United States Patent [19]

Johnson

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[54] **FURNITURE MODULE**

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[52] **U.S. Cl.** **5/352,** 5/12, 5/344, 297/118, 297/446, 297/445

[51] **Int. Cl.** **A47c 17/40,** A47c 7/20

[58] **Field of Search** 5/12, 352, 357, 344, 118; 297/440, 445, 454, 457, 455, 456

[56] **References Cited**

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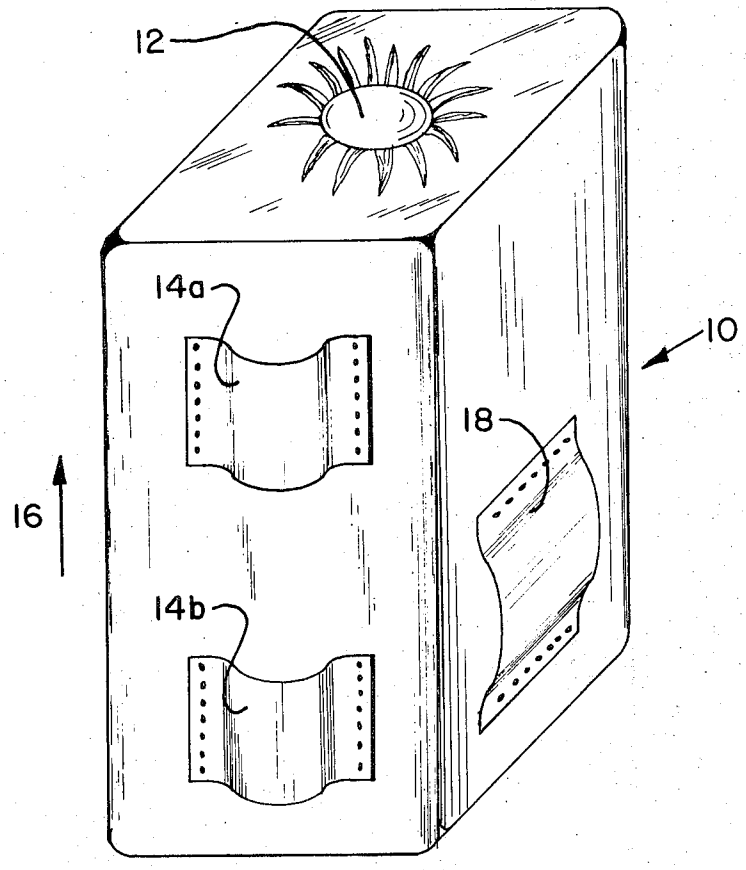
[57] **ABSTRACT**

A furniture module is described comprising a rectangular block of deformable material. Mounted on one long side of the block are a plurality of belt loops with openings directed substantially along the long dimension of the block. At least one additional belt loop is mounted on an adjacent long side of the block with its opening substantially perpendicular to the long dimension of the block. Included with the module is a flexible elongated belt having a length at least equal to the longest periphery of the block, and dimensioned so as to allow it to be threaded through the loops on the block. Fastening means are provided so that the ends of the belt can be joined together, or two or more belts can be joined end-to-end.

10 Claims, 4 Drawing Figures



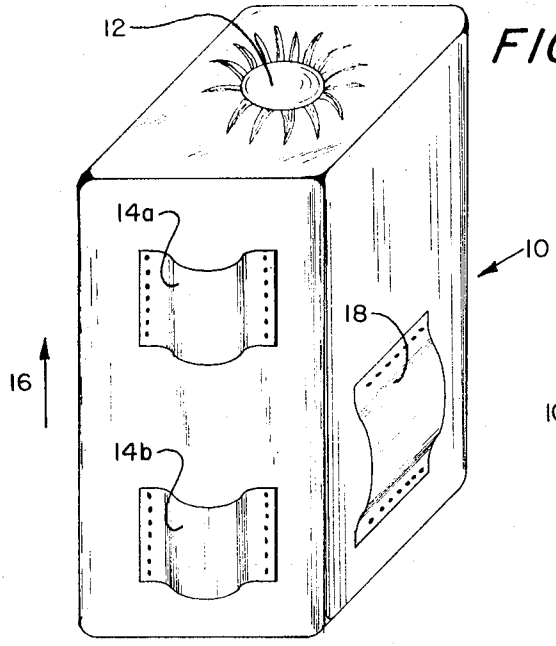


FIG. 1

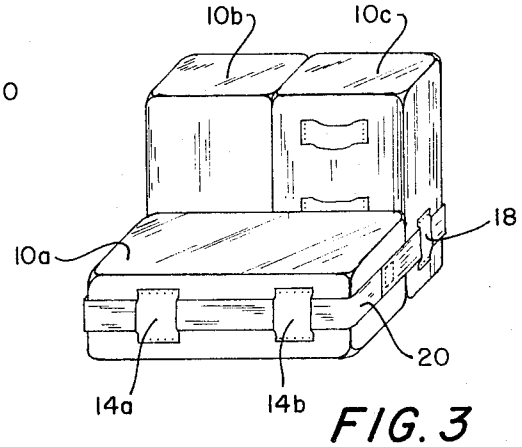


FIG. 3

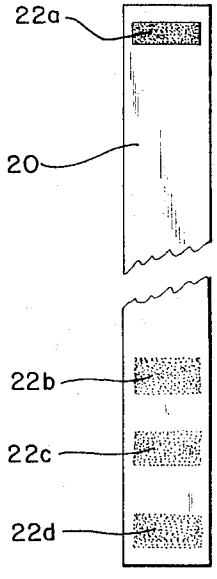


FIG. 2

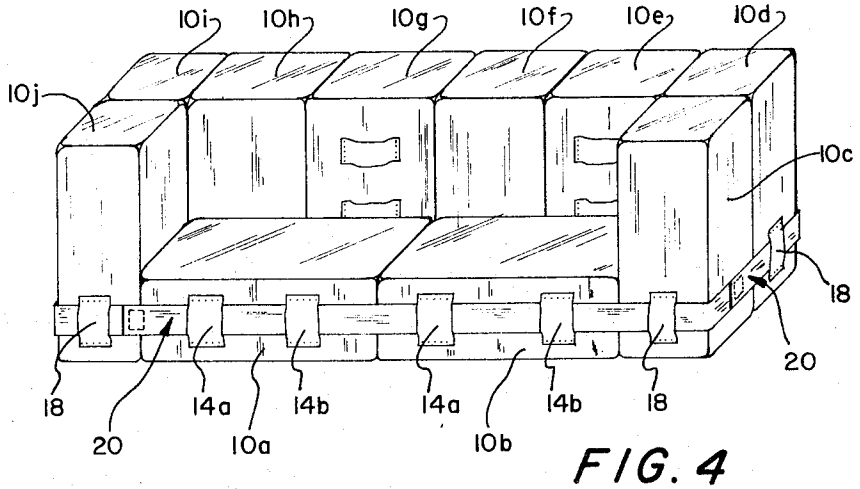


FIG. 4

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FURNITURE MODULE

This invention relates to novel furniture modules, and more particularly to improved furniture modules which can be used in forming chairs, tables, couches, lounges, and the like.

Various furniture modular systems are known in the art. A typical prior furniture modular system is described in Spitz U.S. Pat. No. 2793685. Such system comprises three basic elements (1) a seat section; (2) a back section; and (3) an arm section. Each of the sections is formed of wooden or metal frames which are padded and upholstered, and are adapted to be joined together by spring tensioned clamps. Such system has a number of disadvantages. First, manufacture of such systems is costly since the construction of the frame, padding and upholstering are time-consuming operations which demand the services of skilled craftsmen. Further, such systems are heavy and difficult for the user to manipulate. Additionally, the frames may weaken with use, the upholstery material may wear, and rebuilding and reupholstering is costly. Such systems require exact positioning of the sections in order to align the clamps. Finally, the connecting means are difficult to operate and may jam.

A principal object of the present invention is, therefore, to provide a furniture module from which various furniture pieces can be made by assembling two or more of such modules together.

Another object of the present invention is to provide furniture modules which are light-weight, yet durable.

A further object of the present invention is to provide furniture modules which are inexpensive to manufacture and to reupholster. Yet another object of the present invention is to provide furniture modules which are quickly and easily positioned and connected together.

Other objects of the present invention will, in part, be obvious and will, in part, appear hereinafter.

To effect the foregoing and other objects, there is provided a novel modular element in the shape of a rectangular block and preferably formed of a deformable material. Mounted along one side of the block are a plurality of belt loops with openings directed substantially along the long dimension of the block. At least one additional belt loop is provided on an adjacent long side of the block, with its opening substantially perpendicular to the long dimension of the block. Included with each block is a flexible belt having a length at least equal to the longest periphery of the block, and dimensioned so as to allow it to be threaded through the loops on the block.

The invention accordingly comprises the apparatus possessing the construction, combination of elements and arrangment of parts, which are exemplified in the following detailed disclosure, and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be made to the following detailed description taken in connection with the accompanying drawings wherein:

FIG. 1 is a perspective view of a rectangular block module of the present invention;

FIG. 2 is an elevational view of a flexible belt, partially broken, used to hold modules of the invention together;

FIG. 3 is a perspective view of a chair embodying the invention illustrating furniture modules and parts thereof as assembled to form a chair; and

FIG. 4 is a perspective view of a couch embodying the invention illustrating furniture modules and parts thereof as assembled to form a couch.

Reference is now made to FIG. 1 of the drawings wherein there is illustrated a preferred form of the basic furniture module of the invention designated **10.** Module **10** is a rectangular block and is composed of a non-elastically deformable material such as down, or a resiliently deformable material such as foamed natural polymers, e.g., rubber, or foamed synthetic polymeric material such as polymers and copolymers of ethylene, styrene, urethane and the like. A number of resilient, organic polymeric foam materials are known and are in commercial use.

The block is covered with a sheath of material such as a woven or knitted fabric or a continuous polymeric film, e.g., polyvinyl chloride or polyethylene. In a preferred embodiment the sheath is formed as a tube into which the block is inserted, and each end of the tube is gathered up typically in a pursestring closure which is then covered with an upholsterer's button **12**; or the sheath material can be cut to size and sewn around the block. Alternatively, the block can be formed with an integral polymeric skin in known manner.

Mounted on the outside surface of the block and along one long side thereof are at least a pair of belt loops **14***a* and **14***b* with their openings directed substantially along the long dimension of the block indicated by arrow **16.** At least one additional belt loop **18** is provided on an adjacent long side of the block with its opening directed substantially perpendicular to the long dimension **16** of the block. Belt loops **14***a*, **14***b* and **18** can be attached directly to the surface of the block by suitable means, e.g., adhesive. When the block is covered with a sheet material as described above, the belt loops can be attached to the sheet by adhesion, stitching, stapling or the like, or can be mounted on block **10** and extend through openings in the sheath. Each module **10** is normally provided with belt **20** threaded through one or more of the belt loops.

Referring now to FIG. **2,** there is shown a preferred form of belt **20** for use in the present invention. Belt **20** is formed of a flexible elongated material of at least sufficient length to extend completely around the longest periphery of the block. Belt **20** is also dimensioned so as to allow it to be threaded through loops **14***a*, **14***b* and **18.** Belt **20** may be formed of a relatively non-stretchable material such as leather or a woven fabric, or the like; or the belt may be formed of an elastic material such as rubber or a resilient plastic or the like. Belt **20** is provided with fastening means at least at each end thereof so that the two ends of the belt can be joined together, or two or more belts can be joined end-to-end. For example, one can employ belt buckles, hooks and eyelets, buttons and button holes, snap fasteners, and the like. Especially preferred as fastening means for ease of operation are Velcro fasteners. For example, in FIG. **2** there is shown an adjustable belt comprising a single Velcro fastener **22***a* mounted on one side of belt **20** adjacent one end of the belt, and a plurality of Velcro fasteners **22***b*, **22***c* and **22***d* mounted on the opposite side of the belt, fastener **22***d* being adjacent the belt end, the other fasteners **22***b*, **22***c* being at intermediate positions on the belt.

Reference is now made to FIG. 3 of the drawing wherein there is illustrated a chair formed of modules of the present invention. Three blocks **10***a*, **10***b* and **10***c* are joined as a unit by two belts **20** which are fastened together end-to-end. The belts are threaded through belt loops **14***a* and **14***b* of block **10***a*, and through belt loops **18** of block **10***b* and **10***c*. For example, using blocks having dimensions of 18 × 18 × 36 inches, a chair is formed having a seat height and depth of 18 and width and back height of 36.

Referring now to FIG. **4**, there is shown a couch formed of modules of the present invention. For such purpose ten blocks **10***a*–**10***j* are joined as a unit by means of four belts **20** which are joined end-to-end. The belts are threaded through belt loops **14***a* and **14***b* of blocks **10***a* and **10***b*, and through belt loops **18** of blocks **10***c*–**10***j*. Using blocks having dimensions of 18 × 18 × 36 inches, a couch is formed having a seat height and depth of 18 inches, seat width of 72 inches and back height of 36 inches.

It will be apparent that the furniture modules can be arranged in a great variety of configurations. For example, sides can be added to the chair shown in FIG. **3** in the manner similar to that shown in FIG. **4**; or a fourth module can be added to the chair shown in FIG. **3** lying on a long side on the opposite side of the upright modules so that the chair shown in FIG. **3** will become a bench with seating two ways for use, for example, as a restaurant booth. Also, the couch shown in FIG. **4** can be arranged in L-shape for corner use. It will also be obvious that other pieces of furniture such as tables and beds can be formed by suitable arrangement of appropriately dimensioned modules.

As previously noted, the modular furniture construction of the present invention has an advantage in that it lends itself to especially simple manufacture from foam plastic materials. It will be seen from the foregoing that in addition to the advantages hereinabove enumerated, the furniture modules of the present invention have particular utility for use as children's furniture since, by their nature, the modules are relatively soft and have no sharp edges upon which children may injure themselves. Additionally the modules have no frames which may work loose and thus the modules are much sturdier than presently existing children's furniture. The modules are light weight so as to allow children to move them with relative ease, and the blocks can also be used as giant play blocks with which children can build houses, forts, and the like. Finally the materials used in the construction of the block lend themselves to easy cleanup.

It will be apparent that the modular furniture construction of the present invention has particular utility also for use in waiting lounges in airline, bus and train terminals since the modules permit easy maintainance and flexible seating arrangements. Additionally the materials used in the construction of the modules can all be water-proof, and the modules can thus be used to advantage in boating and camping. Other applications of the modules will be apparent to one skilled in the art.

Since there are changes which may be made in the above apparatus without departing from the scope of the invention herein involved, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. A furniture module adapted to be connected by flexible belt means to one or more like modules, comprising a rectangular block of deformable material having a plurality of belt loops mounted on one long side of said block with their openings directed substantially along the long dimension of said block, and at least one belt loop mounted on an adjacent long side of said block with its opening substantially perpendicular to the long dimension of said block.

2. A module as defined in claim **1** wherein said material is resilient.

3. A module as defined in claim **2** wherein said material is a foamed structure.

4. A module as defined in claim **3** wherein the material is selected from the group consisting of foamed natural and synthetic polymers.

5. A module as defined in claim **1** including a sheath covering said block.

6. A module as defined in claim **5** wherein the belt loops are attached to said sheath.

7. A module as defined in claim **1** including a belt threaded through at least one of said loops.

8. A module as defined in claim **7** wherein said belt includes fastening means mounted adjacent at least each end thereof.

9. A module as defined in claim **8** including fastening means mounted intermediate said ends of said belt.

10. An article of like furniture comprising in combination:

a plurality of furniture modules connected together, each of said modules including a rectangular block of resilient material having a plurality of belt loops along one long side thereof with their openings directed substantially along the long dimension thereof, and at least one belt loop on an adjacent long side of said block with its opening substantially perpendicular to the long dimension of said block; and

flexible belt means extending through at least some of said belt loops on adjacent blocks and connected to itself so as to couple at least two of said modules together.

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