United States Patent [19]

Korch

[11] **3,759,571**

[45] **Sept. 18, 1973**

[54] **SEAT CONSTRUCTION**

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[73] Assignee: **Burris Industries, Incorporated**, Lincolnton, N.C.

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[21] Appl. No.: **260,137**

[52] **U.S. Cl.**..... **297/445**, 297/422, 297/440

[51] **Int. Cl.**..... **A47c 7/20**, A47c 7/14

[58] **Field of Search**..... 297/218, 219, 418–422, 297/440, 445, 452, 455–458; 5/356, 360

[56] **References Cited**

UNITED STATES PATENTS

3,298,741	1/1967	Lepard, Jr. et al.	297/452
3,101,218	8/1963	Baermann	297/455
2,801,682	8/1957	Fridolph	5/356
3,614,159	10/1971	Christin	297/459
3,233,253	2/1966	Cauvin	297/218

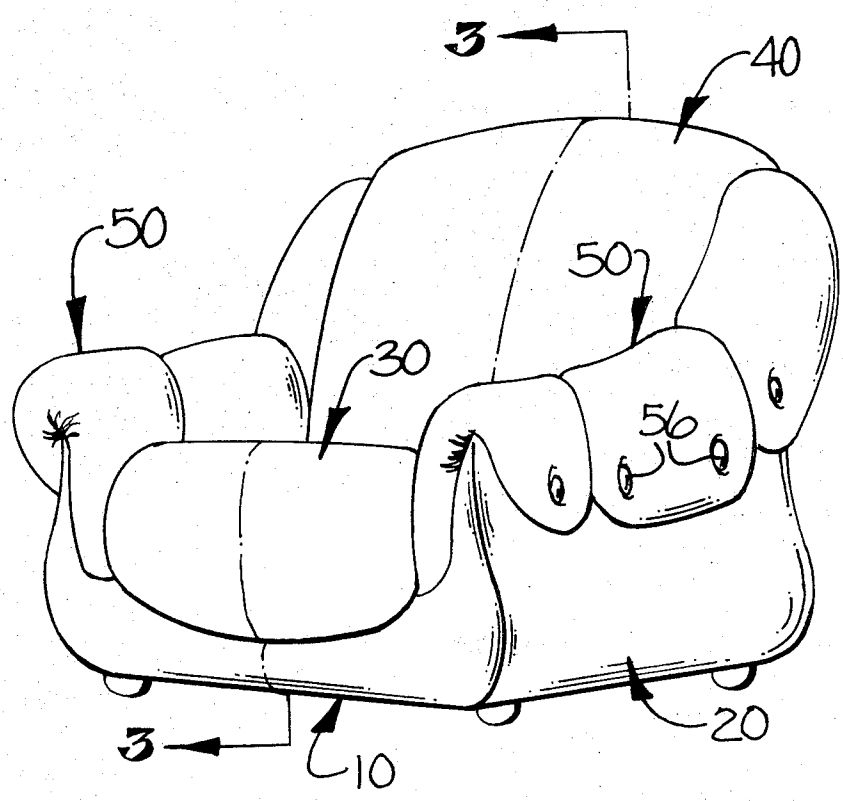
Primary Examiner—Casmir A. Nunberg

Attorney—Donald M. Seltzer

[57] **ABSTRACT**

A seat in the form of an upholstered chair or sofa of modular construction having a skeletal frame to which molded side arms formed of reinforced rigid foam are secured, with a cushioned seat and a cushioned back rest carried by the skeletal frame and formed as modular pre-upholstered units, and wherein pre-upholstered side arm cushions overlie the rigid foam side arms and are secured thereto.

11 Claims, 19 Drawing Figures



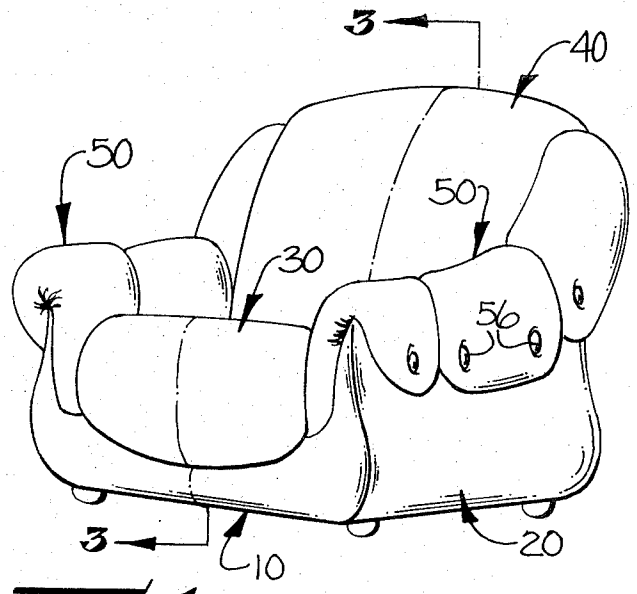


Fig-1

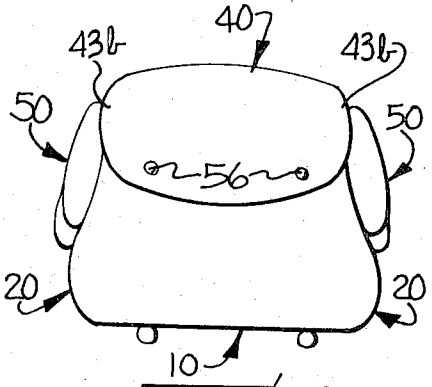


Fig-2

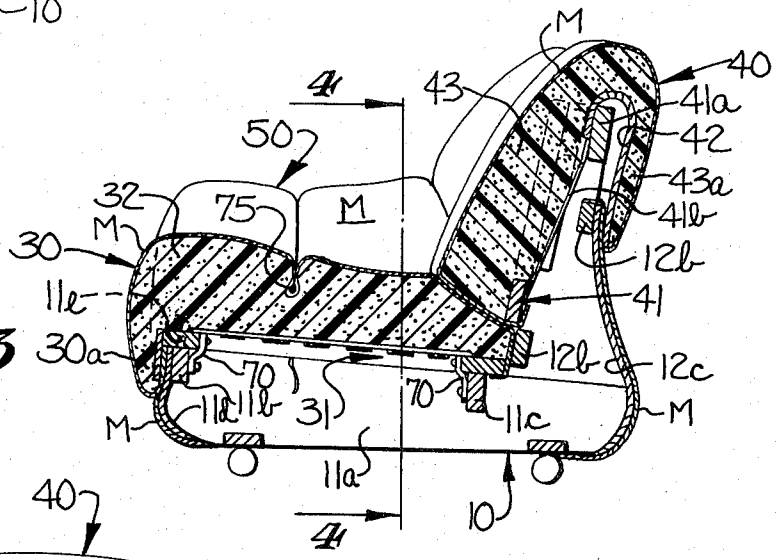


Fig-3

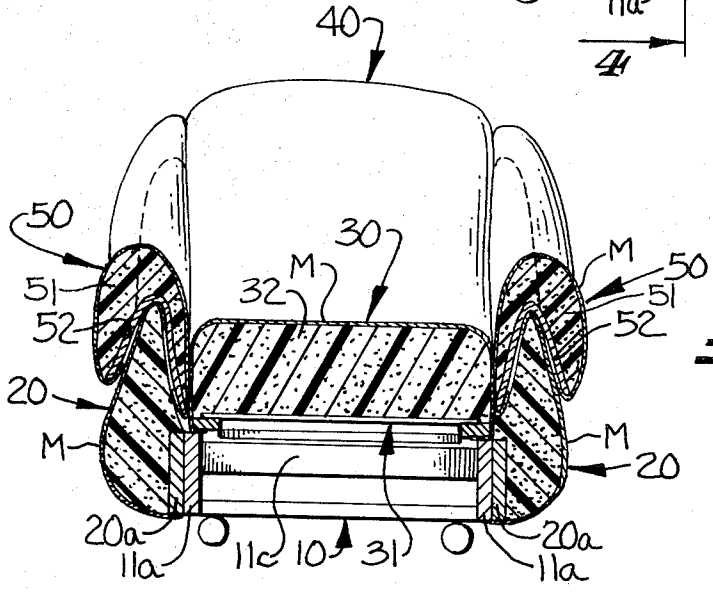


Fig-4

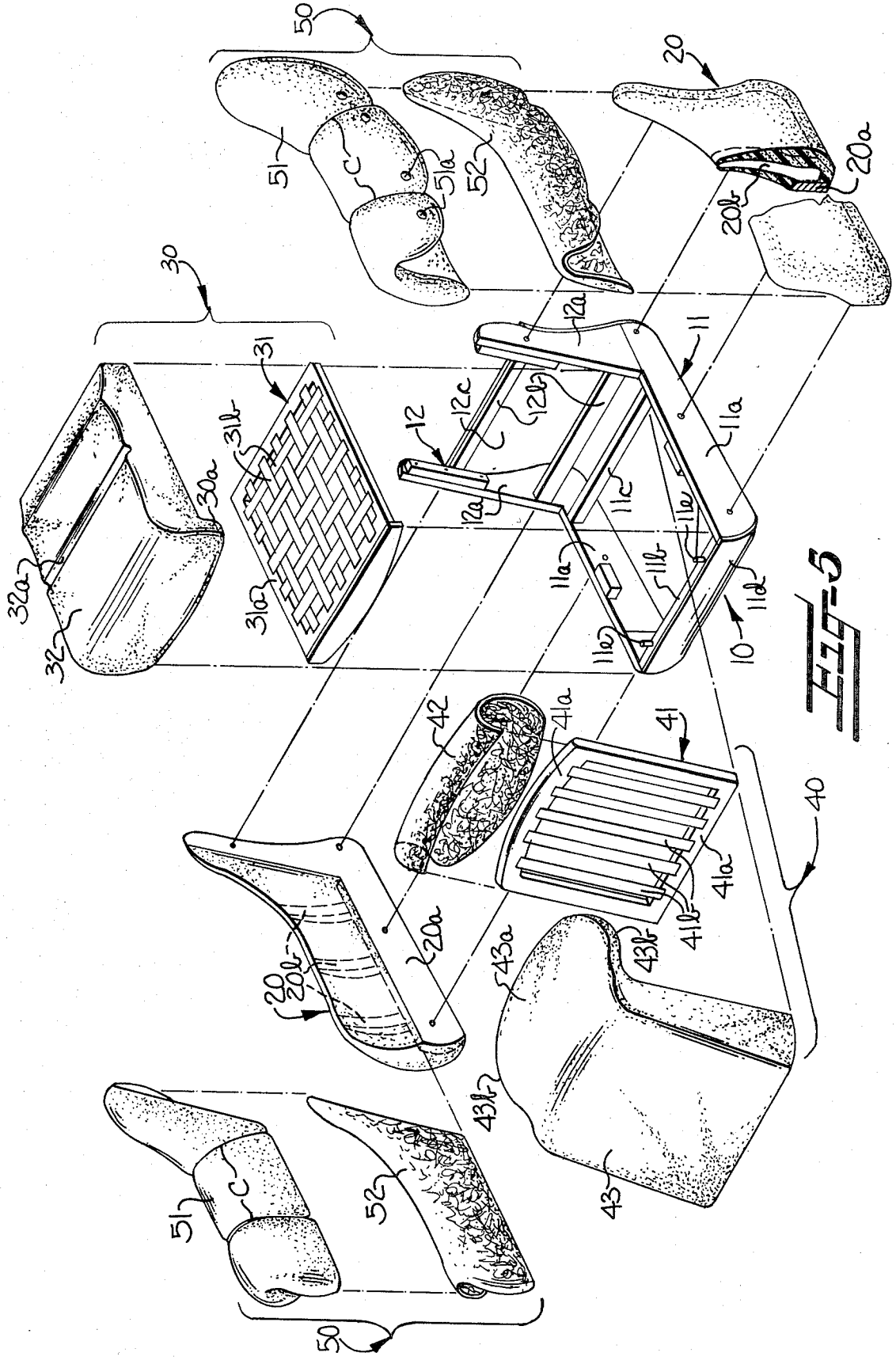

50
51
51a
C
52
20
20a
20b
30
31
31a
31b
32
32a
30a
12
12a
12b
12c
11
11a
11b
11c
11d
11e
10
41
41a
41b
42
40
43
43a
43b

FIG-3

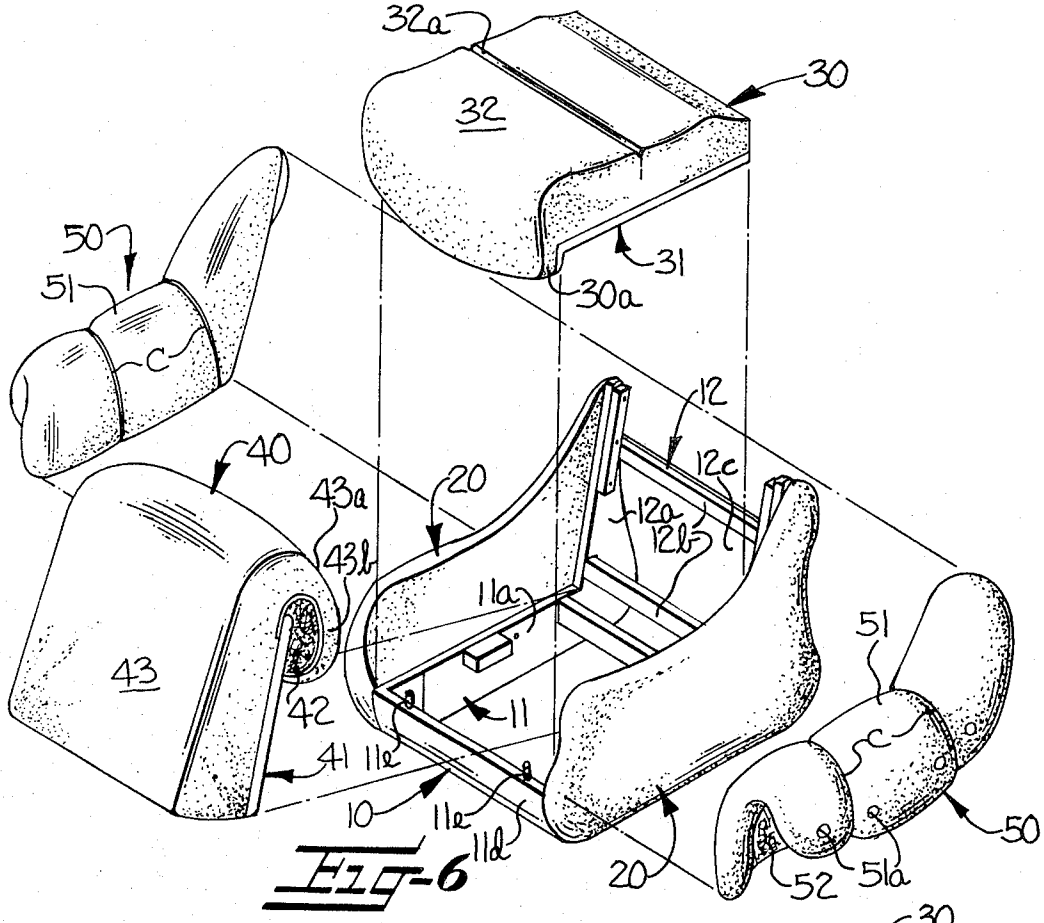


Fig-6

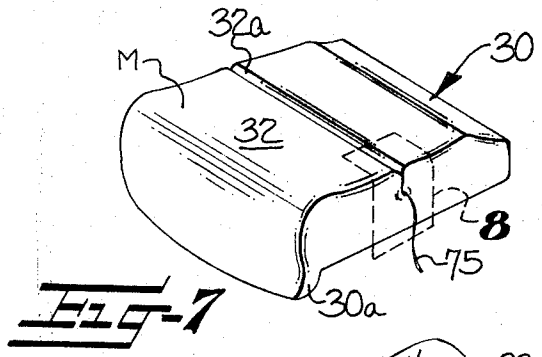


Fig-7

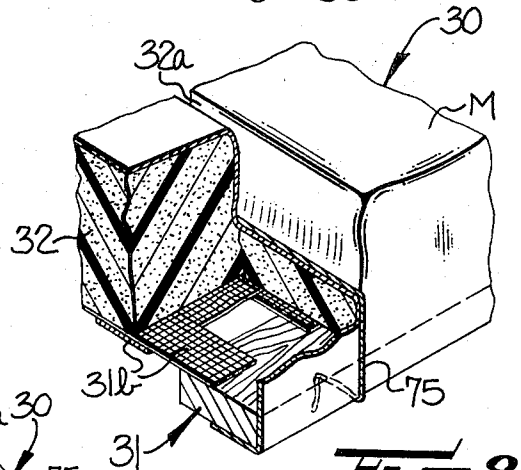


Fig-8

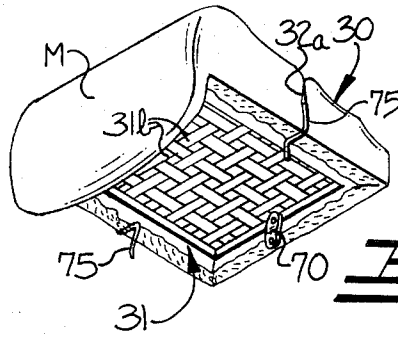


Fig-9

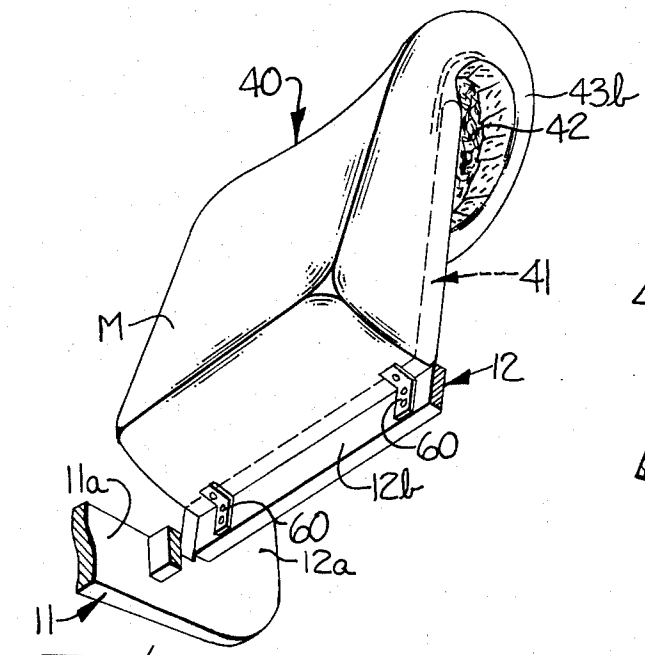


Fig-10

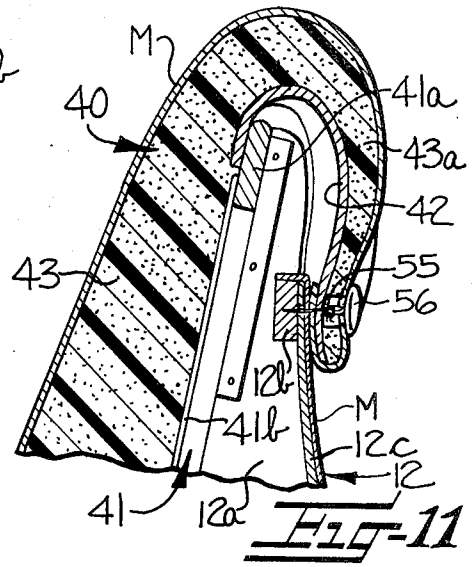


Fig-11

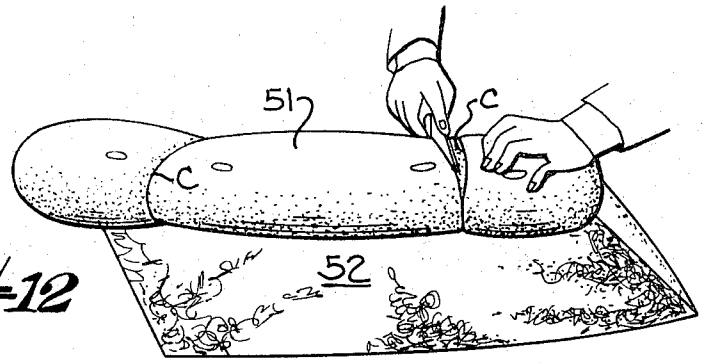


Fig-12

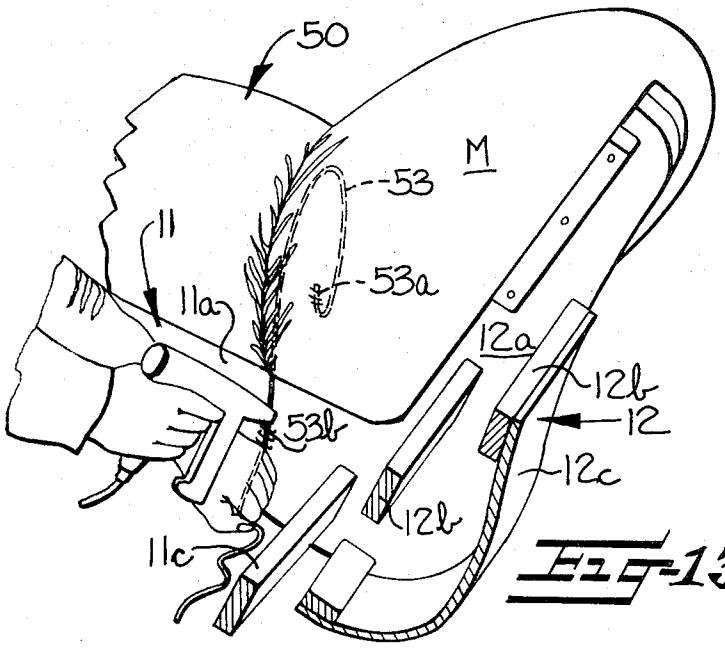


Fig-13

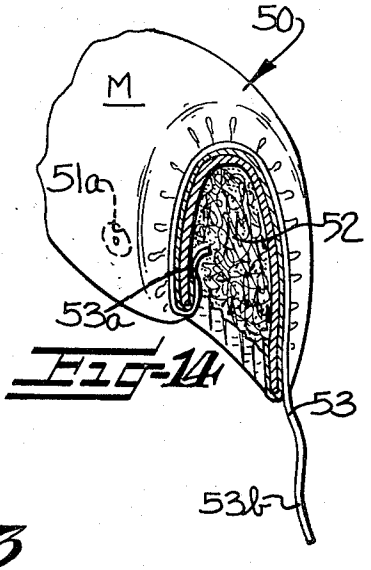


Fig-14

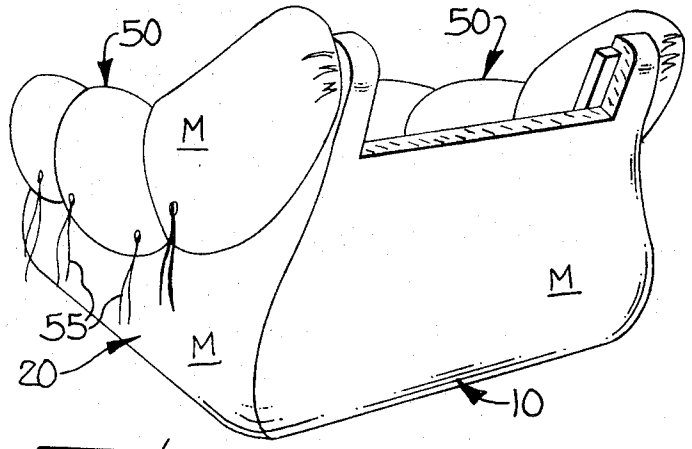


Fig-15

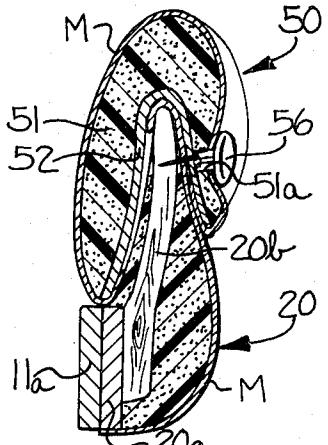


Fig-16

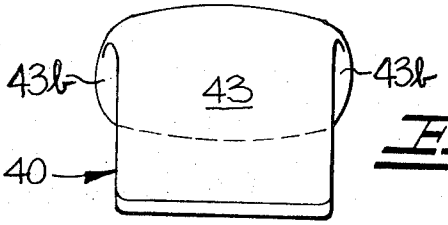


Fig-17

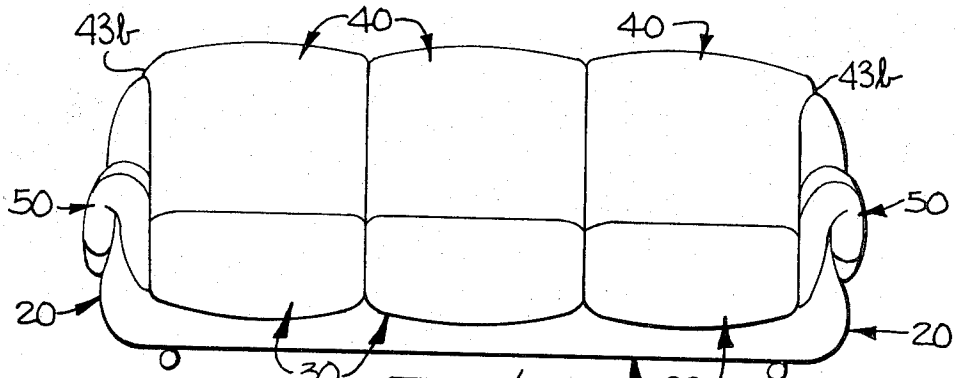


Fig-18

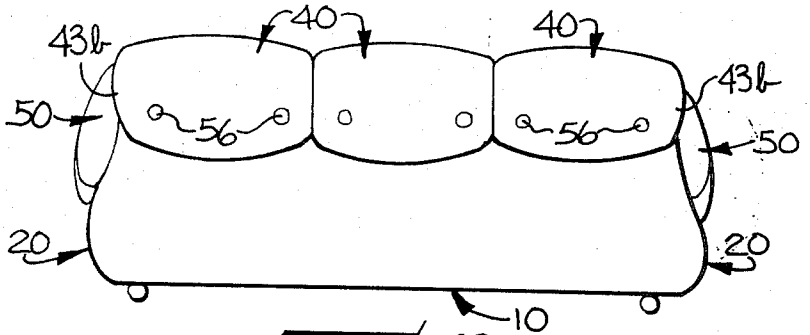


Fig-19

SEAT CONSTRUCTION

This invention relates to seat constructions and more particularly to upholstered type furniture which is constructed on the modular concept so as to facilitate the assembly and manufacture thereof.

One of the primary objects of the invention is to take advantage of existing knowledge in the molding field and apply the same to furniture constructions to considerably reduce hand labor and the attendant high costs thereof and at the same time to impart to the manufactured furniture enhanced structural characteristics.

Another object of the invention is to construct furniture wherein various components thereof may be interchangeably utilized for chairs as well as sofas thus permitting added flexibility in the manufacture of furniture dependent on varying market conditions.

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

FIG. 1 is a perspective view of a chair constructed in accordance with this invention;

FIG. 2 is a rear elevational view of the chair,

FIG. 3 is a vertical sectional view taken along line 3—3 of FIG. 1;

FIG. 4 is another vertical sectional view taken along line 4—4 of FIG. 3;

FIG. 5 is an exploded view of the chair of FIG. 1 with certain parts as well as the upholstery covering omitted;

FIG. 6 is another exploded view of the chair of FIG. 1 with certain of the sub-assemblies of FIG. 5 shown pre-assembled;

FIG. 7 is a top perspective view of the cushioned seat in pre-upholstered condition ready for assembly into a chair;

FIG. 8 is a detailed fragmentary view with parts broken away of area 8 of FIG. 7;

FIG. 9 is a bottom perspective view of the cushioned seat of FIG. 7;

FIG. 10 is a fragmentary perspective view illustrating the manner in which the lower portion of the pre-upholstered cushioned back rest is secured to the skeletal supporting frame;

FIG. 11 is a fragmentary vertical sectional view illustrating the manner in which the rear portion of the pre-upholstered cushioned back rest is secured to the skeletal frame;

FIG. 12 illustrates the preparation of the side arm cushions for being upholstered;

FIG. 13 is a fragmentary view illustrating the manner of securing a drawstring of a pre-upholstered side arm cushion to an inner portion of the skeletal frame;

FIG. 14 is a fragmentary view of the pre-upholstered side arm cushion illustrating the manner in which the drawstring is positioned for forming pleats in the upholstery material;

FIG. 15 illustrates a partially assembled chair;

FIG. 16 is a fragmentary vertical sectional view illustrating the manner in which the pre-upholstered side arm cushions are secured to the underlying side arms;

FIG. 17 is a perspective view of the molded back rest member; and

FIGS. 18 and 19 are front and rear elevational views of a sofa constructed in accordance with the invention.

Referring now more specifically to the drawings and particularly to FIG. 5, for a broad orientation of the invention, reference numeral 10 indicates a skeletal frame having interconnected seating and back rest frame components 11 and 12, respectively. To the opposite sides of the skeletal frame 10 are secured molded side arms 20 formed of reinforced rigid foam, such as polyurethane. Suitably secured to the seating component 11 of the skeletal frame 10 is a modular cushioned seat 30, and secured to the back rest component 12 of the skeletal frame 10 is a modular cushioned back rest 40. Overlying the side arms 20 are side arm cushions indicated at 50.

A description of the details of each of the components of the invention will now be given but not necessarily in the order of their fabrication or assembly. Referring now specifically to the skeletal frame 10, as best illustrated in FIGS. 5 and 6, it will be noted that the seating frame component 11 has a pair of spaced side members 11*a* and a front and rear transversely extending member 11*b*, 11*c*, respectively, connecting the side members 11*a*. Overlying the front transversely extending member 11*b* is an arcuate kick board 11*d* and extending from the upper surface of the front member 11*b* are a pair of dowel pins 11*e* for aiding in securing the modular cushioned seat 30 thereto. Suitably secured to and extending upwardly from rear portions of side members 11*a*, are a pair of spaced back rest supporting members 12*a* which are interconnected by a plurality of transversely extending members 12*b*. Overlying the rear surface of the transversely extending members 12*b* and the rear ends of side members 11*a*, and suitably secured thereto, is an arcuately shaped member 12*c*, suitably formed of thin plywood, for example, which, as best shown in FIGS. 3 and 13, serves for presenting the desired shape to the lower rear portion of the furniture and as a supporting surface for securement of the upholstery material thereto.

Referring now more particularly to the molded side arms 20, as noted earlier, these side arms are formed of reinforced rigid foam with the reinforcement, as best shown in FIGS. 5 and 16, comprising an L-shaped inner member 20*a* and a plurality of vertical members 20*b* suitably secured as by glue to the L-shaped reinforcing member 20*a*.

Referring now to the construction of the modular cushioned seat 30, as illustrated best in FIGS. 5 and 9, the modular cushioned seat comprises a supporting sub-assembly 31 and a molded resilient foam cushion 32 formed of a suitable plastic, such as polyurethane, overlying the sub-assembly 31 and being suitably secured thereto, as by adhesive. The supporting sub-assembly 31 comprises a rectangular frame 31*a* with a series of spaced apart elongate pliable members or tapes 31*b* suitably secured thereto in intersecting or crossing fashion, as best shown in FIG. 5. It will be noted that the front frame member 31*a* extends downwardly below the other frame members and serves to provide a back up or reinforcement for a downwardly depending lip portion 30*a* of the molded foam cushion 32, as best illustrated in FIG. 3.

Referring now to the modular cushioned back rest 40, it will be noted, as best illustrated in FIGS. 5, 6 and 11, that similar to the modular cushioned seat 30, a supporting sub-assembly 41 is provided which takes the form of a rectangular frame 41*a* having a series of spaced apart elongate pliable members or tapes 41*b* suitably secured thereto. It will be noted, as best shown in FIGS. 3 and 5, that uppermost frame member 41*a* is

curved longitudinally to provide the desired contour to the back of the chair. To the uppermost frame member **41***a* is secured a pre-shaped reinforcing member **42** preferably formed of reinforced fiberglass and which serves as an underlying reinforcing substrate for rear lip portion **43***a* of a molded foam cushion **43**, as best illustrated in FIG. **11**.

Referring now to the construction of the side arm cushions **50**, as best illustrated in FIGS. **5**, **12** and **16**, the side arm cushions comprise molded resilient foam cushions **51** of substantially inverted U-shape in cross-section. A reinforcing substrate member **52** also of substantially inverted U-shape configuration in cross-section is suitably secured to the inner surface of the molded cushions **51** to lend rigidity thereto and to aid in securing the same to the side arms **20**. The molded cushions **51**, as best illustrated in FIG. **12**, are each subjected to a cutting operation following the securing of the same to the underlying reinforcing substrate **52**, such cutting operation serving to provide cut lines C to almost completely separate the molded cushions **51** into three serially arranged separate cushion units for the purpose of aiding in the upholstering thereof and the forming of pleats or folds in the upholstered material between the severed foam units, to be explained in greater detail hereinafter.

Referring now to FIGS. **13** and **14**, it will be noted that the side arm cushions **50** are upholstered with a suitable covering material M prior to positioning the same in straddling relationship over the side arms **20**, with the upholstery material being suitably secured as by stapling to the inner surface of the reinforcing substrate **52**. Further, it will be noted that drawstrings **53** are incorporated in the upholstery material M and positioned to overlie the cut lines C (FIG. **12**) in the molded cushion **51**. One end **53***a* of each drawstring **53** is suitably secured to the inner surface of the substrate **52**, as by stapling, for example, and the other end identified as **53***b* is secured to the inner surface of frame member **11***a* of the skeletal frame **10**. As earlier noted, the drawstrings **53** serve for imparting a pleat or fold in the upholstery material M to present the appearance of three serially arranged cushions forming each of the side arm cushions.

In addition to utilization of drawstrings **53** for securing the side arm cushions **50** on the side arms **20**, a plurality of transversely positioned fasteners are provided with the fasteners comprising cords **55** which are suitably secured, as by stapling, to the reinforcing members **20***b* of the side arms **20** and, to the outer ends of which cords **55** are suitably secured relatively large buttons **56**, as best shown in FIGS. **15** and **16**. To facilitate securing the cords **55** to the reinforcing members **20***b*, a corresponding number of holes **51***a* are provided in the molded cushions **51**, such holes normally extending entirely through the foam, with a staple of sufficient length being utilized to extend through the underlying substrate **52** and penetrate into the reinforcing members **21***b*. As illustrated, four fastening members are provided for securing each side arm cushion **50** to the respective supporting side arm **20**.

Referring now to FIGS. **10** and **11**, it will be noted that the modular cushioned back rest **40**, after being upholstered, is suitably secured to the skeletal frame by a pair of brackets **60** engaging the lowermost transversely extending member **12***b*. As earlier noted, the contoured substrate member **42** underlies the rear lip portion **43***a* of the molded cushion **43** and is suitably secured thereto as by adhesive. As illustrated in FIG. **11**, additional fastener means comprising cords **55** and buttons **56** of the type previously described is utilized for securing the downwardly depending rear lip portion **43***a* to the backside of the skeletal frame **10**.

Modular cushioned seat **30**, as earlier noted, is secured to the skeletal frame **10** by a pair of upstanding dowel pins **11***e* extending from the front member **11***b* of the frame. In addition, bracket members **70** (FIG. **3**) are utilized with such bracket members being carried by the seat sub-assembly **31** and being secured to the front and rear transverse members **11***b*, **11***c* of skeletal frame **10**.

For imparting a decorative pleat or fold in the upholstery material of the modular seat cushion **30**, as best illustrated in FIGS. **7** to **9**, it will be noted that the molded cushion **32** is provided with a transversely extending groove **32***a* in which is positioned a drawstring **75** which drawstring is suitably secured to the upholstery material M to permit the material to be drawn downwardly into the groove **32***a*. As shown in FIG. **9**, opposite ends of the drawstring **75** are suitably secured to the underside of the seat sub-assembly **31**, as by stapling, for example.

As already noted, the side arm cushions **50** and the modular cushioned seat and modular cushioned back rest are all separately assembled and pre-upholstered prior to assembly into the furniture item. Also, once the side arms **20** have been secured to the skeletal frame **10**, the side arms are upholstered with such upholstery material M normally including an underlying resilient fibrous pad. A similar padded upholstery material is utilized for covering the front kick rail **11***d* of the skeletal frame, as well as the contoured rear frame member **12***c*. Following the upholstery of the assembled side arms **20** and skeletal frame **10**, the pre-upholstered side arm cushions **50** are positioned on top of the side arms **20** and secured thereto as previously described. It is to be noted, as best shown in FIGS. **4** and **6**, that the side arm cushions **50** are so shaped relative to the side arms **20** as to be matingly and straddlingly positioned thereon. Further, it will be noted that the side arms **20** have tapered upper end portions for facilitating reception of the side arm cushions thereon in overlying straddling relationship.

Following securement of the side arm cushions **50** to the side arms **20**, the modular cushioned seat **30** is secured to the skeletal frame in a manner as previously described and, finally, the modular cushioned back rest **40** is assembled.

Referring now to FIG. **17**, the molded back rest cushion **43** is illustrated, which is readily utilized in chairs and sofa constructions. To standardize molding, the molded cushion **43** is formed with opposing wing portions **43***b* which serve for presenting the desired flared appearance to the back of the chair, as best illustrated in FIG. **2**. However, in utilizing such molded foam cushion in forming a sofa, of the three cushion type, as illustrated in FIG. **18** and **19**, both the wing portions **43***b* are severed in forming the middle cushion of the sofa, and in forming the end cushions, one of the wings **43***b* is severed from each cushion. This is readily apparent when viewing the back of the sofa, as illustrated in FIG. **19**.

It will thus be understood that from the foregoing detailed description the instant invention permits the ob-

taining of chair and sofa constructions of considerably high quality while utilizing pre-assembled modular components to facilitate economical mass production of the furniture.

In the drawings and specification there has been set forth a preferred embodiment of the invention and, although specific terms are employed, they are used in a generic and descriptive sense only and not for purposes of limitation.

That which is claimed is:

1. A seat of modular construction comprising a skeletal frame having interconnected seating and back rest frame components, separately formed side arms of reinforced rigid foam connected to opposite sides of said skeletal frame and having upwardly extending rear portions engaging upper side portions of said skeletal frame, at least one modular cushioned seat and one modular cushioned back rest carried by said skeletal frame, each modular cushioned seat and modular cushioned back rest comprising a supporting sub-assembly and resilient foam overlying and connected to said supporting sub-assembly, and side arm cushions comprising resilient foam secured to a reinforcing substrate, said side arm cushions overlying and carried by said side arms and extending downwardly a predetermined extent along opposite sides thereof.

2. A seat according to claim 1, wherein said skeletal frame is of a length suitable for a sofa, and a plurality of modular cushioned seats and modular cushioned back rests are carried by said skeletal frame.

3. A seat according to claim 1, wherein said supporting sub-assembly for each modular cushioned seat and modular cushioned back rest comprises an elongate frame unit and a series of spaced apart elongate pliable members secured to said frame unit and extending lengthwise thereof.

4. A seat according to claim 1, wherein said side arms have tapered upper portions of a smaller width dimension than lower portions thereof and wherein said side arm cushions are matingly and straddlingly positioned on said tapered portion of said side arms.

5. A seat according to claim 1, wherein fastening means are provided for interconnecting said side arm cushions to said side arms, said fastening means extending through outer portions of said side arm cushions and into upper portions of said side arms.

6. A seat according to claim 1, wherein said side arm cushions comprise molded resilient foam of substantially inverted U-shape in cross-section and wherein said reinforcing substrate is secured to said foam and extends along the inner surface of the foam between the legs thereof defined by the substantially U-shape configuration.

7. A seat according to claim 1, wherein said side arm cushions each comprise an elongate series of resilient foam pads positioned in side by side relation and each being substantially inverted U-shape in cross-section, and an elongate covering overlying each series of foam pads, said covering including transversely arranged drawstrings carried thereby for pleatingly positioning and maintaining portions of the covering between adjacent foam pads of the series.

8. A seat according to claim 7, wherein fibrous padding is positioned between each series of foam pads and said overlying covering.

9. A seat of modular construction comprising a skeletal frame having interconnected seating and back rest frame components, separately formed side arms formed of reinforced rigid foam connected to opposite sides of said skeletal frame and having upwardly extending rear portions engaging upper side portions of said skeletal frame, at least one modular cushioned seat and one modular cushioned back rest carried by said skeletal frame, said modular cushioned seat comprising resilient foam having integrally formed therewith a downwardly depending frontal lip portion overlying frontal portions of the skeletal frame, said modular cushioned back rest comprising resilient foam having integrally formed therewith a downwardly depending rear lip portion overlying upper rear portions of the skeletal frame, and side arm cushions comprising resilient foam secured to a reinforcing substrate, said side arm cushions overlying and carried by said side arms and extending downwardly a predetermined extent along opposite sides thereof.

10. A seat according to claim 9, wherein a reinforcing substrate is secured to the upper rear portion of said skeletal frame underlying said resilient foam rear lip portion for reinforcing the same.

11. A seat of modular construction comprising a skeletal frame having interconnected seating and back rest frame components, side arms formed of reinforced rigid foam and having tapered upper portions of a smaller width dimension than lower portions thereof, said side arms being connected to opposite sides of said skeletal frame and having upwardly extending rear portions engaging upper side portions of said skeletal frame, at least one modular cushioned seat and one modular cushioned back rest carried by said skeletal frame, each modular cushioned seat and modular cushioned back rest comprising a supporting sub-assembly and resilient foam overlying and connected to said supporting sub-assembly, and side arm cushions matingly and straddlingly positioned on said tapered portion of said side arms and extending downwardly a predetermined extent along opposite sides thereof.

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