United States Patent [19]

Lillard

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[54] **COMBINATION CHAIR AND CHAISE LOUNGE**

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[73] Assignee: **D. Kirk Parsons,** Fort Smith, Ark. ; a part interest

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[52] **U.S. Cl.** **5/12,** 5/28, 5/344, 5/357, 297/118, 297/456

[51] **Int. Cl.** **A47c 17/14,** A47c 27/00

[58] **Field of Search** 5/12–28, 5/344, 352, 357; 297/118, 105, 109, 382, 445, 462

[56] **References Cited**

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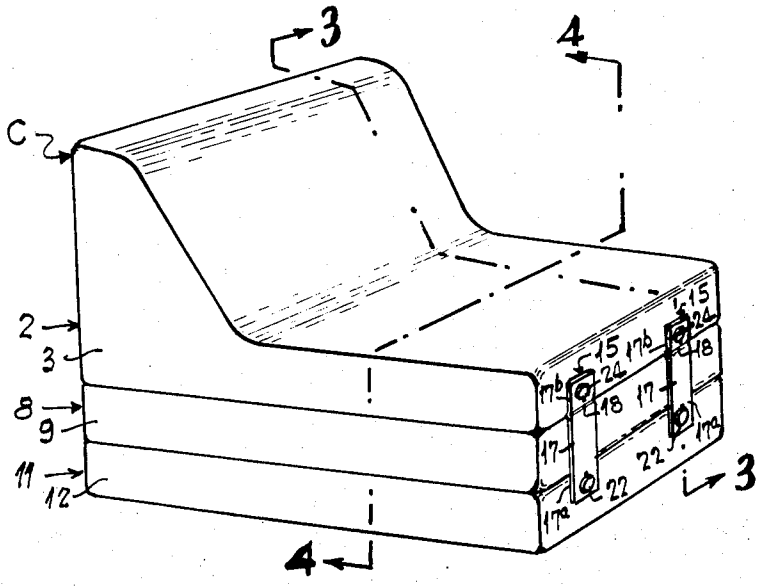
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Primary Examiner—Casmir A. Nunberg
Attorney—Robert Brown, Jr.

[57] **ABSTRACT**

A sectioned cushion couch used as a chair when folded and as a chaise longue when unfolded. The couch comprises a unitary seat and back section to which is serially hinged one or more additional sections capable of being folded underneath the unitary section to form the base of a chair. Conversely, the additional base section or sections may be unfolded from chair supporting position to extend the length of the seat and back section and thereby form a chaise longue. The cushion sections are preferably composed of foam cushioning compositions such as urethane, neopreme and latex. The seating and backrest area of the chair adjacent the occupant is cushioned with a relatively light density weight foam to afford seating comfort, while more remote portions of the seat and backrest section and the entire base section or sections are cushioned with a denser foam composition to provide the necessary rigidity and strength.

5 Claims, 12 Drawing Figures



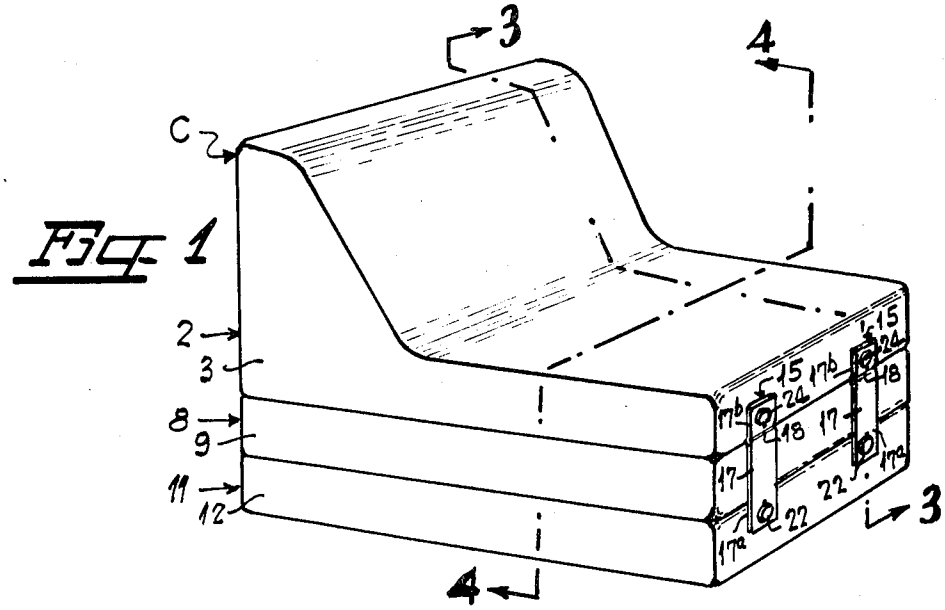


FIG. 1

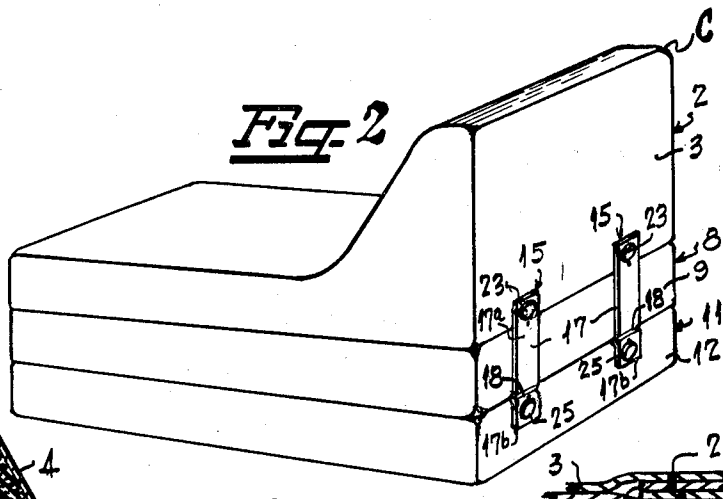


FIG. 2

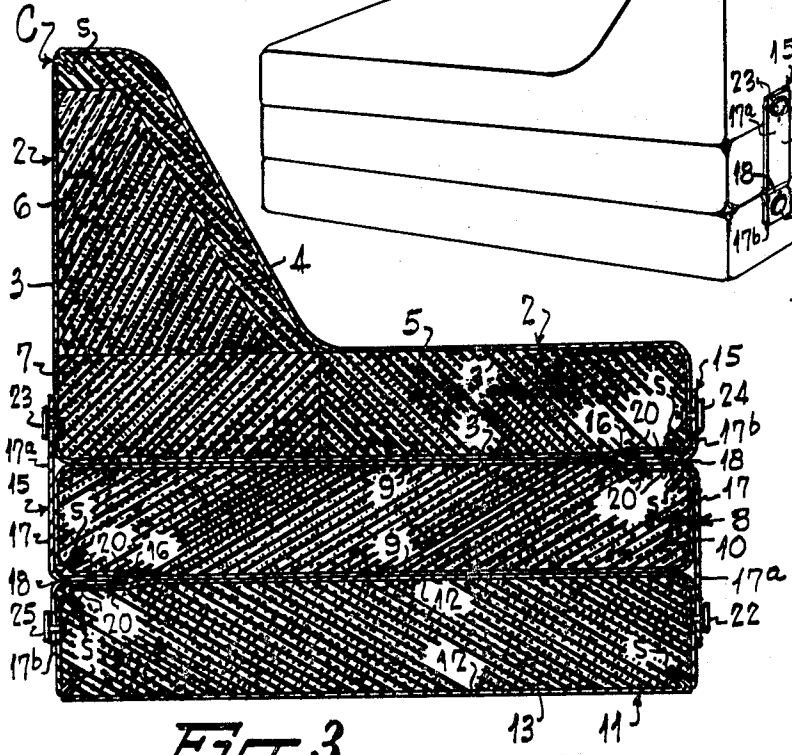


FIG. 3

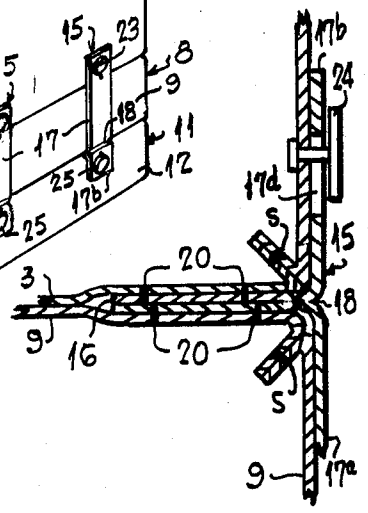


FIG. 3A

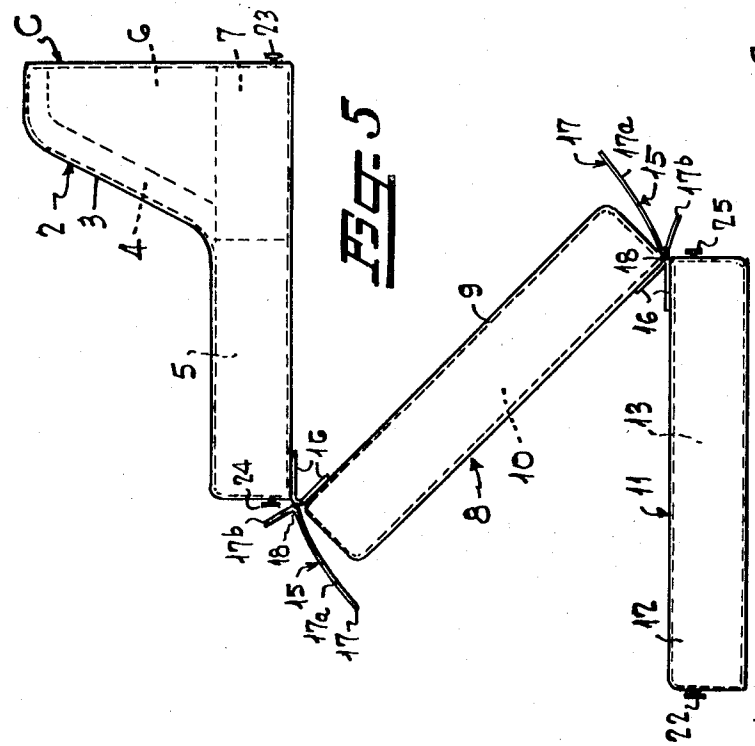


FIG-5

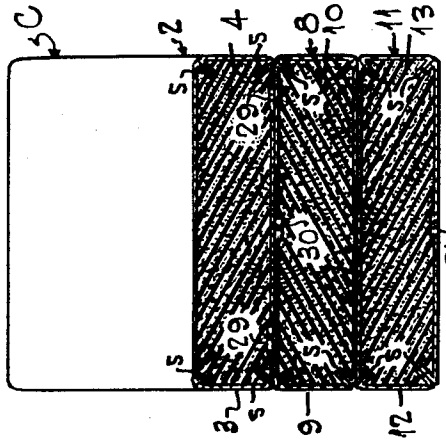


FIG-4

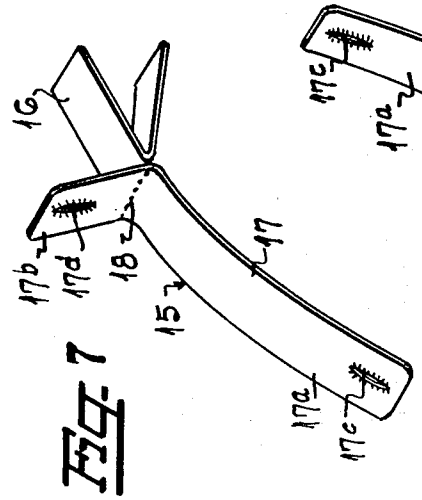


FIG-7

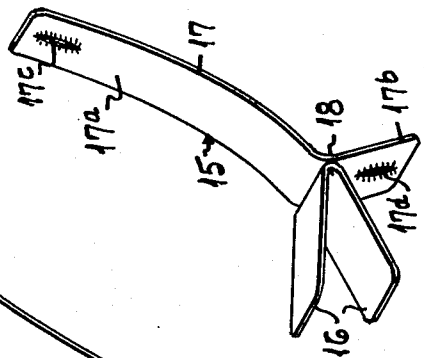


FIG-8

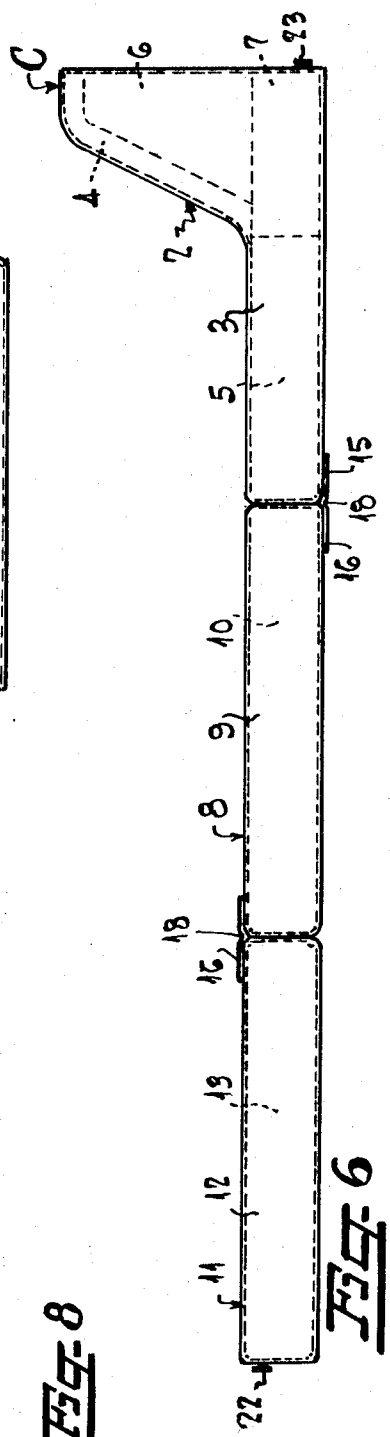


FIG-6

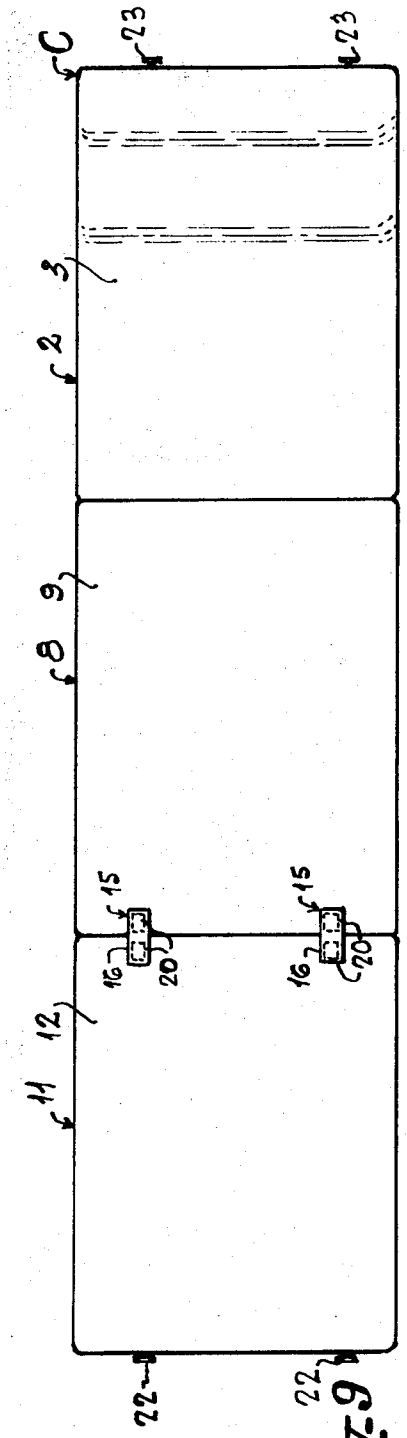


FIG-9

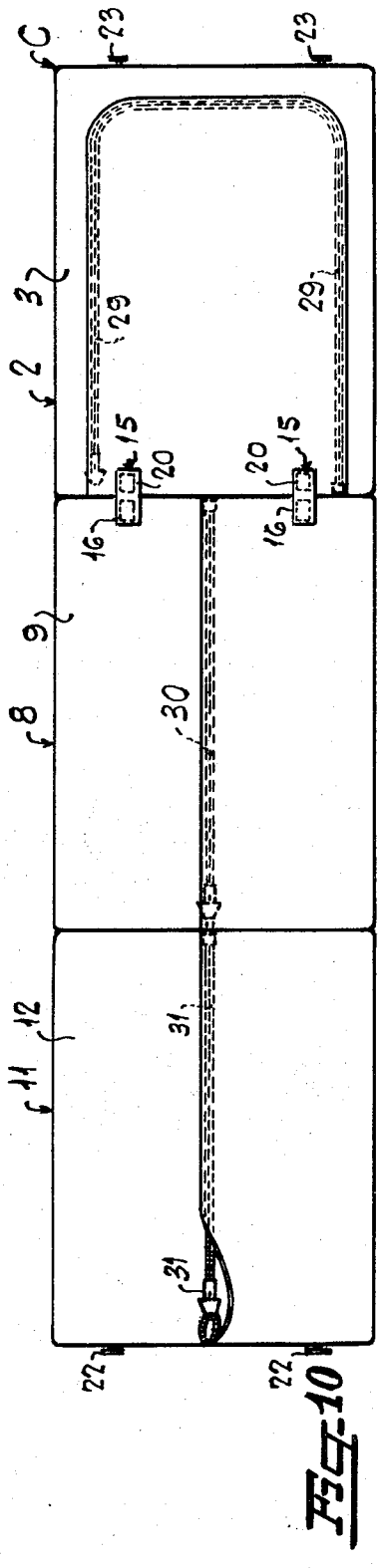


FIG-10

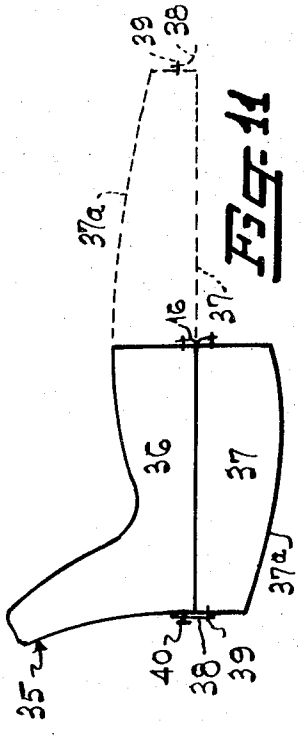


FIG-11

COMBINATION CHAIR AND CHAISE LOUNGE

This invention relates to household furniture and more especially to a non-metallic cushion couch which may be easily adapted for use either as a chair or as a chaise longue.

Due to the inherent lack of rigidity and stability of foam cushioning materials, it has been impractical to use them in many types of furniture except in combination with reinforcing framework such as wood, metal or plastic. The added costs of such reinforcing materials and of the labor and shipping expense incident to fabrication and delivery to the dealer has raised the selling prices of many articles of furniture to a prohibitive level for the average customer. Accordingly, a long-felt need exists for a substitute construction equivalent in utility and style to the to the above-described reinforced articles, but within the price range of the medium income purchaser.

It is therefore an object of this invention to provide a couch in which the conventional reinforcement framework is eliminated and which consists predominantly of foam cushion materials of such densities and so arranged as to become an adequate substitute for the rigidity and strength of said conventional framework.

It is another object of this invention to provide a combination chair and chaise longue which is constructed essentially of foam cushioning materials of varying compression densities which, in turn, are encased in a predetermined order within flexible covers so as to afford the required structural rigidity, strength, physical comfort and aesthetic appearance.

It is yet another object of this invention to provide an article of furniture of the class described which is low in manufacturing and shipping costs, simple in construction, durable, and easily maintained. Due to the simplicity in construction, the relatively low costs of materials, and the rapid production rate, the unit manufacturing costs can be held to a minimum and much below the costs of the conventional furniture consisting of foam or fibrous materials mounted in a rigid framework.

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

FIG. 1 is a perspective view of a foam cushion couch according to the invention and as it appears when used as a chair;

FIG. 2 is a perspective view looking at the back side of FIG. 1;

FIG. 3 is an enlarged longitudinal sectional view taken along line 3—3 in FIG. 1;

FIG. 3A is an enlarged detail sectional view of the hinge connection between the cushion sections of the couch, said connection being shown at the front and back of the couch in FIG. 3 on a smaller scale;

FIG. 4 is a transverse sectional view taken along line 4—4 in FIG. 1;

FIG. 5 is a side elevation of the couch in partially unfolded position;

FIG. 6 is a side elevation of the couch when completely unfolded to chaise longue position;

FIG. 7 is an isometric view of the hinge and fastening strap assembly when detached from the cushions and substantially in the same position shown on a smaller scale at the front of the chair in FIGS. 3 and 5;

FIG. 8 is an inverted view of the assembly in FIG. 7 and substantially in the same position as it appears at the back side of the chair;

FIG. 9 is a top plan view of the chaise longue shown in FIG. 6;

FIG. 10 is a bottom plan view of FIGS. 6 and 9, and

FIG. 11 is a schematic side elevation showing a modified form of invention in which the couch consists of a combination rocking chair and chaise longue.

Referring more particularly to the drawings, the reference character C denotes broadly a foam cushion couch which may be converted into a chair as shown in FIGS. 1 and 2, or into a chaise lounge as shown in FIGS. 6 and 9. The couch comprises: a seat and back section 2 including cover 3 with foam cushion inserts 4, 5, 6 and 7 therein; section 8 including cover 9 with foam cushion insert 10 therein; and section 11 including cover 12 with foam cushion insert 13 therein, said sections 2, 8 and 11 being serially connected by means of hinge and strap assemblies 15. It will be noted more clearly in FIGS. 5, 7 and 8 that each assembly 15 is composed of a hinge strap 16 and a cushion section fastening strap 17 secured together intermediate the ends thereof as at 18 by stitching or equivalent means.

The opposite ends of strap 16 of assembly 15 are connected to covers 3 and 9 at the front of the chair in FIGS. 3 and 3A by any suitable means such as stitches 20 to thereby hinge the tw0 sections 2 and 8 together. In a similar manner, the strap 16 is attached to section covers 9 and 12 at the rear of the chair in FIG. 3 to hinge sections 8 and 11 together. By attaching the hinge straps 16 alternately at the top and bottom of the extended cusions as shown in FIG. 6, that is, on the top of adjacent cushions 2 and 8 and on the bottom of adjacent cushions 8 and 11, the cushions 8 and 11 may be folded about the hinges from the positions shown in FIG. 6, through the intermediate positions shown in FIG. 5, and finally to the parallel superposed positions shown in FIGS. 1–4 to serve as a base for the seat and backrest section 2 of of the chair.

When sections 2, 8 and 11 are in parallel superposed folded position as shown in FIGS. 1–3, the fastening straps 17 of assemblies 15 are utilized to releasably hold the three sections together in one integral piece. More particularly, the front ends of the sections are releasably held together by segments 17a of strap 17, each segment having its upper end connected as at 18 to hinge strap 16 and its lower end to a button 22 or equivalent fastener on section 11.

A button hole 17*c* for the reception of button 22 is provided at the lower end of segment 17*a*. Similarly, the back ends of sections 2, 8 and 11 (FIGS. 2, 3 and 5) may be releasably attached together by strap segments 17*a*, each of said segments extending upwardly from hinge axis 18 between sections 9 and 11 to a button 23 on the back of seat and backrest section 2.

Since the hinge straps 16 at the front of the chair are at a higher elevation than at the back by an amount equal to the thickness of cushion section 8 to permit interfacial contact of the sections when folded, the position of assemblies 15 at the front must be reversed with respect to those at the back of the chair. In view of this reversal, the segments 17*a* at the front will be disposed at a lower elevation than the segments 17*a* at the back. Therefore, each segment 17*a* is provided with a continuation segment 17*b* in order that straps 17 may be the same height and at the same distance from the floor.

Thus, the segments **17***b* of each assembly **15** are provided for aesthetic appearance only.

It is important to note the unique construction of assembly **15** when attached to the cushion sections. The hinge strap **16** not only carries the stresses and strains incident to the folding and unfolding of the sections, but further serves as an anchor for one end of strap segment **17***a* when the opposite end thereof is attached to button **22** or **23** to hold the chair sections firmly together.

Although not required, it is preferable to removably encase the foam cushioning materials within the flexible covers by any suitable means such as slide fasteners.

inches thick having a compression density of 30 pounds will be compressed to a thickness of 3 inches (i.e., 75 percent of 4 inches) when a uniform pressure of 30 pounds is applied to a square foot of its top surface. Accordingly, the higher the compression density of a cushion, the harder it will be.

The foam materials may be selected from a group consisting of urethane foam, neopreme foam and latex foam. The chart below reflects various densities, tensile strengths, tear strengths, elongation percentages, compressed setting percentages, and indentation load depression to 25 percent for 2 and 4 inch thick urethane foam cushions. Comparable values are obtained with

	Neoprene and latex foams				Compression densities (indention load depression, lbs.)	
	Tensile strength (Lbs./sq.")	Tear strength (Lbs./lin.")	Percent			
Density, lb./cu.ft.	minimum	minimum	Minimum elongation	Compressed (maximum)	25%, 4" cushions	25%, 2" cushions
0.90+0.05	7	1.3	150	20	6-11	4-9
0.90+0.05	10	1.5	175	15	12-16	9-13
1.00+0.05	10	1.5	175	15	17-21	14-18
1.00+0.05	10	1.5	175	15	17-21	14-18
1.15+0.10	12	1.5	175	10	22-26	18-22
1.15+0.10	12	1.5	175	10	27-31	22-26
1.15+0.10	12	1.5	175	10	27-31	22-26
1.20+0.05	12	1.5	175	10	30-35	26-30
1.30+0.05	12	1.5	175	12	33 min.	27 min.
1.30+0.05	12	1.5	150	10	34 min.	27 min.
1.30+0.05	12	1.5	150	10	35 min.	28 min.
1.40+0.05	12	1.5	150	10	38 min.	32 min.

The location of these fasteners should be such as to be invisible when the couch is in either folded or unfolded position. In the present embodiment, the underside of seat and backrest cover **3**, when the couch is in its chair position, is provided with a U-shaped slide fastener **29** which is in interfacial contact with the top surface of cover **9** (FIGS. **3** and **4**); the upper side of base section cover **9** has a longitudinally disposed slide fastener **30** therein and in interfacial contact with the lower surface of cover **3**; and the lower surface of base section cover **12** is provided with slide fastener **31** which is in interfacial contact with the floor. All three fasteners are in interfacial contact with the floor when the couch is in chaise longue position as shown in FIG. **6.** Preferably, the covers **3, 9** and **12** are made from suitable panels sewed or suitably secured together at *s* as illustrated in FIGS. **3** and **4.**

Another critical feature of the invention resides in the compression densities (i.e., indentation load depression) of the foam materials used and the location of the different types in the couch when used as a chair. In order for the chair to possess optimum strength and rigidity combined with seating comfort, the base cushions **10** and **13** and the seat and backrest cushions **6** and **7** must have relatively high compression density or densities, and the cushions **4** and **5** somewhat lower compression density or densities. For a chair in which these combined optimum properites are present, it has been found that the compression density of cushion **4** should range between **4** and **18** pounds, cushion **5** between 17 and 31 pounds, and cushions **6, 7, 10** and **13** between 27 and 38 pounds. In this particular design, cushion **4** is 2 inches thick and cushions **5, 6, 7, 10** and **13** are 4 inches thick. In the light of the disclosure, it will be evident that substantial variations within these prescribed ranges may be necessary to accommodate specific needs and chair designs.

The term "compression density" in pounds as used above means the number of pounds necessary to compress one square foot of foam cushioning mattress 25 percent of its thickness. In other words a matresss 4

FIG. **11** schematically illustrates a modified form of the invention in which a couch **35** may be adapted as a rocking chair or a chaise longue. The couch comprises a seat and backrest section **36** to which is hinged as at **16** a base section **37**, the latter section having an arcuate bottom surface **37**a for rockably supporting the couch when in the bold-line chair position, and for extending the length of the couch when in chaise longue or dotted line position. The rear faces of sections **36** and **37**, when in chair position, are releasably secured together by suitable means such as strap **38** having its opposite ends secured to the sections as at **39** and **40.**

I claim:

1. A cushion couch comprising:

a. a unitary seat and backrest cushion (**2**);

b. a second cushion (**8**) having its upper surface interfacially engageable with the bottom surface of said first cushion (**2**) to thereby form a cushioned chair, the front faces of said cushions lying substantially in an upwardly extending plane transversely intersecting said interfacial cushion surface;

c. hinge means (**16**) connecting said cushions (**2, 8**) at said intersection (**18**) whereby the second cushion (**8**) may be swung from its interfacial position to a position extending laterally from the front face of the first cushion (**2**);

d. a bottom cushion (**11**) having its upper surface interfacially engageable with the bottom surface of said second cushion (**8**), the back faces of said first, second and bottom cushions lying substantially in a second upwardly extending plane transversely intersecting said first and second interfacial cushion surfaces;

e. a second hinge means (**16**) connecting said second and bottom cushions (**8, 11**) at the intersection (**18**) of said second interfacial surface with said second plane whereby said bottom cushion may be swung to a position laterally alined with said second cushion; and

f. means (**17**) releasably connecting said first hinge means (**16**) to the front portion of said bottom

cushion (11) to thereby fasten said second and bottom cushions (8, 11) in said interfacially engaging position.

2. A cushion couch as defined in claim 1 wherein said last-named means comprises a flexible strap (17) having one of its end portions connected to the first hinge (16) at the axis of the latter and the other of its end portions releasably connected to the front face of said bottom cushion.

3. A cushion couch as defined in claim 1 and further comprising: means (17) releasably connecting said second hinge means (16) and the back portion of said first cushion (2) for fastening said first and second cushions (2, 8) in said interfacially engaging position.

4. A cushion couch as defined in claim 3 wherein said last-named means comprises a flexible strap (17) having one of its end portions connected to the second hinge means (16) at the axis of the latter and the other of its end portions releasably connected to the back face of said first cushion (2).

5. A cushion couch as defined in claim 1 wherein said bottom cushion is composed predominantly foam material selected from a group consisting of urethane, neoprene and latex and having a compression density ranging between 27 and 38 pounds, said bottom cushion having a convex bottom surface whereby the couch will be provided with a resilient rocking base of optimum stability.

* * * * *