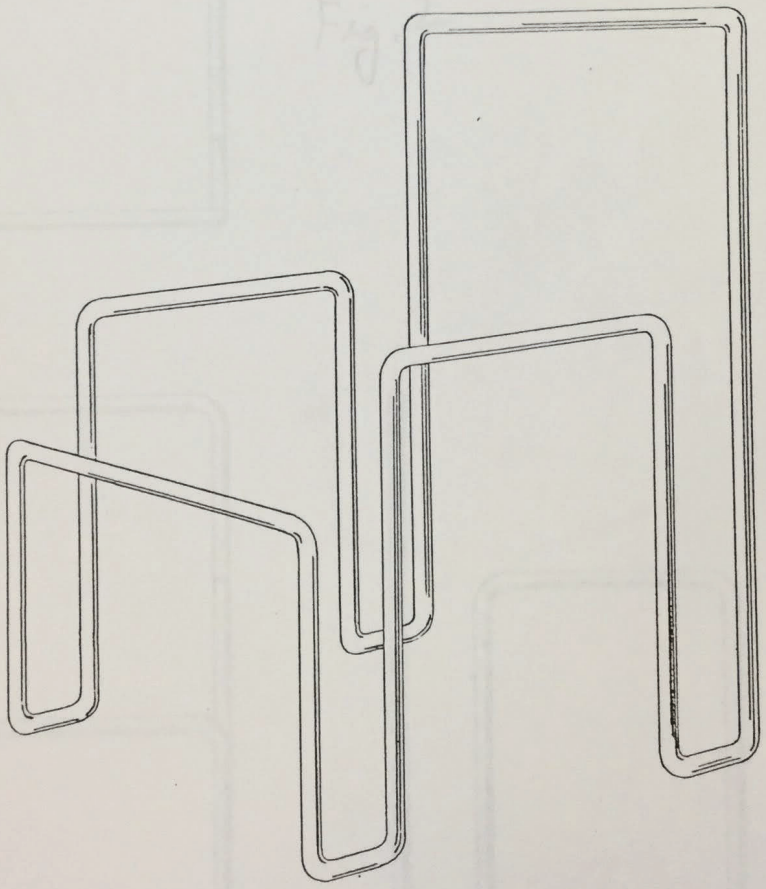


Fig. 1
(to be reversed)

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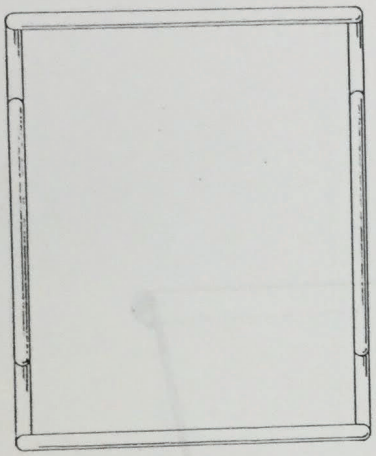


Fig. 2

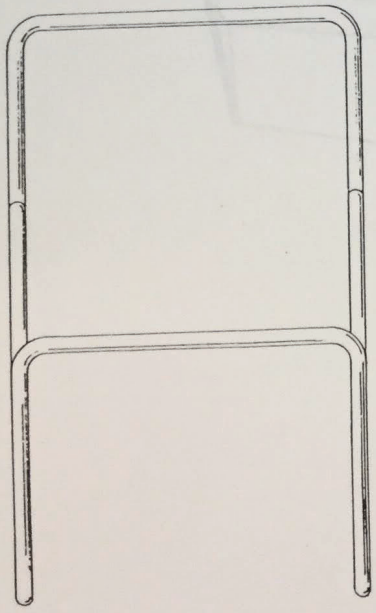


Fig. 3

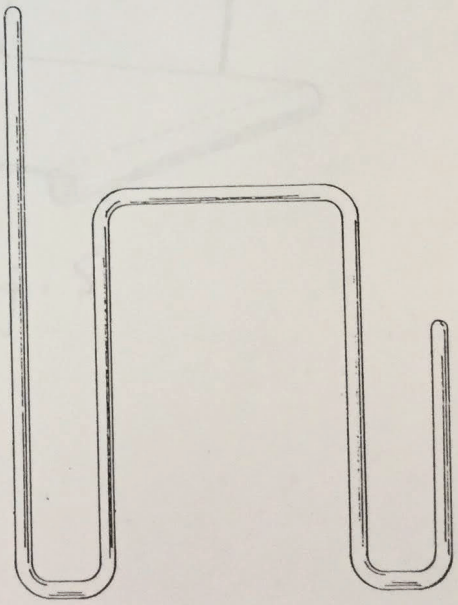


Fig. 4

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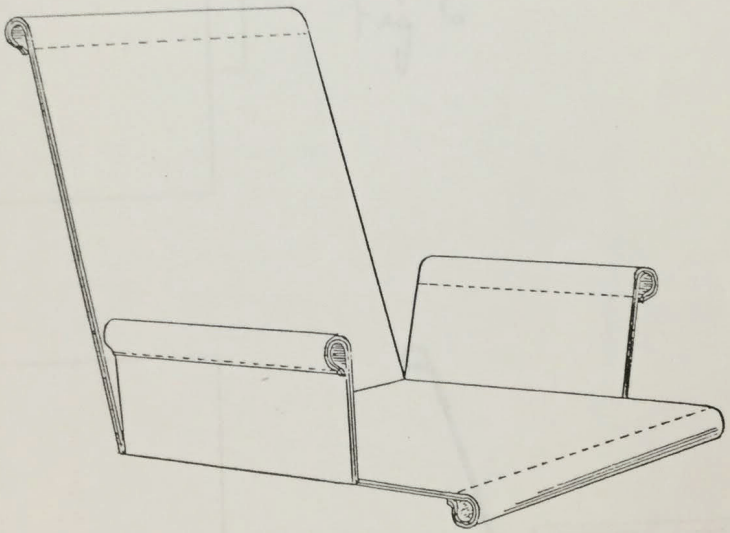


Fig. 5

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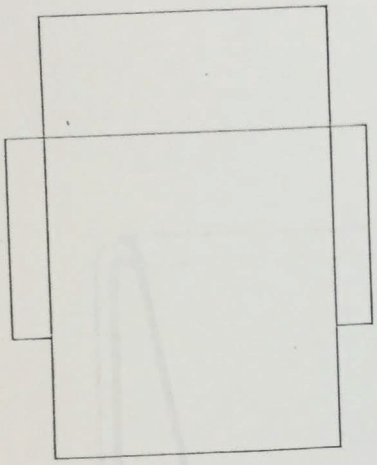


Fig 6

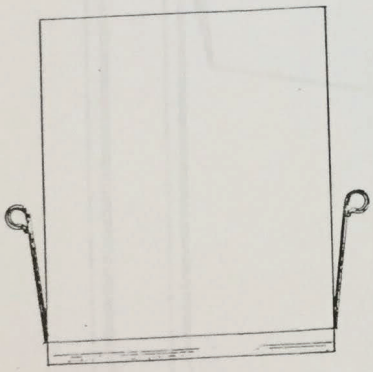


Fig 7

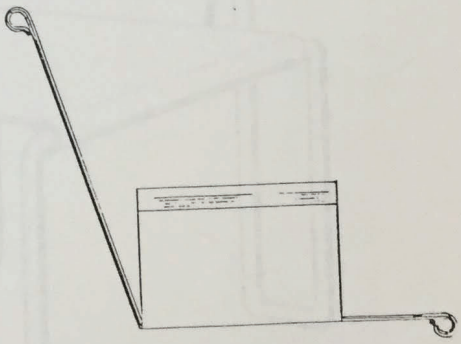


Fig 8

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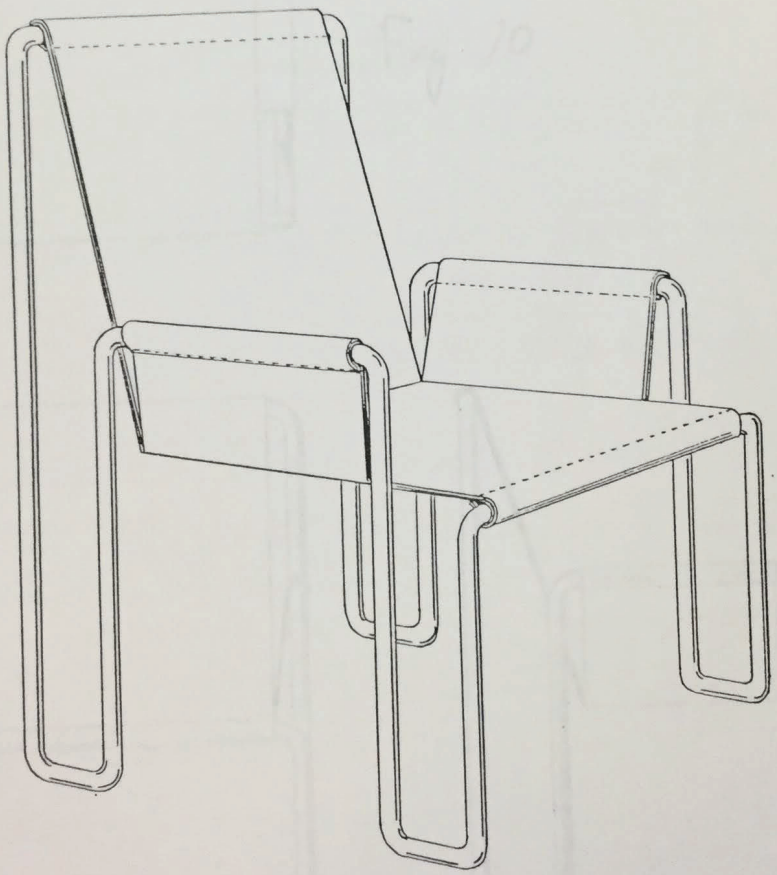


Fig. 9

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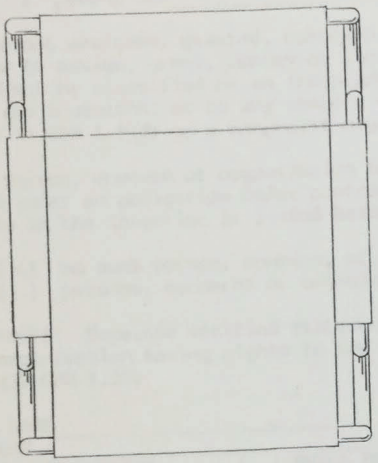


Fig. 10

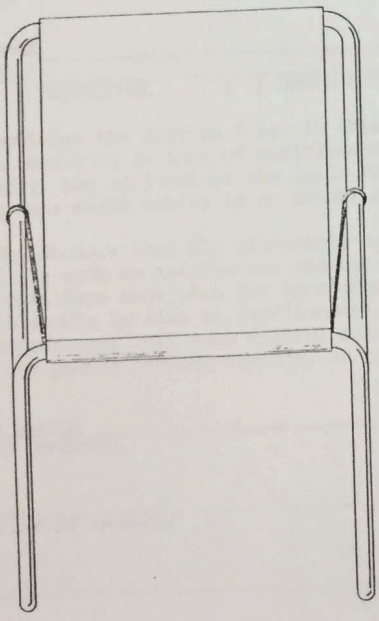


Fig. 11

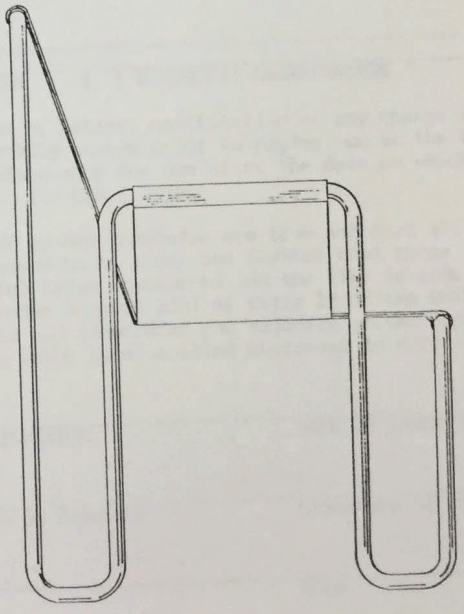


Fig. 12

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Docket: Burton-1

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS (37 CFR 1.9(f) and 1.27(b) - INDEPENDENT INVENTOR

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled: CHAIR FRAME, CHAIR BODY, AND CHAIR described in

[x] the specification filed herewith
[ ] application serial no._____, filed_____
[ ] patent no._____, issued_____

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

[x] no such person, concern, or organization
[ ] persons, concerns or organizations listed below*

*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

FULL NAME_____
ADDRESS_____
[ ]INDIVIDUAL [ ] SMALL BUSINESS CONCERN [ ] NONPROFIT ORGANIZATION

FULL NAME_____
ADDRESS_____
[ ]INDIVIDUAL [ ] SMALL BUSINESS CONCERN [ ] NONPROFIT ORGANIZATION

FULL NAME_____
ADDRESS_____
[ ] INDIVIDUAL [ ] SMALL BUSINESS CONCERN [ ] NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

SCOTT BURTON NAME OF INVENTOR	NAME OF INVENTOR	NAME OF INVENTOR
Signature of Inventor	Signature of Inventor	Signature of Inventor
Date	Date	Date

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Docket: Burton-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: SCOTT BURTON

Serial No. : Not yet assigned

Filed : Concurrently herewith

For : CHAIR FRAME, CHAIR BODY, AND CHAIR

CITATION OF PRIOR ART

Hon. Commissioner of Patents & Trademarks

Washington, D.C. 20231

Sir:

It is desired to make of record the following references, a copy of each of which is enclosed:

U.S.Patent No.	Applicant	Issue Date
2,150,429	De Sanno,Jr.	03/14/39
2,725,096	Granby	11/29/55
3,471,200	Morrison	10/07/69
3,591,233	Turcksin	07/06/71
D-106,384	Vavrik	10/05/37
D-220,908	Smith	06/15/71
D-233,963	Welton	12/24/74
D-238,030	Welton	12/16/75
D-238,636	Olson et al	02/03/76

Catalog

U.S. CHAIRCRAFT MFG. CORP. Catalog, P.4,
Received April 2, 1952, D6-69

The invention is believed to be patentable over the references.

Respectfully submitted,

Robert Scobey - Reg. No. 19838
Attorney for Applicant
261 Madison Avenue
New York,New York 10016
Tele: 212-687-0911

Date

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THOMAS A. O'ROURKE
BARBARA A. LARSEN
WILLIAM E. MARAMES

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CABLE: GEDRIGHT
RAPIFAX-RIFAX-INFOTEC FACSIMILE
(212) 867-2216

5 November 1982

Mr. Scott Burton
86 Thompson Street
New York, New York

RE: Dockets: Burton-1 and Burton-2

Dear Scott:

I am enclosing drafts of two applications, one a design application and the other a mechanical application. The design application will use informal drawings, based upon the finalized pencil drawings to be given to me by you as completed by Tom.

In the mechanical application, I have used copies of the drawings that you provided the other day. I will replace Fig. 5 with another figure taken from the correct angle.

Please review both applications quite carefully. The mechanical application should be reviewed very carefully by you, particularly the claims. I have defined the invention as broadly as I believe possible in view of the prior art found in the search that was conducted.

Let me hear from you with your comments. I reiterate what I told you, namely, try to keep in mind all those modifications that you think a copier might make, basically to copy your design but to make some changes to try to avoid it. If possible, taking into account the restrictions placed upon us by the prior art, we want to cover such modifications.

The papers for each application include a "small entity" declaration. At this time, since you have not assigned nor licensed any rights, you are entitled to "small entity" status. If you do grant any rights to others, I should be immediately advised, since I am under an obligation to advise the U. S. Patent & Trademark Office of the "small entity" status of the case, should it change.

Best regards,

Robert Scobey

RS:ab
Encls.

P.S. I have not had a chance to proof-read the draft of the mechanical application. I hope it does not contain any errors. Also, for your own information, please note that the abstract of the disclosure is a description for searching purposes only and is not intended as a concise, legally limiting definition of the invention.

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United States Patent Office

Des. 220,908
Patented June 15, 1971

220,908

FOLDING CHAIR

Alexander Ralph Smith, East Molesey, England, assignor to Unique Mail Order Company Limited, East Molesey, Surrey, England

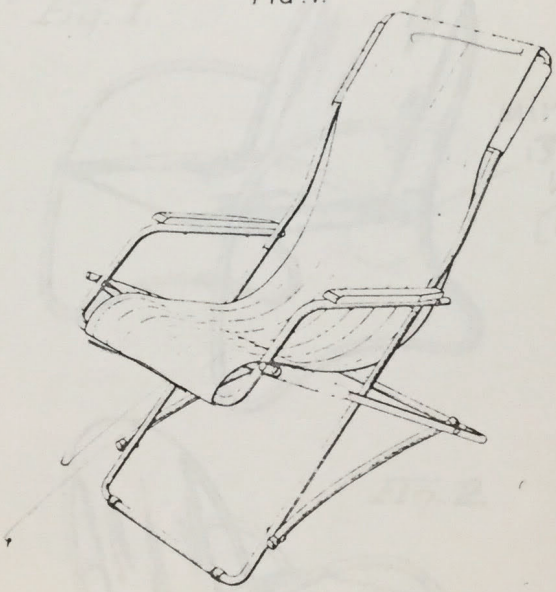
Filed Nov. 28, 1969, Ser. No. 20,299

Term of patent 14 years

Int. Cl. D6—*01*

U.S. Cl. D15—11

FIG. 1.



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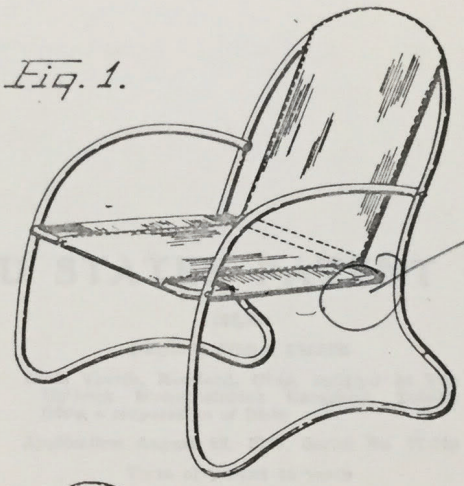
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Oct. 5, 1937. L. VAVRIK Des. 106,384

CHAIR

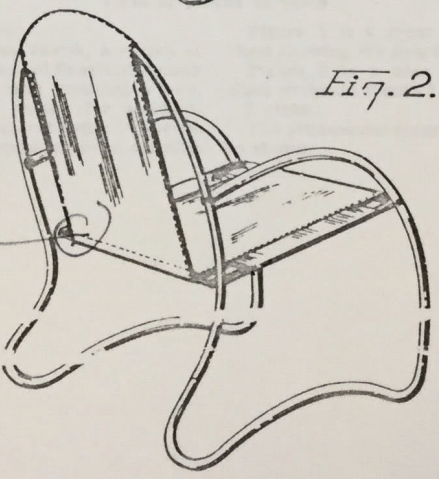
Filed Aug. 23, 1937

Fig. 1.



mine is different here? [arms]

Fig. 2.



mine eliminates this

Inventor
Louis Vavrik

Malcolm M. Fraser

10634

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Patented Oct. 5, 1937

Des. 106,384

UNITED STATES PATENT OFFICE

106,384

DESIGN FOR A CHAIR

Louis Vavrik, Rossford, Ohio, assignor to The Hettrick Manufacturing Company, Toledo, Ohio, a corporation of Ohio

Application August 23, 1937, Serial No. 71,249

Term of patent 14 years

To all whom it may concern:

Be it known that I, Louis Vavrik, a citizen of the United States and resident of Rossford, county of Wood, State of Ohio, have invented a new, original, and ornamental Design for a Chair, of which the following is a specification, reference being had to the accompanying drawing, forming a part thereof.

Figure 1 is a front perspective view of the chair showing my new design; and

Figure 2 is a rear perspective view of the chair shown in Figure 1.

I claim:

The ornamental design for a chair substantially as shown.

LOUIS VAVRIK.

106384

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United States Patent

Des. 238,636
Patented Feb. 3, 1976

238,636

CHAIR

Ogden R. Olson and Roy E. Knoedler, Columbus, Ind., assignors to Cosco, Inc., Columbus, Ind.

Filed July 29, 1974, Ser. No. 492,505

Term of patent 14 years

Int. Cl. D6—01

U.S. Cl. D6—67

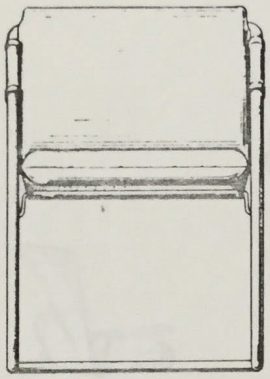


Fig. 1

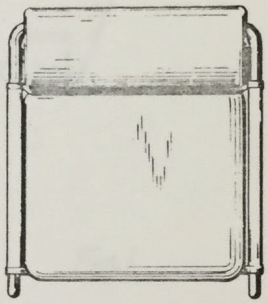


Fig. 3

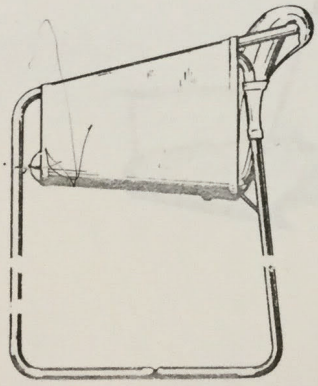


Fig. 2

FIG. 1 is a front elevation of a chair showing our new design;

FIG. 2 is a side elevation thereof; and

FIG. 3 is a top plan view thereof.

The side not shown in FIG. 2 is a mirror image of the side shown while the undisclosed rear is conventional.

We claim:

The ornamental design for a chair, as shown and described.

References Cited

UNITED STATES PATENTS

D. 234,279	2/1975	Relling	D6—67
3,594,041	7/1971	Rye	D6—67 X

OTHER REFERENCES

Industrial Design, October 1965, p. 55, bottom left.

Selig Catalog of "Imperial Import Tables," rec'd Mar. 23, 197? ... sheet D17A-3, "Afra Chair"

BRUCE W. DUNKINS, Primary Examiner

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United States Patent

Des. 238,030
Patented Dec. 16, 1975

238,030

STACKABLE CHAIR BODY

Gerry D. Welton, 910 E. Tripp, Peoria, Ill. 61603

Filed May 1, 1973, Ser. No. 356,107

Term of patent 14 years

Int. Cl. D6—06

U.S. Cl. D6—197

FIG. 3

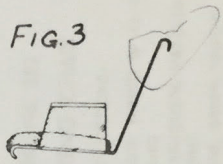


FIG. 2

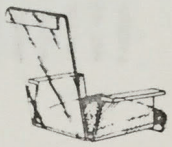


FIG. 1

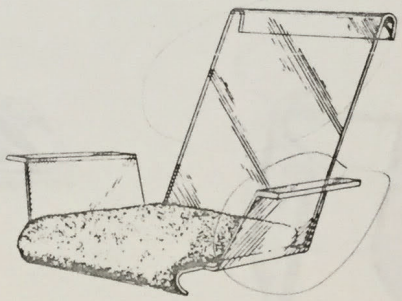


FIG. 1 is a front perspective view of a stackable chair body embodying my new design.

FIG. 2 is a rear perspective view of the stackable body shown in FIG. 1.

FIG. 3 is a side elevation of the stackable chair body shown in FIG. 1 and FIG. 2.

I claim:

The ornamental design for stackable chair body, as shown.

References Cited

UNITED STATES PATENTS

D. 174,503	4/1955	Kolb et al.	D6—67
D. 210,939	5/1968	Schwarz, Jr.	D6—66
D. 221,146	7/1971	McComas	D6—66

OTHER REFERENCES

House and Garden, December 1962, p. 43, chair, bottom right, by Crafter.

Industrial Design, June 1970, p. 52, chair in panel 16.

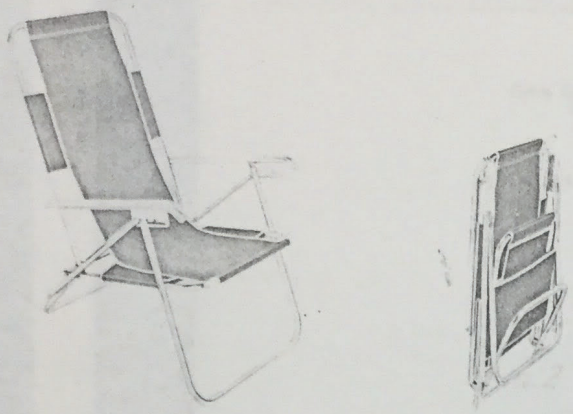
Domus Catalog, February 1962, chair on outside back cover.

BRUCE W. DUNKINS Primary Examiner

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U.S. Chaircraft MANUFACTURING CORP



MODEL No. 282

MODEL No. 282

RECLINING CHAIR

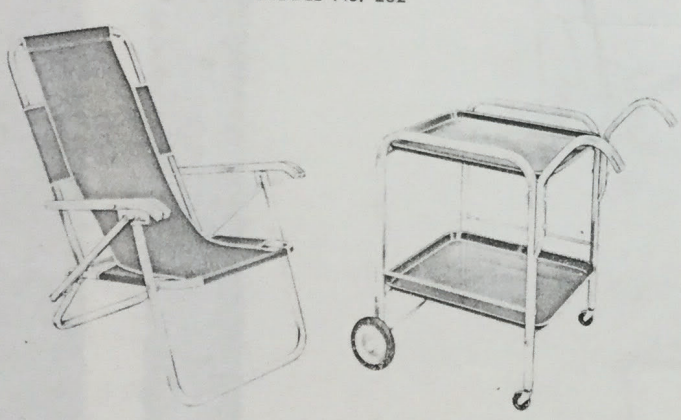
SPECIFICATIONS:

TUBING: RD. ALUM. TUBING ¾" O. D.; HIGHLY POLISHED
COVER: 10 OZ. SAILCLOTH, VAT-DYED, WATER REPELLENT
COLORS: RED, BLUE, GREEN, YELLOW
OVERALL SIZE, OPEN: 23½" x 29" x 44"
OVERALL SIZE, FOLDED: 5" x 24" x 32½"
WIDTH: 20½"
LENGTH: 48"
NET WEIGHT: APPROX 6 LBS.
PACKED: 6 TO A CARTON

PATENT OFFICE

APR 2 1952

DESIGN DIVISION



MODEL No. 281

MODEL No. 900

MODEL No. 281

RELAXING CHAIR

SPECIFICATIONS:

TUBING: SQ. ALUM. TUBING ⅞" O. D. HIGHLY POLISHED
COVER: 10 OZ. SAILCLOTH, VAT-DYED, WATER REPELLENT
COLORS: RED, BLUE, GREEN, YELLOW
OVERALL SIZE, OPEN: 23½" x 29" x 44"
OVERALL SIZE, FOLDED: 5" x 24" x 32½"
WIDTH: 20½"
LENGTH: 48"
NET WEIGHT: APPROX. 6¾ LBS.
PACKED: 6 TO A CARTON

MODEL No. 900

"T-TIME" SERVER

SPECIFICATIONS:

TUBING: ⅞" SQUARE ALUM. TUBING; HIGHLY POLISHED
COLOR OF TRAYS: PAINTED PLASTIC CARMIN
FRONT WHEELS: 6" DIAMETER WITH 1" RUBBER TIRES
BACK WHEELS: 2" HARD RUBBER SWIVEL CASTERS
OVERALL SIZE: 21" x 26" x 27"
NET WEIGHT: APPROX. 11 LBS.
PACKED: 1 TO A CARTON

Nothing finer in aluminum furniture . . .

FIG. 1 is a front perspective view of a T-sling chair embodying my new design.

FIG. 2 is a rear perspective view of the T-sling chair shown in FIG. 1.

FIG. 3 is a side elevation of the T-sling chair shown in FIG. 1 and FIG. 2.

The ornamental design for T[illegible]

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UNITED STATES PATENTS

D. 107,271	11/1937	Vavrik	D6—49
D. 173,881	1/1955	Pearl	D6—50
D. 210,939	5/1968	Schwarz, Jr.	D6—66
D. 122,3[illegible]	[illegible]	Rogers	D6—56

OTHER REFERENCES

House & Garden, December 1962, p. 43, chair bottom right by Crafter.

House & Garden, April 1957, p. 122, chair top right by Landes Mfg. Co.

Interiors, October 1965, p. 73, chair top right.

BRUCE W DUNKINS, Primary Examiner

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United States Patent Office

Des. 233,963
Patented Dec. 24, 1974

233,963

T-SLING CHAIR

Gerry D. Welton, 910 E. Tripp, Peoria, Ill. 61603

Filed May 1, 1973, Ser. No. 356,104

Term of patent 14 years

Int. Cl. D6—01

U.S. Cl. D6—55

FIG. 3

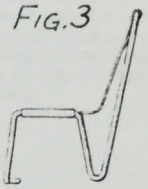


FIG. 2

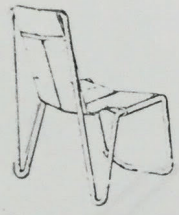


FIG. 1

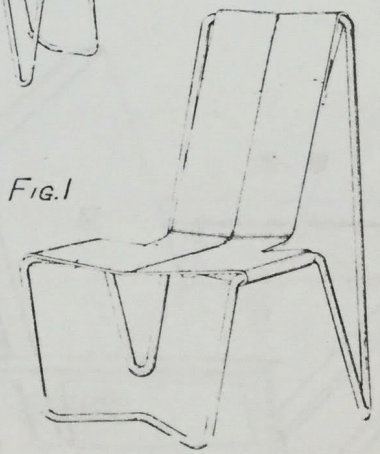


FIG. 1 is a front perspective view of a T-sling chair embodying my new design.

FIG. 2 is a rear perspective view of the T-sling chair shown in FIG. 1.

FIG. 3 is a side elevation of the T-sling chair shown in FIG. 1 and FIG. 2.

The ornamental design for T[illegible]

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D. 107,271	11/1937	Vavrik	D6—49
D. 173,881	1/1955	Pearl	D6—50
D. 210,939	5/1968	Schwarz, Jr.	D6—66
D. 122,3[illegible]	[illegible]/40	Rogers	D6—56

OTHER REFERENCES

House & Garden, December 1962, p. 43, chair bottom right by Crafter.

House & Garden, April 1957, p. 122, chair top right by Landes Mfg. Co.

Interiors, October 1965, p. 73, chair top right.

BRUCE W. DUNKINS, Primary Examiner

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297-282. SR

07-06-71 XR 3,591,233

United States Patent

[11] 3,591,233

[72] Inventor: Christian H. Turcksin
69a Backstrasse, Detmold, Lippe, Germany

[21] Appl No 789,832
[22] Filed Jan. 8, 1969
[45] Patented July 6, 1971
[32] Priority June 17, 1968
[33] Austria
[31] A5794/68

[54] ARTICLE OF FURNITURE
11 Claims, 12 Drawing Figs.

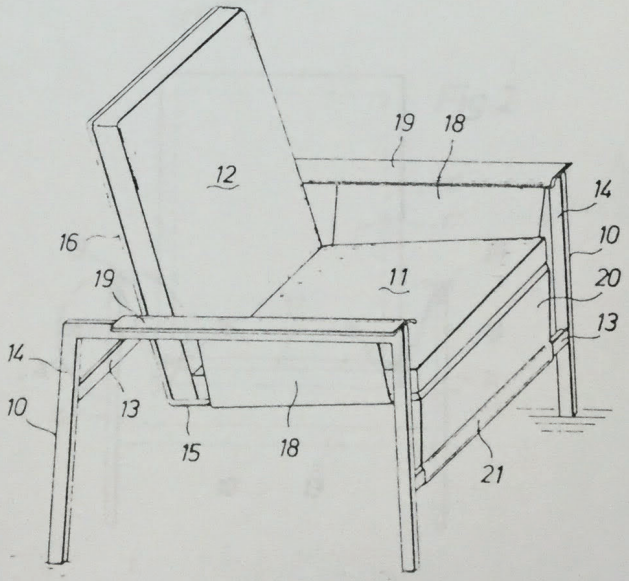
[52] U.S. Cl. 297/276, 297/282, 297/452
[51] Int. Cl. A47c 3/025
[50] Field of Search 297/445, 452, 441, 281, 273, 276, 282

[56] References Cited
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3,167,352	1/1965	Johnson	297/445

Primary Examiner – Reinaldo P. Machado
Attorney Richard G. Stephens

ABSTRACT: An article of furniture, such as a chair, comprising: a base frame formed from at least two spaced-apart side sections interconnected by at least one cross-strut; at least one back and seat unit universally displaceable between said side sections by the suspension of said back and seat unit between said side sections by means of at least one elastic sheet secured at at least one end to at least one side section and being in supporting engagement with said back and seat unit and optionally provided with an elastic retaining strip securable at one end to said back seat unit and at its other end to a cross-strut in the front region of said base frame so as to limit the rising movement of the front of said back and seat unit when loaded.



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Fig.1

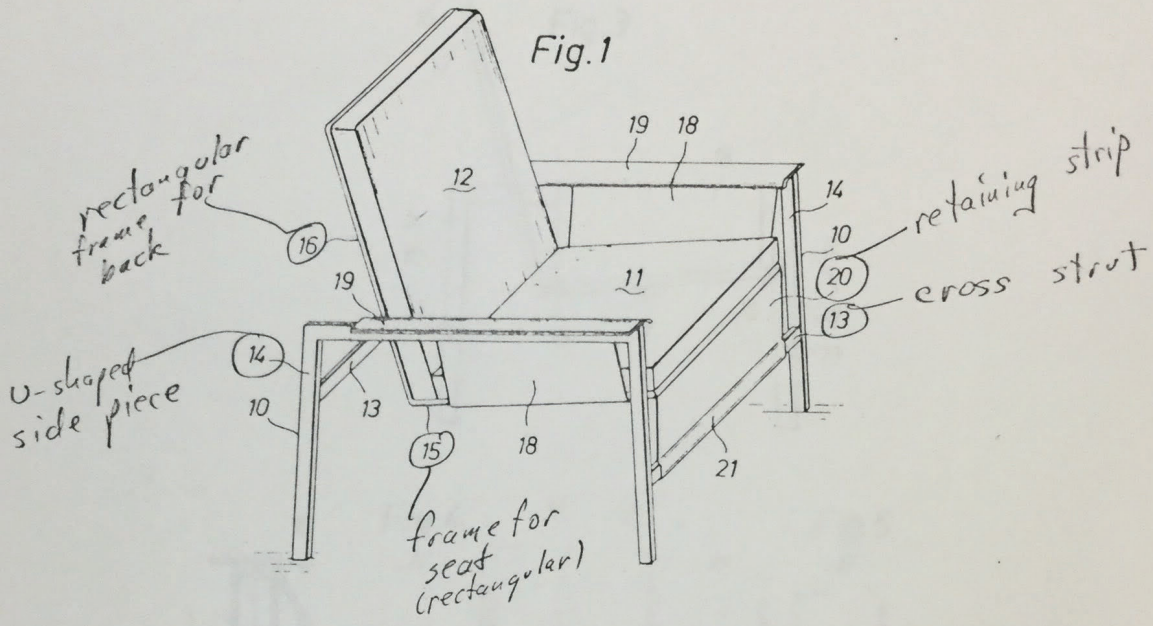
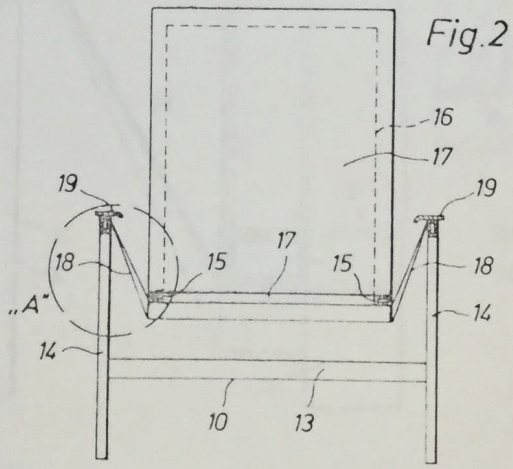


Fig.2



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Fig.3

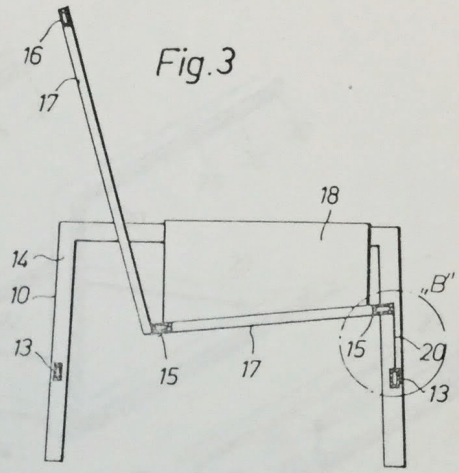


Fig.4 „A"

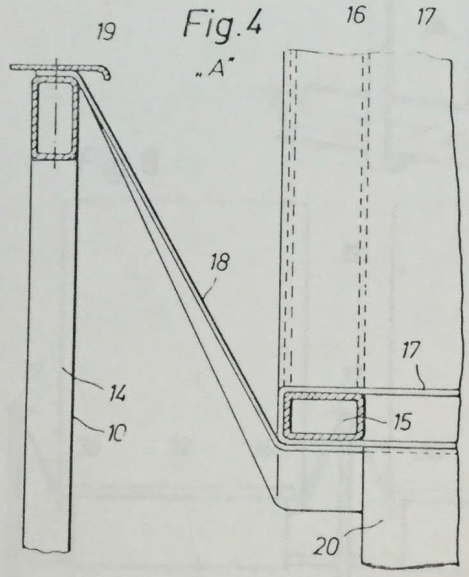
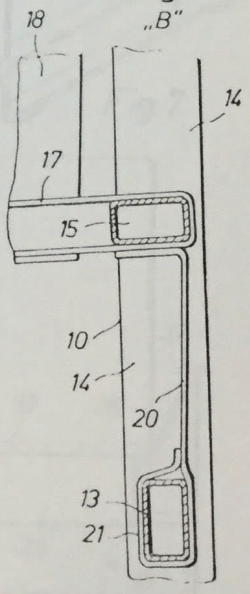


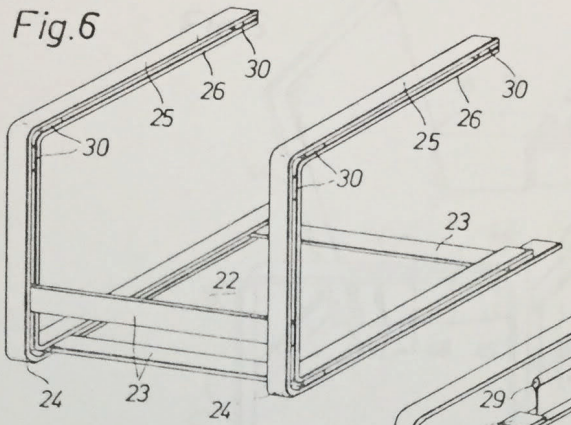
Fig.5 „B"



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Fig.6



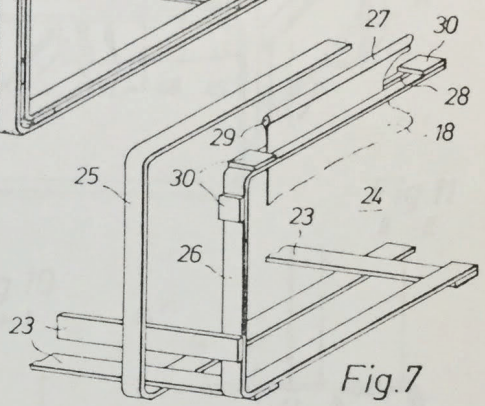
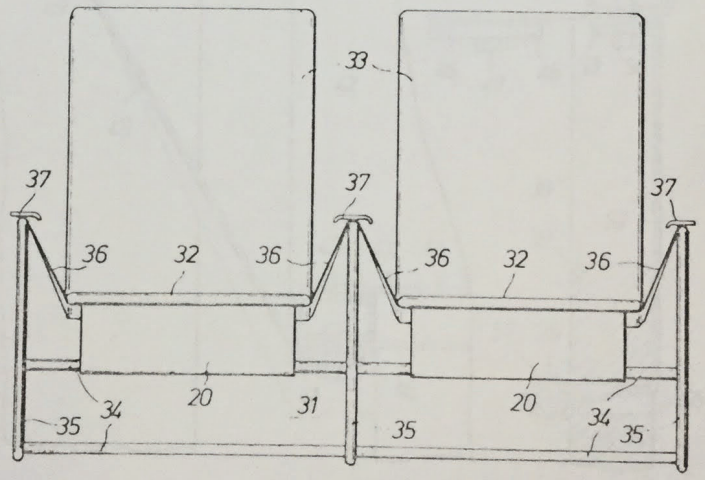


Fig.7

Fig.8



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Fig. 9

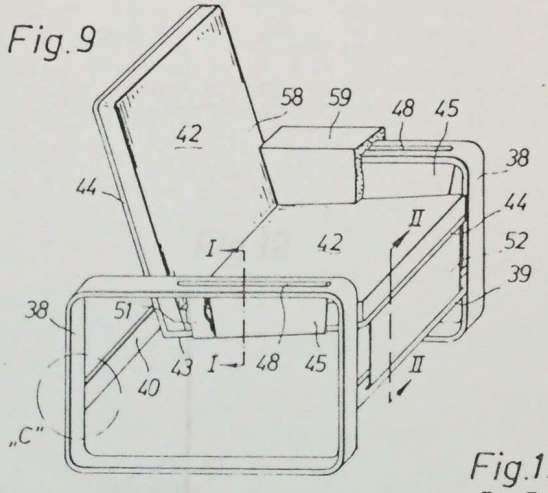


Fig. 10
I ÷ I

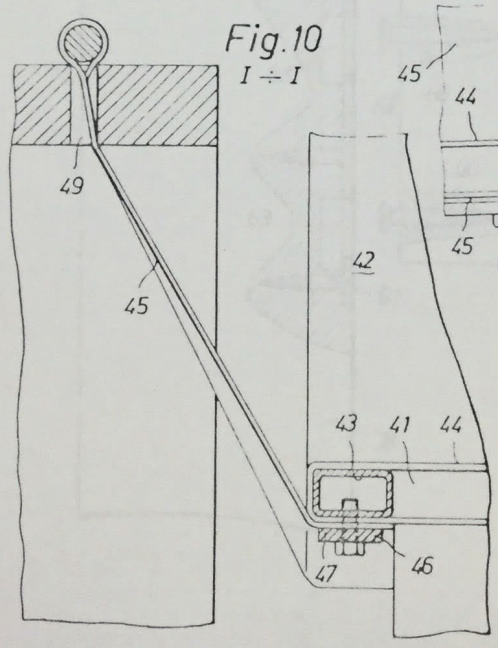
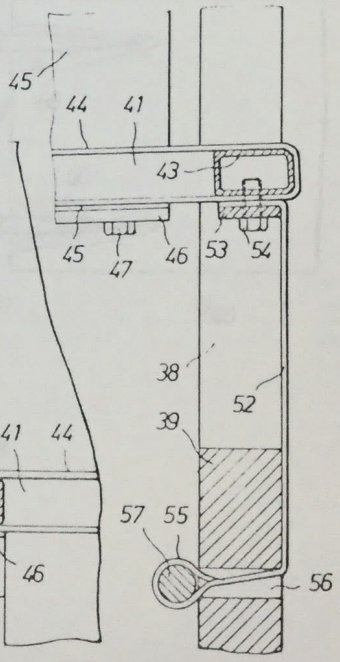


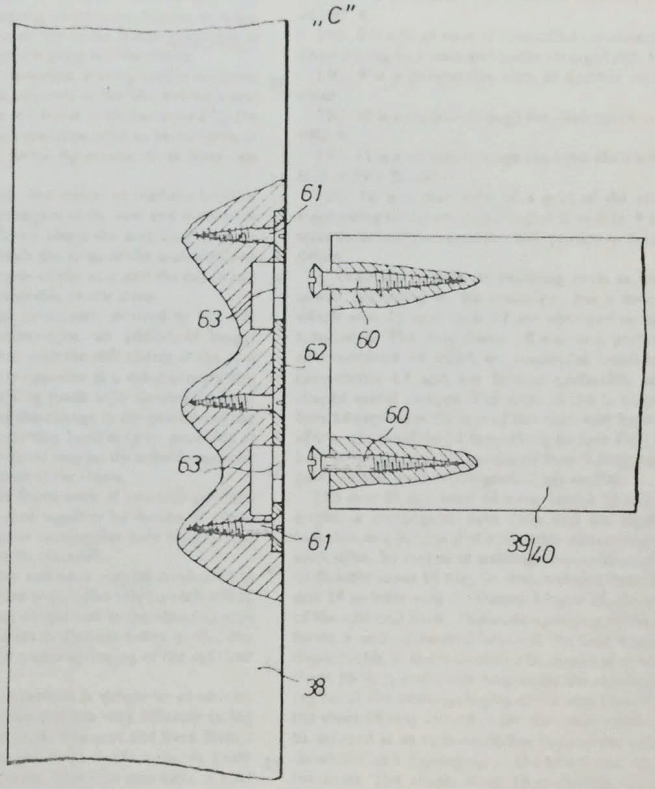
Fig. 11
II ÷ II



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Fig. 12



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ARTICLE OF FURNITURE

The present invention concerns an item of furniture for sitting and/or reclining, such as an arm chair or couch, having a seating surface and a back between the sides of a base frame.

In the case of conventional chairs, the seat and back are movable only in a certain direction relatively to the suspension since the back and the seat are connected to one end of the base frame and the connecting area is suspended freely displaceable between the back and the seat.

Such known chairs have efficient spring suspension but do not permit a frequently desirable change of position of the seat and back relative to the frame.

It is an object of the present invention to provide an item of furniture which, in addition to simple construction, easy manufacture and efficient spring suspension, has an arrangement of the seat and back relatively to the frame adaptable to the desired position of the person using said furniture.

According to the present invention, seating and/or reclining furniture such as arm chairs, couches or the like having a seat and back arranged between the frame is characterized by the feature that the seat and back are suspended to be movable in all directions between the frame by means of at least one elastic band.

In a preferred embodiment, the elastic or resilient band or sheet may be arranged in the region of the seat and secured in the region of its end to the frame above the seat. One or more bands may be provided on both the sides of the seat with one end being secured on the frame of the seat and the other end on the frame of the chair, preferably on the arms.

The elastic sheets may be detachably secured to the side portions and the seat. Furthermore, an additional longer elastic strip may be associated with the side sheets at the rear of the seat, which longer strip operates as a subsequently acting spring element for receiving loads with constantly good spring properties; for limiting the change in the position of the seat and back an elastic supporting band may be provided at the front of the chair, which band may be detachably secured to the seat and a transverse strut of the frame.

It is preferable to form the framework of two side portions rigidly or detachably connected together by means of cross-struts and having a U-shaped or rectangular base form of, for example, metal, wood or plastics material.

The frames forming the seat and back may be connected at a certain and preferably obtuse angle relatively to each other, by welding or the like to form a rigid unit in the abutting area and provided with elastic bands or flexible tubes or the like resilient members to form the under springing of the seat and back.

The chair of the present invention is simple to construct, easy and economical to produce and has very efficient spring characteristics of its seat and back. The seat and back form a unit which is preferably arranged to be displaceable in every direction between the base frame. This seat and back is held on the base frame in a simple and reliable manner by means of one or more elastic sheets which permit movement of the seat and back according to the position of the body of the person using the chair. Because of the resilient and floating arrangement of the seat and back, these two loading surfaces, which are rigidly connected together, adapt themselves to the position of the body so that this seating and/or reclining chair may be used as a multipurpose item of furniture. The loading capacity of the seat and the back is desirably very great and designed according to actual requirements, whilst at the same time, gentle suspension is ensured.

The construction of the base frame is very simple and assembly thereof is easy and attachment of the seat and back extremely simple.

The chair has an extremely efficient spring capacity and great loading capacity in addition to long life without signs of fatigue of the elastic sheets, tubes, bands or strips and represents a convenient chair, providing a favorable seating, reclining and leaning surface for the person using it.

The invention will be described further, by way of example, with reference to the accompanying drawings, in which:

FIG. 1 is a perspective view of an arm chair having a seat and back unit suspended in a base frame;

FIG. 2 is a partial front view of the chair of FIG. 1;

FIG. 3 is a side view partly in section of the chair of FIG. 1;

FIG. 4 is a front view partly in section, of the securing region of the seat and back with the base frame according to the encircled region A in FIG. 2;

FIG. 5 is a side view, partly in section, of a portion of the seat with attachment to the base frame according to the encircled region B of FIG. 3;

FIG. 6 is a perspective view of another embodiment of a base frame;

FIG. 7 is an exploded perspective view of part of the frame of FIG. 6;

FIG. 8 is a front view of a modified construction of a seat or chair having two seats and backs arranged side by side;

FIG. 9 is a perspective view of another embodiment of a chair;

FIG. 10 is a section through the chair taken on the line I–I of FIG. 9;

FIG. 11 is a section through the same chair taken on the line II–II of FIG. 9, and

FIG. 12 is a rear view of a part of the same chair corresponding to the encircled region C of FIG. 9 having a cross-strut detachably secured to a side portion in the exploded condition.

A chair for seating or reclining such as an armchair or couch according to the invention, has a base frame 10 in which seat 11 and back 12 are arranged so as to be freely suspended. The base frame 10 has two, preferably parallel, side members 14 which are connected together by means of cross-struts 13 and are formed preferably of inverted U-shaped metal stirrups. The sides of the U-shaped side members 14 represent the legs of the chair and the top crosspieces of the side portions 14 form the arms (see FIG. 1). The members 14 are preferably produced from tubing having a rectangular, round, oval or polygonal cross section.

The seat 11 and back 12 have frames 15 and 16 of, for example, a rectangular base form and are rigidly connected together at a certain and preferably obtuse angle relatively to each other by means of welding. One or several elastic bands or flexible tubes 17 may be drawn round these two frames 15 and 16 to form with the frames 15 and 16, the underspringing of the seat and back. This underspringing of the seat and back forms a unit suspended between the base frame 10 which is displaceable in every direction by means of at least one elastic sheet 18. It is preferable to provide the elastic sheet 18 in the region of the underspringing of the seat (seat frame 15), and the sheet 18 may extend under the entire width of the seat and be secured at its ends extending beyond the width of the seat, above the underspringing, to the base frame 10, preferably to the arms. The elastic sheet 18 preferably extends over substantially the entire depth of the seat and thus supports the entire surface of the underspringing of said seat.

The elastic sheet 18 may be formed of two parts which are provided in the two side regions of the seat 11 and be connected at one end to the base frame 10, preferably the arm, and at the other end to the seat frame 15.

A plurality of elastic sheets 18 arranged adjacent one another at spaced intervals to provide the floating suspension for the seat 11 and back 12, extend as strips in the side areas of the seat from the base frame 10 to the seat frame 15 or, alternatively, from one side of the frame under the seat frame 15 as far as the other side of the base frame.

The sheet 18 is elastic in one direction and is provided with elastic threads extending in the direction of the axis of symmetry of the chair so that the sheet is elastic in the direction of the standing surface of the seating and/or reclining chair.

The elastic band or tube 17, serving as seat and back band, and the elastic sheet 18 consist in each case of an elastic web of fabric, the weft and/or warp threads of which have

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preferably and at least partially, cores of vulcanized rubber threads round which textile threads are spirally wound.

The sheet 18 is secured at one end by means of screws between the arm and a strip 19 provided thereon and can be secured at the other end to the band 17 of the seat frame 15 by, for example, vulcanizing.

It is preferable to manufacture the frames 15 and 16, the side members 14 and the cross-struts 13 of rectangular tubing In the front area of the seat frame at least one elastic retaining strip 20 may be provided which limits the upward movement of the seat frame 15 when a person seated thereon leans back, and can be attached at one end to the seat frame 15 and at the other end to the front cross-strut 13 of the base frame 10. The retaining strip 20, or a plurality of retaining strips arranged by vulcanizing side by side at spaced intervals, is secured at one end to the band 17 of the seat 11 and at the other end is disposed round the cross-struts 13 and formed by vulcanizing into an attachment loop 21 (see FIG. 5).

A different type of base frame 22 is shown in FIGS. 6 and 7 which is formed of two spaced apart side portions 24 connected together by cross-struts 23. The side members 24 preferably have a U-form, one side of each portion forming the leg (standing surface) and the other side, the arm.

Each side member 24 may be made of wood for example and have two telescoping stirrups 25, 26 which may be connected together by screws, glue or the like securing means: 25 representing the outer stirrup into which stirrup 26 may be inserted. The elastic web 18 supporting seat 11 and back 12, or the seat and back underspringing, is secured at its ends to the side members 24, the web 18 being enlarged or thickened in the region of its ends, extends through the inner stirrup 26 and is supported by its reinforcement 27 on the inner stirrup 26.

The inner stirrup 26 has a recess, such as slot 28, through which the web 18 is passed by its ends. The reinforcement 27 of the web 18 is supported between the outer and inner stirrups 25, 26 on the inner stirrup 26, whereby this web 18 is suspended at both ends from the side members 24. It is preferable to provide reinforcement 27 of the sheet 18 at its two ends by loops through which there extend a retaining rod 29 of, for example, metal or wood. The cross section of the retaining rod 29 and the sheet loop is greater than the width of the longitudinal slot 28 so as to prevent the end of the sheet 18 slipping through. The retaining sheet 18 may also be formed as a sheet extending over the entire depth of the seat or be formed by several strips extending over the entire width of the seat. Furthermore, the sheet 18 may be formed of two parts provided in the side areas of the seat underpsringing, said parts being secured at their other ends to the band 17 of the seat frame 15 by e.g. vulcanizing or adhesion. The cross-struts 23 are preferably provided on the inner stirrups 26 and extend, when the side portions 24 are pushed together, between the outer and inner stirrups 25 and 26. The inner stirrups 26 may be provided with several spacers 30 which determine the spacing between the two stirrups 25 and 26 to be connected.

The seat 11 and back 12 and the seat and back underspringing are displaceably suspended in the base frame 22, corresponding to the base frame 10 of FIG. 1 by means of the elastic sheet 18. Pads 31 may be disposed on the seat and back underspringing.

An alternative embodiment of the invention is shown in FIG. 8 and comprises a base frame 31 in which, for example, two seats 32 with backs 33 are displaceably suspended. The base frame 31 is composed of three side members 35 connected together by cross-struts 34 and has a U-shaped stirrup form and U-shaped members may be arranged to stand on the legs or rest on one leg.

The basic form of the seats 32 and backs 33 and the suspension thereof correspond to the embodiments shown in FIGS. 1 to 5. The suspension of the seat 32 and back 33 is also provided by means of elastic sheets 36 which are secured to the side members 35 in the region of the arms 37. The sheets 36 may be secured by means of screws or adhesives between the side members 35 and the associated arms or, according to the embodiment shown in FIGS. 6 and 7, in slots formed in the side members 35. The center side member 35 serves to secure two elastic sheets 36 so that only three side members 35 are required for the two seats 32. In the adjacent marginal areas of the two seats 32, two sheets 36 may be provided which extend from the respective seats 32 to the side members 35, or one sheet 36 may be provided which is secured at both its ends to the seats 32 and is secured in the center area between the side member 35 and arm 37 or extend through a slot into the center member 35.

It is preferable to form the side members 35 of tubes of circular cross section.

Furthermore, a plurality of seats 32 and backs 33 may be arranged adjacent to each other, the adjacent marginal areas of two seats being always secured to one side member 35.

A further embodiment is illustrated in FIGS. 9 to 12 in which the chair has two side frame members 38 having, for example, an angular and preferably rounded rectangular section. The two side frame members 38 are spaced from each other by means of front and rear transverse struts 39, 40.

In FIGS. 9 to 12 a seat 41 with back 42, similar to that of FIGS. 1 to 5, is shown displaceably suspended between the two side members 38, the seat 41 and back 42 having rectangular frames 43 which abut each other at certain and preferably obtuse angle and which are rigidly connected together. One or possibly more elastic bands or tubes 44 representing the underspringing of the seat and back are drawn round the two frames 43.

The seat 41 with back 42 is floatably suspended so as to be displaceable in all directions between the side members 38 by means of lateral elastic sheets 45. Each lateral sheet 45 is detachably connected at its upper ends to the side members 38 and at the lower end to the seat 41, and at its lower end to the lower side of the seat 41 in its lateral marginal areas by means of a clamping strip 46 and screws 47 or the like securing means engaging therewith and extending into the seat frame 43. The upper ends of the side sheets 45 are formed into loops 48 which extend through slots 49 (only one shown) in the upper horizontal part of the frames 38 and are each secured by means of a retaining rod 50 of metal, plastics material or wood passing through loop 48. It is preferable for the cross section of the retaining rod 50 to be slightly larger than the width of the slot 49 so that the retaining rod 50 disposed in the loop 48 rests on top of the members 38, and when the sheet 45 is under tension, it cannot be pulled through the slot 49 with its loop 48, thus preventing undesirable detachment (see FIG. 10).

Towards the rear of the seat 41 an auxiliary elastic strip 51 of smaller width than sheet 45 is associated with each sheet 45 and is detachably secured to the members 38 and the seat 41 in a similar manner as sheet 45. The strip 51 is longer than the adjacent band 45 by sufficient amount so that it remains untensioned until sheet 45 received a certain load. If the sheet 45 is loaded beyond this certain load, tensioning of the longer strip 51 ensues so that the loading forces are received by both the sheet 45 and the strip 51 so that, because of their difference in length, different loads may be received with a satisfactory spring property and additional spring elements are rendered unnecessary. Sheet 45 and strip 51 can absorb heavy loads, smaller loads being compensated by the sheet 45 with the strip 51 serving as a (delayed action) spring in the event of increasing loads.

At least one retaining band 52 is provided in the front region of the seat and extends almost over the entire width of the seat thus limiting the upward movement of the seat 41 when under the load of a person leaning back, and also limiting the swiveling movement of the seat and back unit directed downwardly. The retaining band 52 is detachably secured at its upper end to the underside of the seat frame 43 by means of a clamping strip 53 and screws 54 passing through the strip 53 and the band 52 extending into the seat frame 43. The other end of the plastic band 52 is formed into a loop 55 which extends from the front of the chair through a slot 56 in the cross-

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strut 39 and is detachably secured to the cross-strut 39 by means of a retaining rod 57. The retaining rod 57 extends through the loop in the retaining band 52 at the rear of strut 39 and prevents the band 52 slipping out of the slot 56 when under tension.

The arrangement of the side sheets 45 and strips 51 of different length in both side areas, and of the retaining band 52 in the front region of the chair provides satisfactory spring capacity and absorption of loads of different weight with a constant spring suspension. Furthermore, the seat 41 with back 42 can be removed from the side members 38 as a unit in a simple and rapid manner. Additional cushions 58 may be disposed on the seat 41 and the back 42 and loose arm cushioning 59 may be laid over the regions of the frame housing the retaining rods 50 in the sheet loops 48.

In order to make it possible to transport the chair in a simple and space saving manner, the side members 38 are detachably connected to the cross struts 39 and 40 by means of mounting fittings. Two head screws or pins 60 are set in the fronts of the cross-struts 39, 40 and arranged at a space one above the other. The insides of the side members 38 each have a connecting plate 62 countersunk by means of screws 61. The connecting plates 62 each have two slots 63 arranged one above the other and enlarged at one end for inserting the head screws 60 which can be inserted in the slot 63 at right angles to the plane of the plate and thereafter displaced downwardly by a certain amount for connecting the side members 38 to the cross-struts 39,40. The shafts of the head screws 60 when in engagement extend into the slots 63 with their heads or attachments being disposed behind the slots 63 in contact with the plate 62 so that axial displacement of the head screws 60 is prevented. The front ends of the cross-struts 39, 40 extend along the plates 62 without a clearance and the head screws 60 resting in the slots 63 of the connecting plates 62, establish a firm but detachable connection between the side frames 38 and the transverse struts 39 and 40. Because of this detachable connection, the base frame sections formed on side members 38 and cross-struts 39,40 may be rapidly, simply and compactly packed a feature which makes them convenient for transportation.

The chair of the invention is advantageously provided with a simple but gentle and constant spring suspension of the seat and back which is obtained by means of an elastic sheet which is easy to manufacture and to secure and is also resistant to stresses.

The seat and back preferably form a spring-suspended unit and can be changed jointly, in any desired manner, in their position relatively to the base frame of the chair. The attachment of the elastic sheet to the seat and back, and also to the base frame, can be carried out in any other different manner. In addition, the shape of the base frame may be of any desired type and be formed of any material such as for example plastics material.

Such a seat may be fitted with either a rigid or resilient seat and back.

The floating suspension for seating according to the invention is particularly suitable for use in omnibusses and long distance coaches since the universally displaceable suspension of the seat and back unit gives not only considerable technical advantages, but also a great saving in weight of at least 50 percent and greater safety in respect of the risk of injury.

On bad roads jolts or bumps are absorbed by the elastic sheets and not transmitted to the passengers. The base frame can be easily and simply fitted in an omnibus by virtue of its shape. Since a rigid back is unnecessary, serious damage to persons is avoided in a favorable manner in the event of accidents, because the seat and back are suspended as a unit in a floating manner which thus yields under loads or absorbs jolts. When the seat is fitted in a vehicle, the cross-struts may be omitted so that freedom of movement for the legs of the passengers is ensured. In addition, seats are also suitable as chairs in large halls.

I claim:

1. An article of furniture, such as a chair, comprising: a base frame formed from at least two spaced apart side sections interconnected by at least one cross-strut; at least one back and seat unit comprising a rigid angle frame carrying resilient seat and back cushioning means in planes arranged at an obtuse angle relative to each other, and means for resiliently suspending said back and seat unit from said base frame to allow universal displacement of said back and seat unit relative to said base frame consisting of at least one elastic sheet having one end attached to said rigid angle frame adjacent the seat portion of said angle frame and an opposite end attached to one of said side sections, thereby to allow universal displacement of said back and seat unit relative to said base frame.

2. An article according to claim 1 wherein said means for resiliently suspending said back and seat unit comprises elastic sheet means having edges attached to said back and seat unit and opposite edges attached to portions of said side sections of said base frame which form arm rests, whereby said back and seat unit is resiliently suspended from said arm rest portions of said article of furniture.

3. An article of furniture according to claim 1 wherein at least one elastic sheet extending almost over the entire depth of the seat and at least one auxiliary elastic strip associated with the sheet in the rear area of the seat are provided for the universally displaceable suspension of said back and seat unit between said two side members, said auxiliary strip being longer than said elastic sheet for delayed spring action when said seat and back unit is loaded.

4. An article of furniture according to claim 1 wherein each side section is of a substantially U-shaped form with one lower shank thereof forming a supporting surface, the other upper shank forming an arm and the crosspiece forming a leg and wherein each side section comprises two telescopic interconnectable U-shaped members, one U-shaped member being provided in the region of said arm (upper shank) with a recess such as a longitudinal slot through which one end of said elastic sheet passes and is secured, by means of terminal reinforcements of said elastic sheet, between the inner and outer telescopic U-shaped members of said side members.

5. An article according to claim 1 having an elastic retaining strip extending across the front of said seat portion of said angle frame, said elastic retaining strip having one end connected to said back and seat unit and an opposite end connected to said base frame, thereby to resiliently oppose upward movement of the front edge of said seat portion of said back and seat unit.

6. An article of furniture according to claim 5 wherein said back and seat unit comprises a framework having at least one elastic sheet, tube or the like cover drawn thereover and said elastic sheet is securable at one end by means of screws or the like between a portion of said side section forming an arm and an arm ledge and at its other end by vulcanizing to said elastic sheet, tube or the like drawn over said seat frame, and wherein said retaining strip is connected at one end to the back and seat cover by vulcanizing or mechanical means and at its other end, formed as a tubular portion, is optionally retained on said cross-strut.

7. An article of furniture according to claim 6 wherein said elastic sheet is secured at at least one end to at least one side section above the plane of the seat portion.

8. An article of furniture according to claim 6 wherein said elastic sheet consists of a web which is elastic in one direction and has elastic threads extending in the direction of the center longitudinal plane of the chair (axis of symmetry).

9. An article of furniture according to claim 8 wherein said elastic web is of a fabric whose warp and/or weft threads preferably have at least in part, cores of vulcanized rubber threads round which textile threads are spirally wound.

10. An article of furniture according to claim 1 wherein each side section is of a substantially U-shaped form with the U-shanks being formed as legs and the crosspiece thereof as an arm and wherein each side section comprises two telescopic interconnectable U-shaped members, one U-shaped member

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being provided in the region of said arm (crosspiece) with a recess such as a longitudinal slot through which one end of said elastic sheet passes and is secured, by means of terminal reinforcements of said elastic sheet, between the inner and outer telescopic U-shaped members of said side members.

11. An article of furniture according to claim 10 wherein said reinforcements, formed at the end of said elastic sheet comprises a tubular portion capable of optionally receiving retaining a rod therethrough, the cross section of which retaining rod being greater than the width of said slot to prevent undesired withdrawal of said end from said recess.

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CROSS REFERENCE SEARCH ROOM

March 14, 1939. A. P. DE SANNO, JR 2,150,429

CHAIR

Filed Sept. 11, 1937

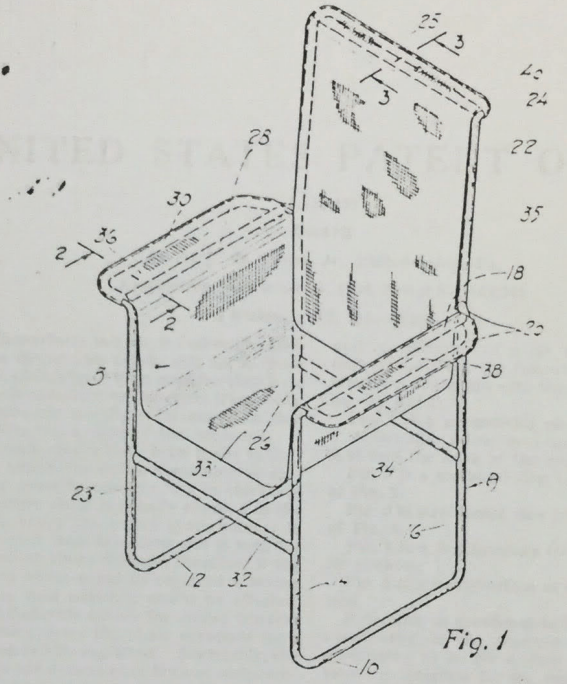


Fig. 1

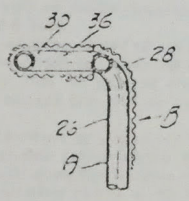


Fig. 2

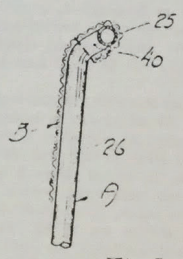


Fig. 3

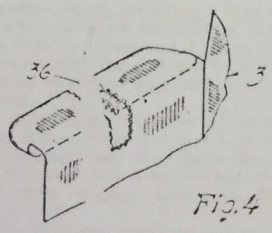


Fig. 4

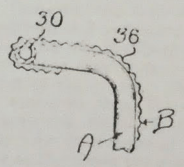


Fig. 5

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Patented Mar 14, 1939

2,150,429

UNITED STATES PATENT OFFICE

2,150,429

CHAIR

Albert P. de Sanno, Jr., Philadelphia, Pa.

Application September 11, 1937, Serial No. 163,311

3 Claims. (Cl. 155—187)

My invention relates to a chair and relates particularly to a detachable fabric seat for a chair.

Heretofore, chairs have been made so they have a flexible fabric attached to the chair framework, but the framework usually is arranged so that it directly bears the weight of the occupant.

Lawn and deck chairs have been made so they are foldable; hence, the entire chair may be carried from one place to another, but in the event of rain, the entire chair is usually exposed to the elements. To carry the entire chair indoors in order to prevent it from becoming wet is both inconvenient and at times difficult, therefore if the fabric covering alone could be removed a saving in convenience and patience would be effected. Heretofore, detachable covers for chairs wherein the cover alone carries the chair occupant have not been commercially exploited. Invariably, the suggested prior art devices have been of such complex construction that a very long period of time must be expended in attaching or detaching the fabric cover to the framework of the chair.

It is an object of my invention to provide a chair with an easily detachable combined fabric seat and back.

It is another object of my invention to provide a fabric which is supported by the chair in such manner that no part of the framework of the chair engages the seat or the back of the occupant.

It is another object of my invention to provide a detachable fabric which does not utilize any clamps or clips for holding it to the framework.

It is another object of my invention to provide an improved chair, or the like, in which the fabric, canvas, or other material forming the seat is detachable from the frame.

Another object of my invention is to provide an improved chair adapted for outdoor use which includes a suitable frame and a fabric covering or the like providing the seat and back rest constructed so as to permit an easily attached and taut covering.

Another object of my invention is that the fabric covering defining the seat and back rest are wholly suspended from the supporting frame whereby a tottering action in the chair does not permit the chair occupant from contacting the supporting frame.

Other objects of my invention are to provide an improved device of the character described of simple and economical construction and which possesses a maximum amount of serviceability.

With the above and related objects in view, my invention consists in the details of construction and combination of parts, as will be more fully understood from the following description, when read in conjunction with the accompanying drawing in which:

Fig. 1 is a perspective view of a chair having a detachable fabric covering which defines the seat and the back of the chair.

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1.

Fig. 4 is a fragmentary view of one of the fabric pockets.

Fig. 5 is a modification of an arm of my invention.

Referring in greater detail to my invention as exemplified in the drawing, a frame, generally designated as A, for a chair which is more particularly adapted for use outdoors, such as in a porch, a deck, a lawn, or garden chair, has a fabric covering, generally designated as B, attached to the frame. The frame A is constructed so that there are no sharp corners, thus the covering forming the seat and back of the chair will not wrinkle or bind.

The base of the chair framework includes suitable ground engaging members 10, 12. From the ends of the ground member 10 extend vertical uprights 14 and 16, and the upright rods 14 and 16 are joined by a cross brace or side or arm member 18 the latter providing an arm rest. Within the same horizontal plane of the cross brace or arm rest 18 is an outwardly spaced cross arm 20; hence, the construction hereinbefore described provides an arm rest of two closely spaced parallel cross-arms or side members 18 and 20. However, the innermost cross-arm 18 may be omitted if it is desired to provide greater lateral space for the occupant's arm, as in those cases where the occupant does not wish to engage any portion of the frame. The rear upright 16 continues upwardly above the arm rest, and then turns rearwardly from 22, the rod continues rearwardly and then turns at right angles as at 24 to serve as the upper cross-brace of the framework.

I have hereinbefore described the right-hand side of the framework, as Fig. 1 is viewed, and I shall now describe the left-hand side of the framework which is complementary to the right-hand side of the frame. From the ends of the left-hand ground member 12 extend the vertical upright rods 23, 26 which are arranged similarly to the uprights 14, 16 respectively. Two spaced arm rests or side members 28 and 30 are ar-

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ranged similarly to the left hand arm rests 18 and 20. The inside arm 28, like arm 18 may be optionally omitted or used.

A lower cross brace 32 joins the front vertical uprights 14 and 23 but the brace is located so that the occupant of the chair does not sag enough to bodily engage the brace. A lower cross brace 34 joins the rear vertical uprights 16 and 26 and is also located out of contact with the seat covering.

The fabric covering B which defines the seat 33 and the back 35 of the chair is constructed of suitable sturdy material, and is easily and rapidly attachable or detachable from the frame A. The seat also has side portions extending from the seat and back portions of the covering. The fabric has three pockets 36, 38 and 40 therein. The pockets 36 and 38 being on each side of the fabric to slip over the rods 30 and 20, respectively, and the pocket 40 slips over the upper cross member 25 (Figs. 1 and 3). Hence, an occupant of the chair may comfortably sit and lean against the back without engaging any hard or rigid members constituting the chair frame. Even if a small teetering action is established by the occupant of the chair the fulcrum points of support do not rigidly hold the fabric in position and still none of the chair framework is engaged. Thus, the chair is strong, durable and extremely comfortable to the occupant.

Each fabric pocket is formed by overlapping a portion of the fabric, at the place where the pocket is to be formed and then stitching the side edges together. With this arrangement of the pockets in the fabric, the latter may be easily slipped off or on the frame and any tension imposed upon the seat 33 or the back 35 will not result in the fabric B either slipping or wrinkling but will enable the fabric to be drawn taut.

The sewing of overlapping portions of the fabric covering B to form retaining pockets disposes of all metallic detachable means which otherwise may rust or rip through the fabric; straps and holding tapes are likewise unnecessary in my invention. The single construction of the fabric covering and its ease of attachment and detachment makes it easy to wash and launder.

The frame A, illustrated in Fig. 1 and hereinbefore described is of tubular construction but any other suitable frame construction may be employed.

Although my invention has been described in considerable detail, such description is intended as illustrative rather than limiting, since the invention may be variously embodied, and the scope of the invention is to be determined as claimed.

I claim as my invention:

1. A chair comprising a frame, said frame consisting of spaced interconnected side members, a portion of the frame being adapted to engage the ground, a horizontally extending arm member connected to each side member at the height of an arm rest and extending laterally outwardly from said side member, a rear upright on each side member extending above the arm rest member, a cross brace connected to the upper ends of each of the rear uprights and extending rearwardly of said rear uprights, a fabric covering defining the seat and back of said chair and having side portions extending from said seat and back, and a plurality of pockets in the fabric, said pockets complementarily receiving the laterally extending arm members and the upper cross brace whereby the occupant of the chair will be swingably suspended in the lower portion of the covering, said pockets being easily and rapidly removable from the interfitting portions of the frame.

2. A chair comprising a frame having spaced connected side members, each side member comprising a ground engaging member, a front and a rear upright rod connected to the ground engaging member, a single member connected to said uprights at the height of an arm rest and extending laterally outwardly from said uprights, a cross brace connected to the upper ends of the rear uprights of both side members, said upper cross brace extending rearwardly of said rear uprights, a fabric covering defining the seat and back of said chair and having side portions extending upwardly from said seat and back, a plurality of pockets in said fabric, said pockets complementarily receiving the laterally extending members and the upper cross brace whereby the occupant of the chair will be swingably suspended in the lower portion of the covering.

3. A chair comprising a frame, said frame having a plurality of vertically extending side members arranged to form opposite side members, a horizontally extending arm member connected to each of the vertical members comprising one side member, and said arm member extending laterally outwardly from said side member at about the height of an arm rest, the rear vertically extending members extending above the arm members, a cross brace extending rearwardly and joining the upper ends of said rear members, a fabric covering defining the seat and the back of said chair, a plurality of pockets in said fabric, said pockets complementarily receiving the horizontally extending arm members and the cross brace whereby the occupant of the chair will be pivotally suspended in said covering, and said pockets being detachably suspended from the interfitting portion of the frame.

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Oct. 7, 1969 E. A. MORRISON 3,471,200

CHAIR CONSTRUCTION

Filed Feb. 23, 1968 2 Sheets-Sheet 1

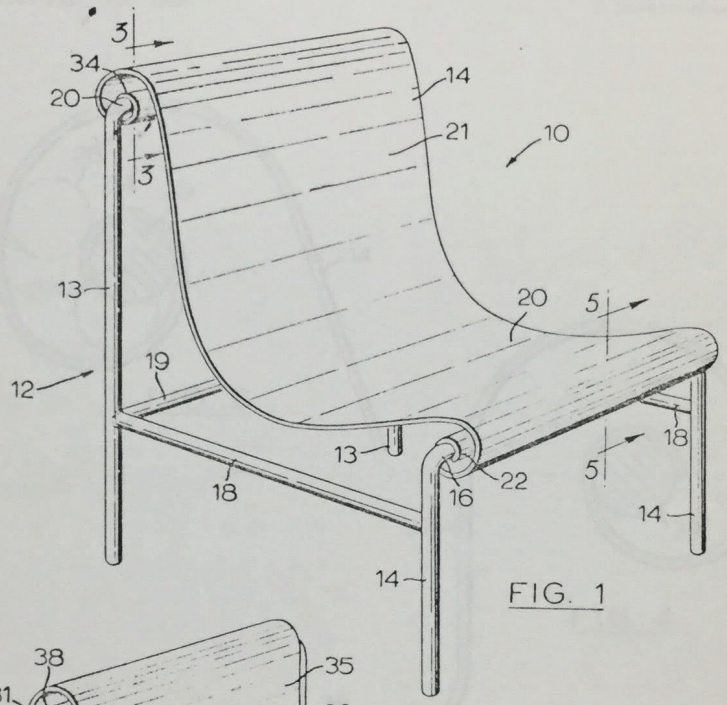


FIG. 1

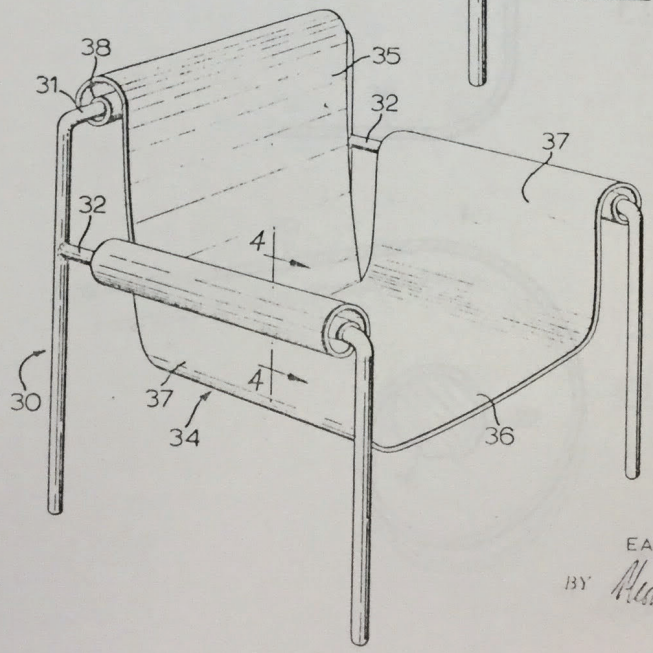


FIG. 2

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CHAIR CONSTRUCTION

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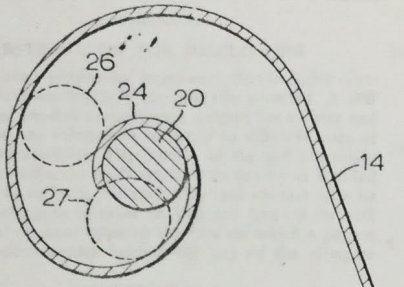


FIG. 3

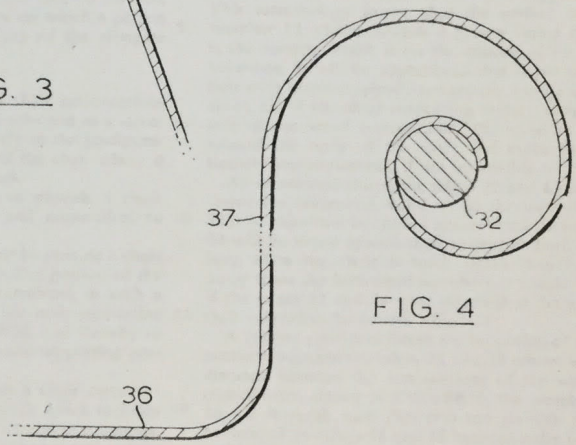


FIG. 4

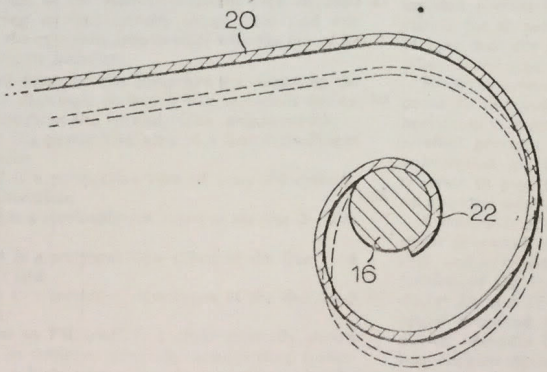


FIG. 5

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United States Patent Office

3,471,200

Patented Oct. 7, 1969

3,471,200

CHAIR CONSTRUCTION

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Filed Feb. 23, 1968, Ser. No. 707,524
Int. Cl. A47c 7/02
U.S. Cl. 297—441 4 Claims

ABSTRACT OF THE DISCLOSURE

A chair has a supporting framework that includes elongate members substantially horizontally oriented. A stiff but resilient member constitutes a support for a sitter and has at least two extremities attached to different ones of the elongate members. The portion of the stiff but resilient member adjacent each attached extremity is scrolled spirally so as to bring the extremity into contact with its respective elongate member so that the face of the stiff but resilient member opposite the face on which a person sits bears downwardly against the top of the elongate member.

This invention relates generally to chair constructions wherein a body-supporting portion is attached to a structural framework, and more particularly to the configuration of the body-supporting portion of the chair where it is connected to the structural framework.

It is an object of this invention to provide a chair construction which is both simple and economical to manufacture.

It is a further object of this invention to provide a chair construction in which the body-supporting portion of the chair is attached to the structural framework in such a way as to increase the deflection of the body-supporting portion of the chair under a given load, and thereby to enhance the "cushion" effect in the body-supporting portion.

Accordingly, this invention provides a chair construction, comprising: a supporting framework which includes elongate members in substantially horizontal orientations, and a stiff but resilient member adapted to support a sitter on one face thereof, the member having at least two extremities attached to different ones of said elongate members, the portion of the member adjacent each attached extremity being scrolled spirally away from said one face to bring the extremity into contact with the top of its respective elongate member.

Two embodiments of this invention are shown in the accompanying drawings, in which like numerals denote like parts throughout the several views, and in which:

FIGURE 1 is a perspective view of a first embodiment of this invention;

FIGURE 2 is a perspective view of a second embodiment of this invention;

FIGURE 3 is a sectional view taken at the line 3—3 in FIGURE 1;

FIGURE 4 is a sectional view taken at the line 4—4 in FIGURE 2; and

FIGURE 5 is a sectional view taken at the line 5—5 in FIGURE 1.

Turning first to FIGURE 1, a chair generally shown at 10 is seen to comprise generally a supporting framework 12 and a body-supporting sheet member 14. The supporting framework 12 includes two rearward vertical members 13 (of which only one is visible in FIGURE 1), two forward vertical members 14, a forward horizontal member 16 bridging between the upper ends of the forward vertical members 14, two side horizontal members 18 (only one of which is visible in FIGURE 1), a lower rearward horizontal member 19 bridging between the two rearward vertical members 13, and an upper rearward horizontal member 20 bridging between the upper ends of the rearward vertical members 13. In the embodiment shown in FIGURE 1, the body-supporting member 14 is a stiff but resilient sheet member shaped to provide a seat portion 20 and a back portion 21 for supporting the body of a sitter. The forward edge 22 and the rearward edge 24 of the sheet member 14 are attached, respectively, to the forward horizontal member 16 and the upper rearward horizontal member 20. The marginal portion of the sheet member 14 adjacent each edge 22 and 24 is scrolled spirally such that it encircles its respective horizontal member, passes therebeneath, and brings the edge 22 or 24 into contact with the top of the elongate member. This configuration is clearly shown in FIGURE 1. For the sake of clarity of definition in the appended claims, the scrolled portions of the sheet member 14 will be referred to as being scrolled spirally away from the surface of the sheet member 14 which supports the sitter. This terminology means that the surface of the sheet member 14 which contacts a person sitting on the chair is the surface which is on the outside of the scroll convolutions. It will be appreciated that if the scrolled portion were scrolled spirally toward the surface supporting a sitter, i.e. if the sitter-supporting surface were on the inside of the scroll convolutions, the scroll would project toward the body of the sitter and make the chair extremely uncomfortable, if not impossible to use.

As mentioned above, the edges 22 and 24 contact their respective horizontal members on the tops of the latter. This is important because it ensures that the edges 22 and 24 will be urged against their respective horizontal members when the chair is used, rather than being pulled away from the horizontal members as would be the case if the edges 22 and 24 were attached at the underside of their respective horizontal members.

A further consideration in the formation of the scrolled portions adjacent the edges 22 and 24 relates to the radial distance between the convolutions of the scroll. In the embodiment shown in FIGURE 1, the members 13 and 20 are integral, such that it is not possible to slide the horizontal members 16 and 20 longitudinally into position within the scrolled portions of the sheet member 14 when the chair is being assembled. Thus, in order to permit assembly of the chair, the adjacent convolutions of each scrolled portion must be spaced from each other sufficiently far to permit the respective horizontal members to pass inwardly between the convolutions to a position adjacent the edge.

It will be appreciated that other supporting frameworks could be designed in which it was possible to slide the horizontal members longitudinally into position within the scrolled portions, and for this reason the provision of convolution spacing sufficient to permit the horizontal member to pass between convolutions is not considered an essential limitation.

Attention is now directed to FIGURE 3, in which the upper rearward horizontal member 20 is shown in section, and in which the preferred curvature of the scrolled portion of the sheet member 14 is shown. Broken line circles 26 and 27 represent intermediate positions of the upper rearward horizontal member 20 as it is being passed inwardly between the convolutions to the solid line position shown in FIGURE 3. It will be noted that, at every point between the convolutions, there is sufficient spacing for the member 20 to pass without jamming.

The purpose of scrolling the portions of the sheet member 14 adjacent the attached edges 22 and 24 is to permit the sheet member 14 to deflect to a greater degree under load than it would if its edges were attached without being scrolled. In other words, the scrolling of the attached edges gives the sheet member 14 a greater "cushion" effect than it would normally have. Attention

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is directed to FIGURE 5, which shows in solid lines the scroll configuration at the forward horizontal member **16** when the chair is unloaded, and which shows in broken lines the scroll configuration when the chair is loaded. It will be clear from this figure that the "cushion" effect is derived from the distortion of the scroll under load.

Attention is now directed to FIGURES 2 and 4, in which the second embodiment of this invention is shown. A supporting framework **30** includes a rearward horizontal member **31** and two side horizontal members **32**. The sheet member **34** include back portion **35**, a seat portion **36**, and two side portion **37**. The back portion **35** is scrolled adjacent the edge **38** in exactly the same manner as the back **21** in FIGURE 1. The sides **37** are scrolled similarly to the back portion **35**, as can be seen in FIGURE 4. Again, in FIGURE 2, as in FIGURE 1, the edges which are attached to the horizontal members contact the horizontal members along the top of the latter, in order to ensure a compression load as between the horizontal member and the attached edge.

A large choice of materials is available for the sheet member **14**. Reinforced plastics, sheet metal and laminated wood products, for example, could all be employed for the manufacture of the chair construction according to this invention. The use of sheet metal, however, is particularly advantageous with respect to the ease with which a flat edge can be scrolled, and the accurate duplication of a given scroll configuration. In this connection, it will be noted in FIGURES 3, 4 and 5, that the configuration of the three scrolled portions is identical. Note, for example, that the actual edge of each sheet member (the termination point of each scroll) lies in a plane which contains the axis of the respective horizontal member and which is normal to the flat portion of the sheet member immediately adjacent the scrolled portion thereof. This is not, of course, an essential limitation of this invention, but merely a consequence of providing identical scroll portions on the sheet member, which provision is likewise not essential to this invention.

In the embodiment shown in FIGURE 1, it will be readily appreciated that the sheet member **14** could be replaced by a plurality of parallel, spaced-apart bands all having the same general outline and scroll configurations as the sheet member **14**, without departing from the essence of this invention. It will further be appreciated that the principle of this invention would be employed if the sheet member **14** were replaced by a plurality of rods having no appreciable lateral dimension. In the appended claim **1**, the word "member" is intended to include within its ambit slat-like, band-like or rod-like members, as well as sheet members of the kind illustrated.

In the two embodiments disclosed in this invention, the framework members to which the edges of the sheet members **14** and **34** are attached are shown as horizontal. It will be appreciated that a small departure from horizontal

orientation in these members will not affect the advantages deriving from this invention. Provided that the force being transmitted from the seat member to the framework member has its largest component perpendicular to the framework member, the "cushion" effect will be retained.

The attachment of the edges of the sheet members to the framework members can be accomplished in any number of conventional ways. For example, the edges can be welded to the framework members, or attached thereto by means of mechanical fastening devices such as screws, rivets, bolts, etc.

What I claim as my invention is:

1. A chair construction comprising:

a supporting framework which includes elongate members in substantially horizontal orientations,

and a stiff but resilient member adapted to support a sitter on one face thereof, the resilient member having at least two extremities attached to different ones of said elongate members, the portion of the resilient member adjacent each attached extremity being scrolled spirally away from said one face to encircle its respective elongate member in spaced relation therewith and to bring the extremity into contact with the top of its respective elongate member.

2. A chair construction as claimed in claim **1**, in which said stiff but resilient member is a sheet member, the extremities of said sheet member being the edges thereof.

3. A chair construction as claimed in claim **1**, in which adjacent convolutions of each scrolled portion are spaced from each other sufficiently far to permit the elongate member to pass inwardly between the convolutions to a position adjacent said opposite face of the extremity.

4. A chair construction as claimed in claim **2**, in which adjacent convolutions of each scrolled portion are spaced from each other sufficiently far to permit the elongate member to pass inwardly between the convolutions to a position adjacent said opposite face of the extremity, and in which the elongate members are of circular cross-section.

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U.S. Cl. X.R.

297—457

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53-187

Nov. 29, 1955 M. GRANBY 2,725,096

DECK CHAIR CANVAS

Filed Dec. 9, 1953 2 Sheets-Sheet 1

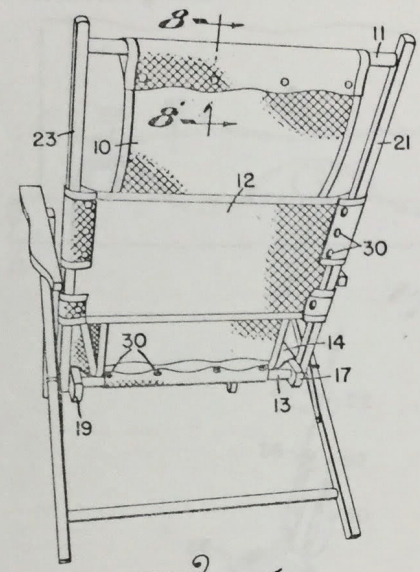


Fig. 1

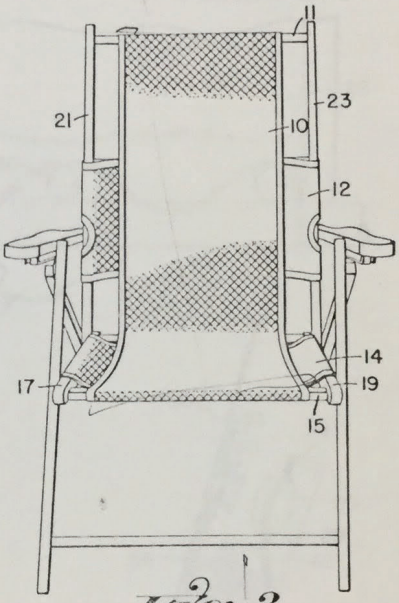


Fig. 2

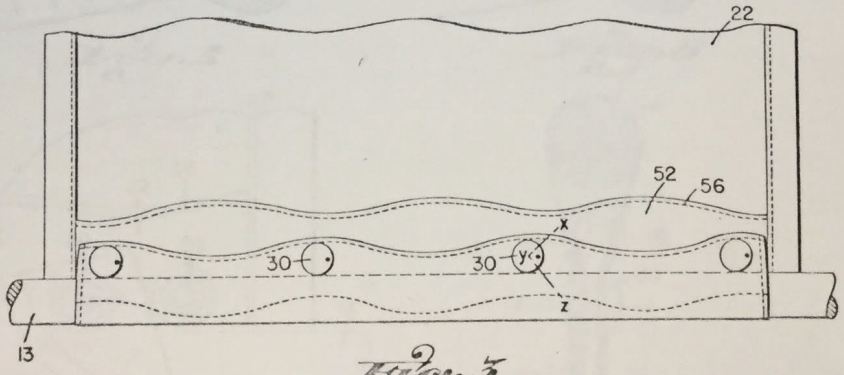


Fig. 3

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Nov. 29, 1955 M. GRANBY 2,725,096

DECK CHAIR CANVAS

Filed Dec. 9, 1953 2 Sheets-Sheet 2

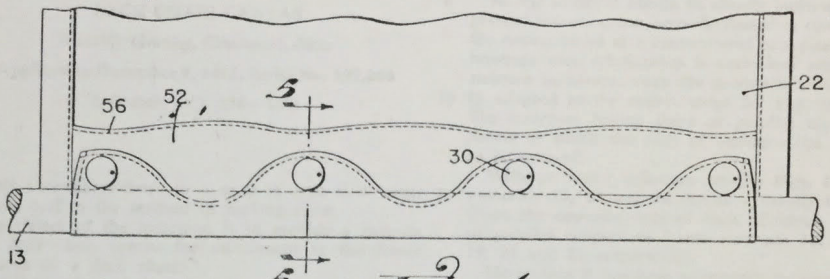


Fig. 4

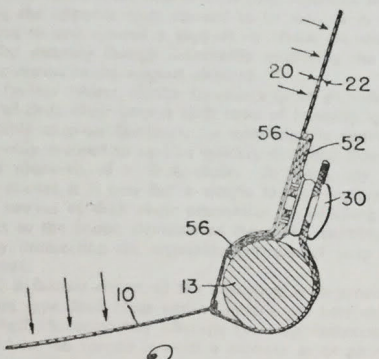


Fig. 5

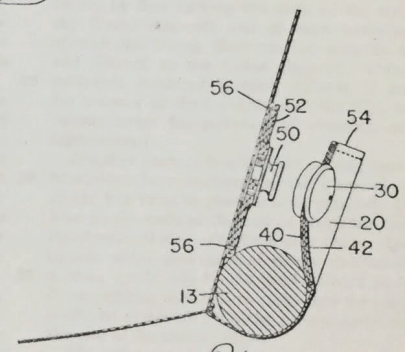


Fig. 6

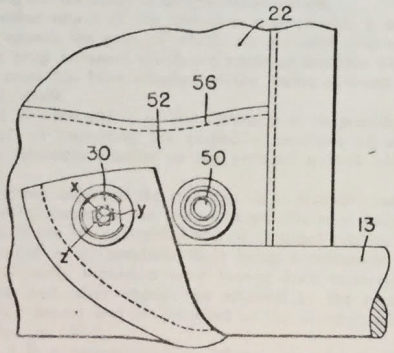


Fig. 7

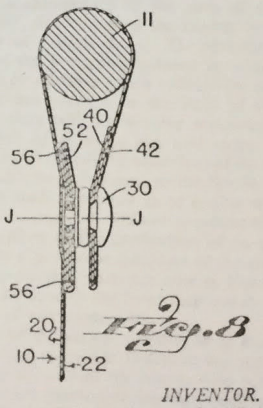


Fig. 8

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DECK CHAIR CANVAS

Melville Granby, Cincinnati, Ohio

Application December 9, 1953, Serial No. 397,204

3 Claims. (Cl. 155—187)

This invention relates to a snap-on type deck chair canvas, and to the method of making same.

An object of the invention is to provide a snap-on type deck chair canvas for attachment to the frame elements of a deck chair.

Another object of the invention is to provide lengths of flexible deck chair canvas with snap fasteners for enabling the opposite ends thereof to be secured in loop-fashion to and around a support or frame element for thereby securely though detachably anchoring the ends of the canvas to the support element.

A further object of the invention is to provide the ends of deck chair canvas with rows of laterally spaced separable snap-on fasteners, for enabling the canvas to be readily secured to and/or quickly detached from the frame elements of a deck chair. By using my deck chair canvas it is now but a simple task to replace the worn canvas of deck chair assemblies by attaching new canvas to the frame elements of the chair assembly, by merely connecting the separable portions of snap type fasteners.

Still a further object of the invention is to provide a snap-on type deck chair canvas having the hereinabove described characteristics wherein the snap fasteners are secured to the canvas in such a manner as to preclude said fastener elements from touching the body of a person seated in a deck chair provided with canvas embodying the teachings of the present invention.

Another object of the invention is to provide a deck chair canvas the ends of which are provided with separable snap fasteners which are rendered invisible when the canvas has been attached to the frame elements of a deck chair.

Still another object of the invention is to provide a method of anchoring the respective portions of separable fasteners relative to the ends of a deck chair canvas.

A further object of the invention is to provide canvas attachment means in the form of separable snap fasteners which are so constructed and so arranged relative to the canvas as to preclude their being accidentally or unintentionally separated after having been connected.

These and other objects are attained by the means described herein and as disclosed in the accompanying drawings, in which:

Fig. 1 is a perspective view of the rear of a typical deck chair provided with snap-on type canvas strips embodying the teachings of the present invention.

Fig. 2 is a perspective view of the front of the chair of Fig. 1.

Fig. 3 is an enlarged fragmentary view of the lower end of the chair back as seen in Fig. 1.

Fig. 4 is a view similar to Fig. 3 showing the relationship of the various parts when a load has been applied to the back and seat panels of the chair.

Fig. 5 is a sectional view taken on line 5—5 of Fig. 4.

Fig. 6 is a sectional view similar to Fig. 5 but illustrating the fasteners in separated position.

Fig. 7 is an enlarged fragmentary view of the lower right corner of Fig. 3 showing the snap fastener portions in separated position.

Fig. 8 is a sectional view taken on line 8—8 of Fig. 1.

At the outset it should be clearly understood that the present invention has been illustrated in connection with the canvas strips of a conventional or typical deck chair, however such relationship is exemplary rather than restrictive in nature, since the present invention is equally adapted to the canvas strips for any type of chair-like structure having pairs of parallel supporting elements to which the ends of canvas strips are adapted to be secured.

With particular reference now to Figs. 1 and 2, the numerals 10, 12 and 14 denote generally three canvas strips the opposite ends of each of which are secured to parallel support or frame elements 11, 13, 15, 17, 19, 21 and 23, respectively.

Heretofore it has been customary to secure the ends of canvas strips relative to their respective frame elements by first tacking the ends of the strips directly to the frame elements and of then wrapping the canvas around the frame elements for securely anchoring the end thereof to the frame element. This mode of attachment rendered it most difficult, if not impossible, for owners of deck chairs, and the like, to remove the canvas strips for purposes of cleaning, storage and/or replacement.

Another manner in which the ends of canvas strips have heretofore been anchored to the frame elements of deck chairs has been to provide a permanently closed loop or hem in the ends of the canvas strips for the reception of the structural elements of the deck chair. Quite obviously canvas strips thus secured to the structural elements of a chair could not be removed without at least partially disassembling the chair in order that the support elements could be removed from the permanently closed loops in the end of the canvas strips.

The primary object of the present invention is to provide strips of canvas the ends of which are provided with snap-type separable fasteners which when fastened will provide a closed loop in the ends of the strip, thereby facilitating attachment of the canvas strips to the frame elements of a deck chair. The invention likewise comprehends the particular manner in which the separable elements or portions which collectively comprise the snap fasteners are secured to the ends of the canvas strips whereby they will not become separated incident to the application of loads to the said strips. The invention further comprehends the mounting of the component parts of separable snap fasteners to the flexible canvas strips or panels in such a manner as to enable them to be easily opened or separated, without requiring the use of special tools, incident to the application of an opening pressure applied in a particular quadrant of the snap fasteners.

With particular reference now to Figs. 5, 6 and 8, the numeral 20 denotes the front face and the numeral 22 the rear face of canvas strip 10.

A row of the socket-portions 30 of each of a plurality of snap-type separable fasteners are secured directly to and along the end of the canvas strip with the open part of the socket portion facing outwardly of the rear face 22. In the preferred embodiment of the invention the socket portions 30 extend through the canvas strip and through a reinforcing strip which may, if desired, be formed by folding the end of the strip upon itself as at 40, thence back upon itself as at 42, for thereby providing a reinforced edge, note Fig. 6.

The stud portions 50 of the snap fasteners are secured directly to a reinforcing or carrier strip denoted generally by the numeral 52, said strip preferably comprising four plies of material which may, if desired, be similar to the

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material from which strips 10, 12 and 14 are fabricated.

Carrier strip 52 is permanently fastened to rear face 22 in spaced parallelism with t[he] [a]nd 54 of the canvas strip such as by means of stitching [d]enoted generally by the numerals 56. As clearly evident from an inspection of Figs. 5, 6 and 8, no part of the socket portions extends through or is visible through front face 20 of the canvas strip.

With particular reference [n]ow to Fig. 3, the broken lines X—Y—Z define a qu[a]rant of the socket portion 30 of the fastener elements, [w]hich is so constructed and arranged as to effectively re[s]t lateral separation except in response to the applicatio[n] of opposing axial forces in the quadrant defined by [t]he lines X—Y—Z. In other words, the socket and stud p[o]rtions are constructed and arranged whereby to effectively resist separation incident to the application of opposing forces in planes at substantial right angles with common axis J—J, see Fig. 8, through the stud and socket portions. The present invention is neither directed to nor concerned with the particular structural details of such fastener means, which are commercially available, being known to the trade as "Lift-A-Dot" type of separable fasteners.

With further reference to Fig. 3, it will be noted that the quadrant defined by broken lines X—Y—Z is bisected by a line normal to the forces applied to the connected portions of the fasteners by a load supported on the front face of the canvas strip. The dot within the apex of quadrant X—Y—Z of Fig. 3 is on a line which bisects said quadrant, said dot indicating the center thereof.

The use of separable fasteners secured to the ends of canvas strips provides quick, easy means for securely anchoring the ends of the strips relative to the frame elements of a chair whereby accidental or unintentional separation of the fastener portions is positively precluded incident to the application of loads onto the canvas strips since, as a matter of fact, the greater the load applied to the canvas strips, the greater will be the force by which the respective socket and stud portions of the individual fasteners are locked together.

The canvas strips may be quickly removed from the chair frame incident to application of a lifting force applied to the socket portions 30 within the quadrant defined, in Fig. 3, by the lines X—Y—Z.

From the foregoing, it will be noted that I have provided simple yet highly effective means for enabling a canvas strip to be quickly secured to and removed from a chair frame by means of separable snap fasteners secured to the ends of the strips as heretofore indicated.

What is claimed is:

1. In a deck chair having a pair of spaced, parallel frame uprights connected at one end by an upper horizontal frame member and at the other end by a lower horizontal frame member to provide a back rest framework, a pair of horizontal side members extending forwardly from the lower ends of said uprights, a forward frame member interconnecting the forward ends of said side members to define therewith a seat framework, a length of canvas adapted to extend between said upper frame member and said forward frame member and having a medial portion adapted to be disposed adjacent said lower frame member to provide a seat and back rest, each end of the canvas having a row of socket portions of a plurality of snap-type fasteners secured thereto and a row of stud portions secured thereto in spaced relation to the socket portions, the marginal end portions of the canvas being adapted to be looped about the associated upper and forward frame members with the studs engaged in the sockets to firmly secure such end portions to the stated frame member, and a strip of material secured along one longitudinal edge to said medial portion of the canvas and adapted to be looped about said lower frame member, said strip and said medial portion having cooperable snap-type fastener portions secured thereto and interengaged with each other to firmly secure said medial portion to the lower frame member.

2. In a deck chair as defined in claim 1, a second length of canvas adapted to extend between said uprights and transversely behind the first mentioned length of canvas, each end of the second canvas having a row of socket portions of a plurality of snap-type fasteners secured thereto and a row of stud portions secured thereto in spaced relation to the socket portions, the marginal end portions of the second canvas being adapted to be looped about the associated uprights with the studs engaged in the sockets to firmly secure such end portions to the stated uprights.

3. In a deck chair as defined in claim 2, a third length of canvas adapted to extend between said horizontal side members, and transversely beneath the first mentioned canvas, each end of the third canvas having a row of socket portions of a plurality of snap-type fasteners secured thereto and a row of stud portions secured thereto in spaced relation to the socket portion, the marginal end portions of the third canvas being adapted to be looped about the associated side members with the studs engaged in the sockets to firmly secure such end portions to the stated side members.

seat panel attached to seat, not suspended from arms

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