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(54) **INTERACTIVE CUBE FURNITURE**

(57)

**ABSTRACT**

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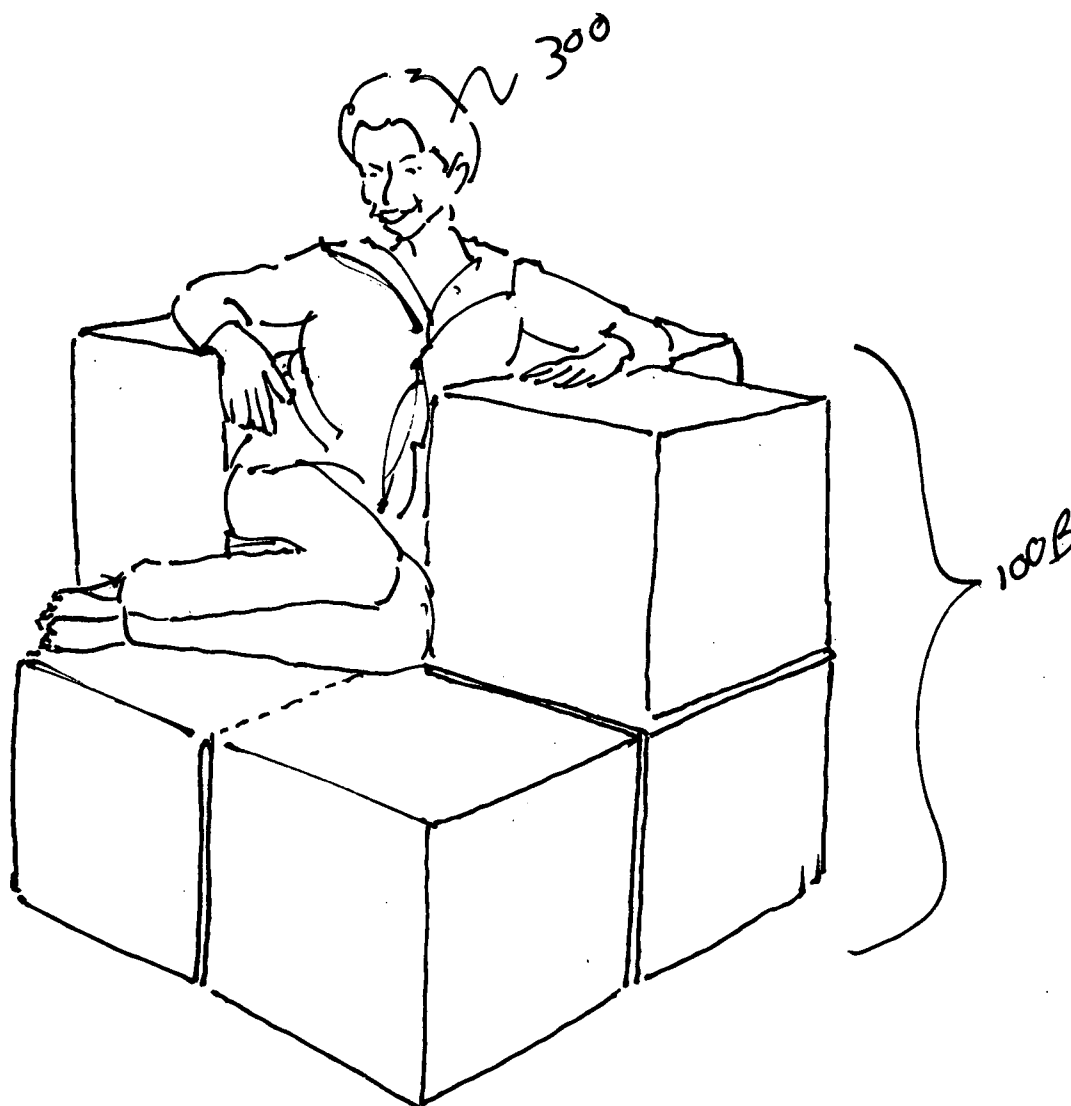
(51) **Int. Cl.**

**A47C 7/00**

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(52) **U.S. Cl.** ..... **297/440.14**

Interactive Cube Furniture, having a plurality of identical cubes each constructed of six square of poly foam pads, each having edges that taper forty-five degrees, six rigid square pan shapes that fit snugly over each poly foam pad and eight U shaped channels that can connect the pans and attached foam pads together to construct a cube. The cubes are inserted into an upholstery housing. One panel of each cube of the upholstery housing can be opened via a zipper so that the cube assembly can be inserted into the upholstery housing. The flexible fabric of the upholstery construction acts as hinge members at certain locations thereby making the multi-cube assembly connected so that the cubes can be folded on top of each other in a variety of ways to create unique pieces of furniture.



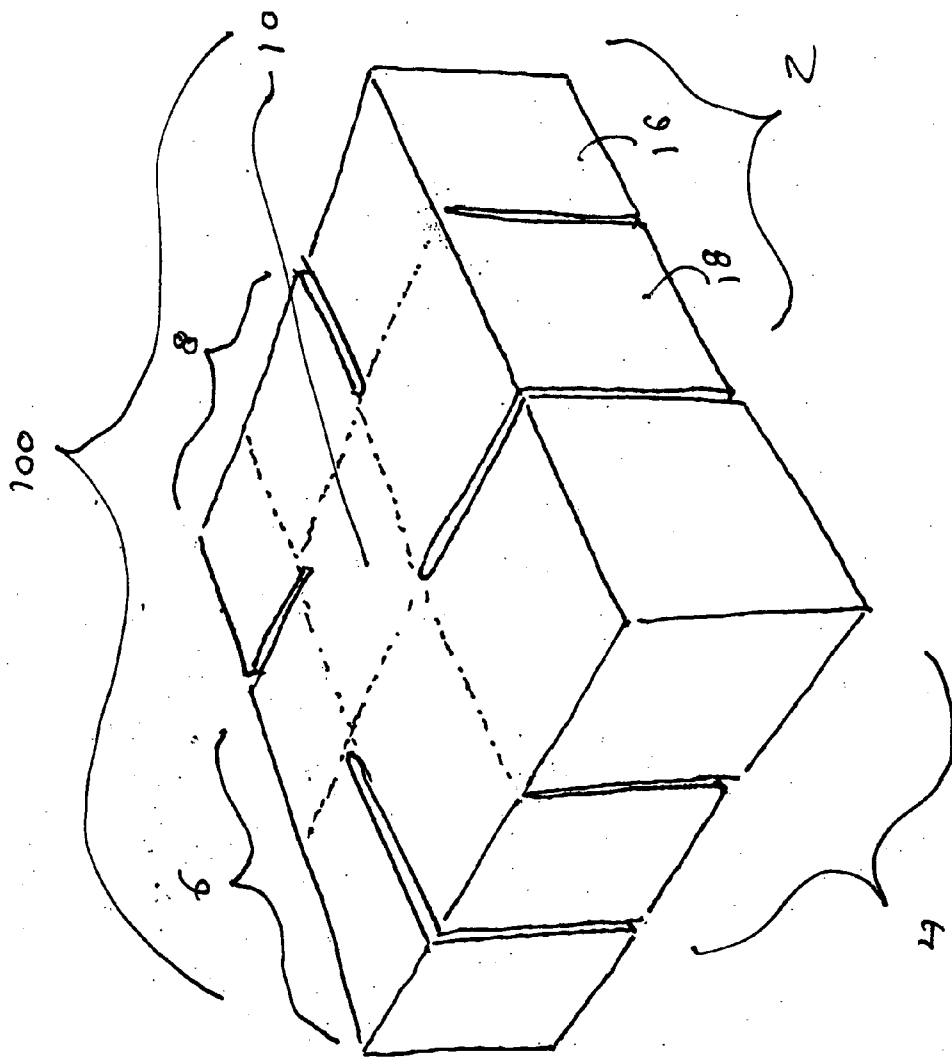


FIG. 1

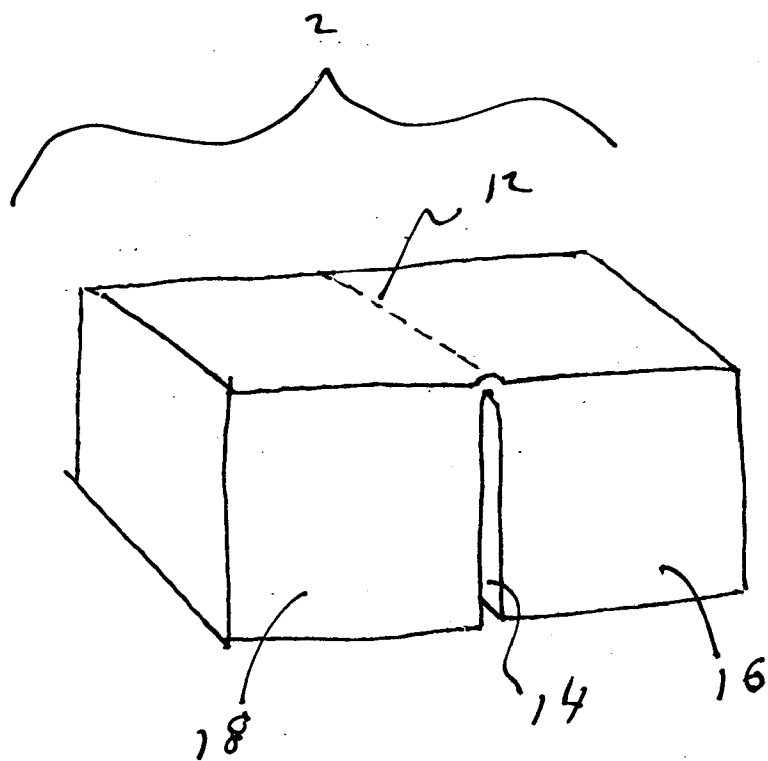


FIG. 2

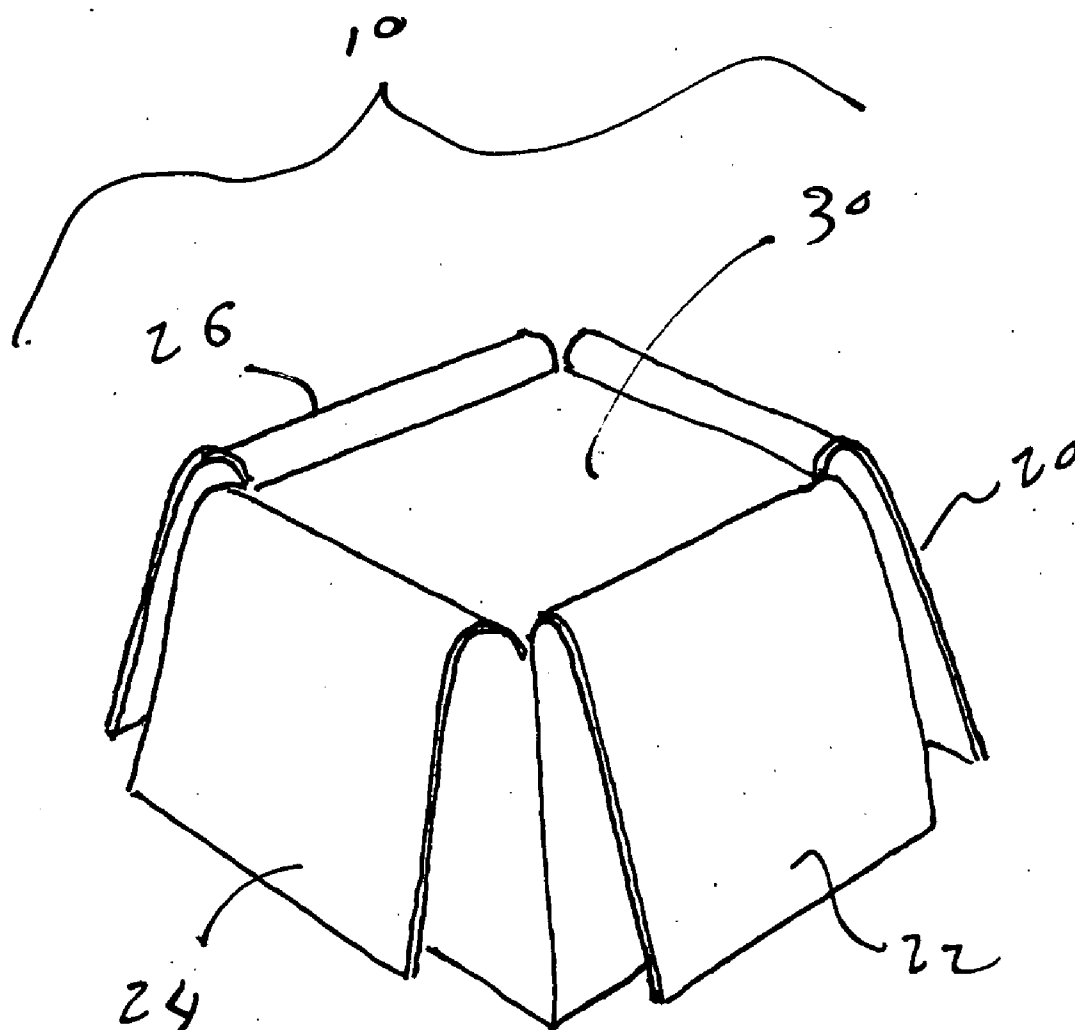


FIG. 3

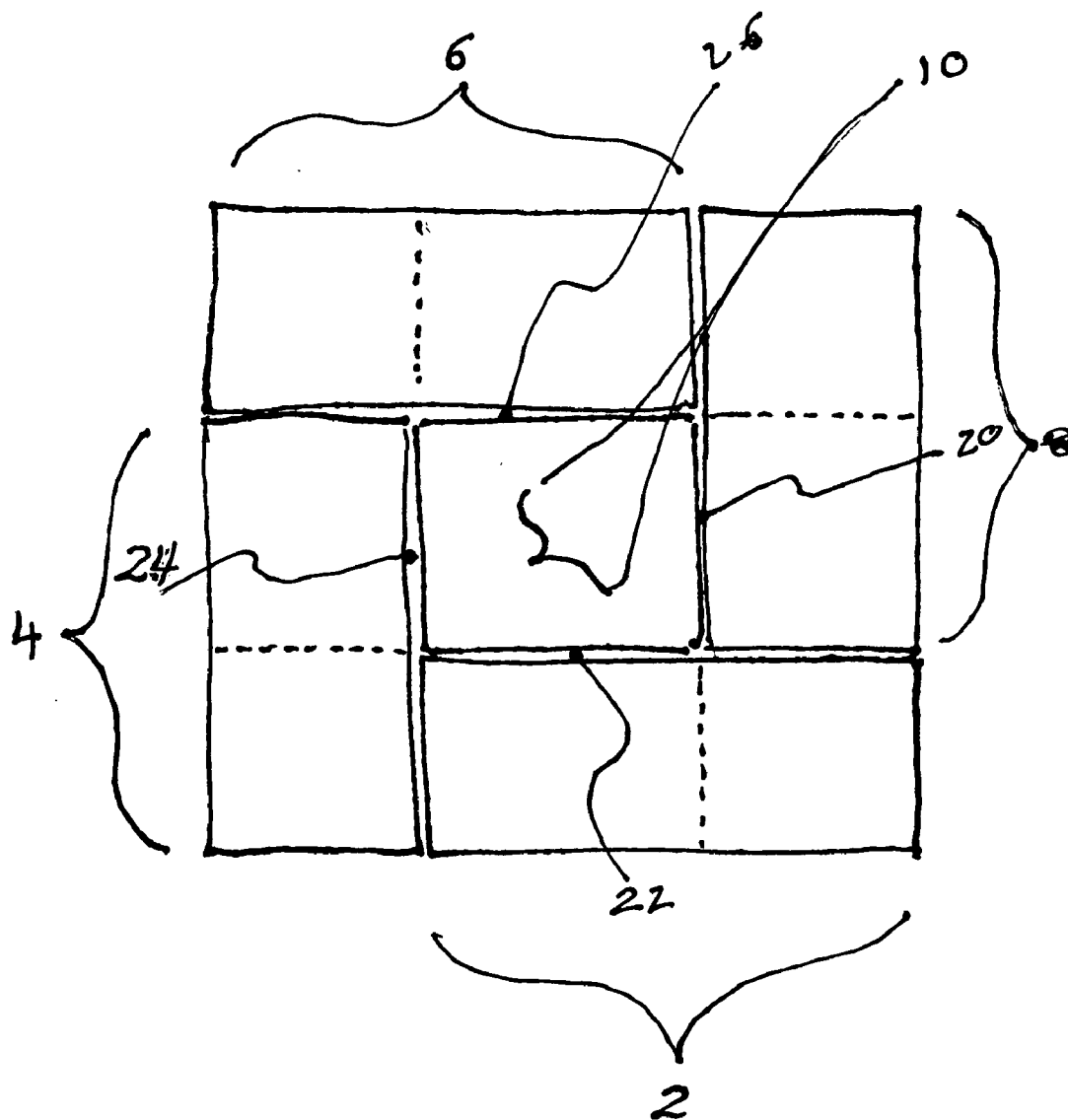


FIG. 4

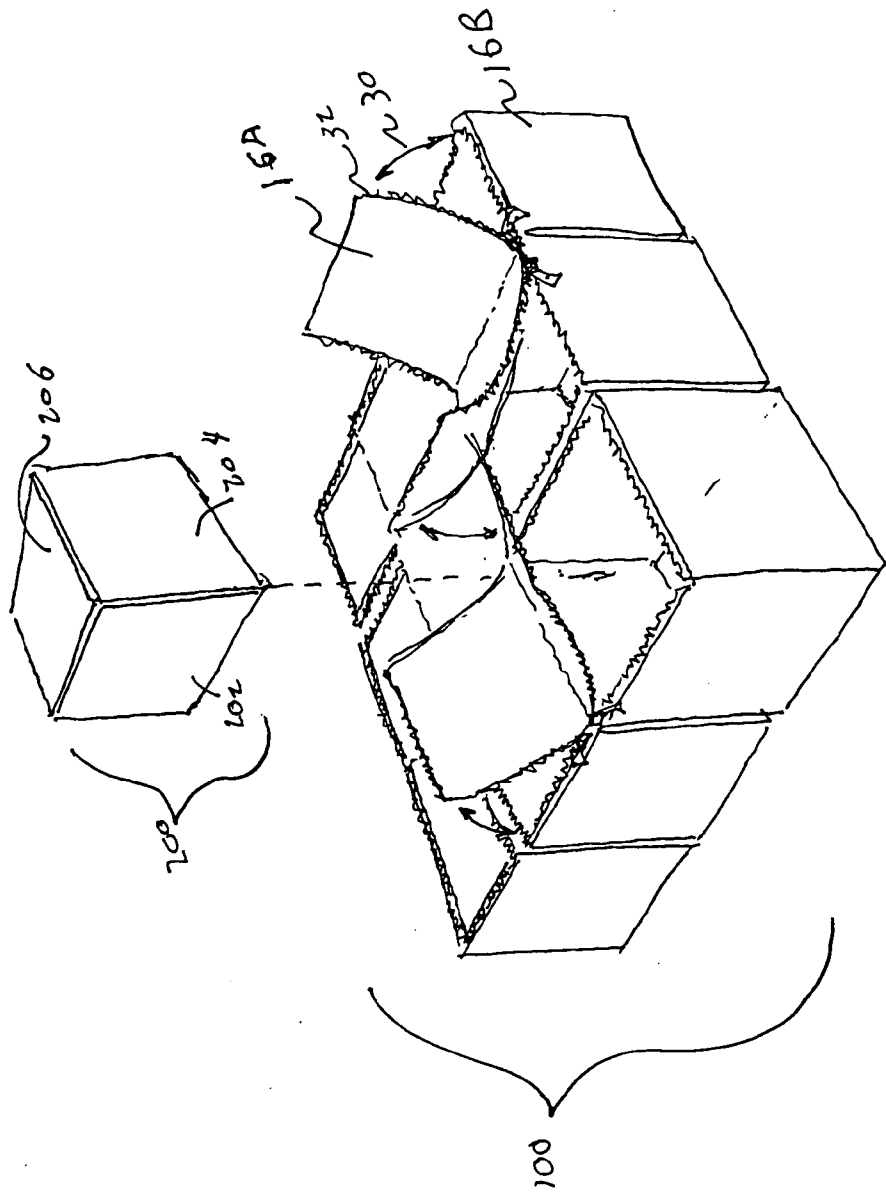


FIG. 5

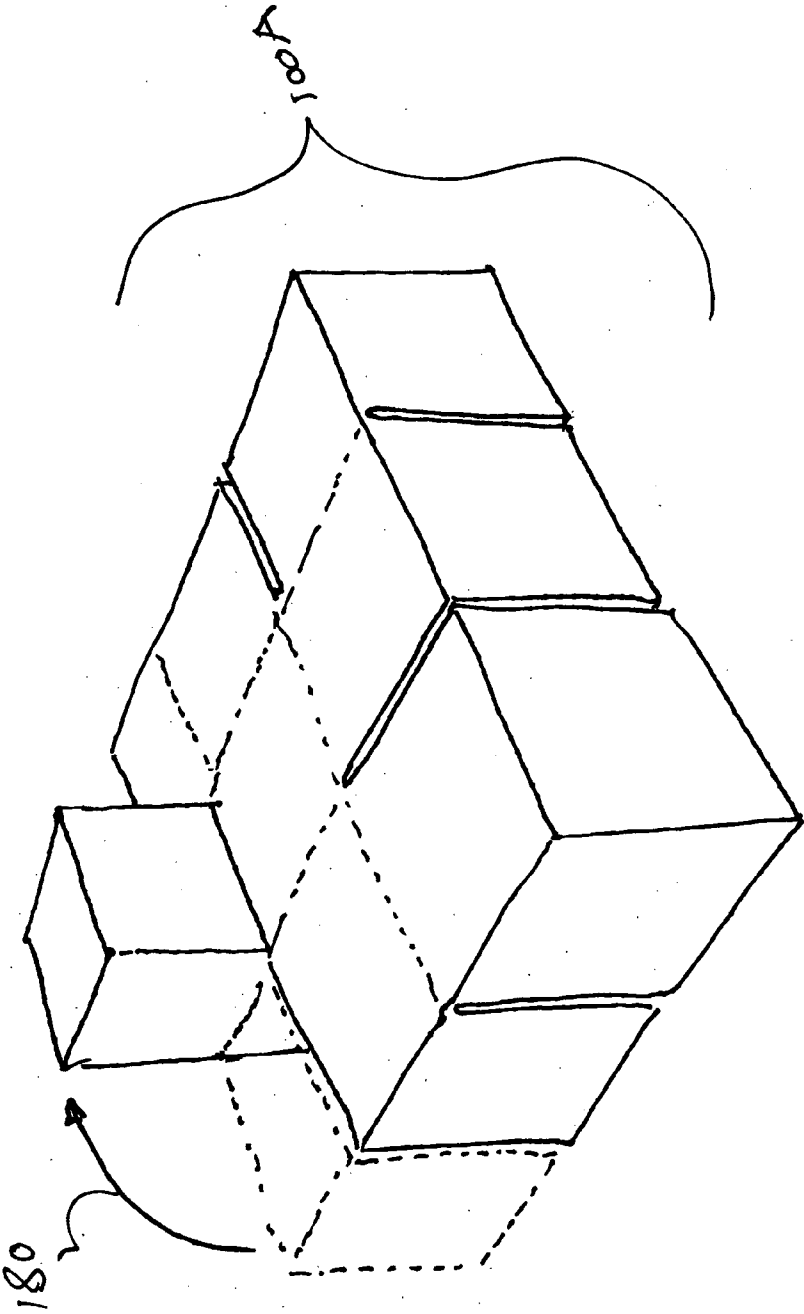


FIG. 6

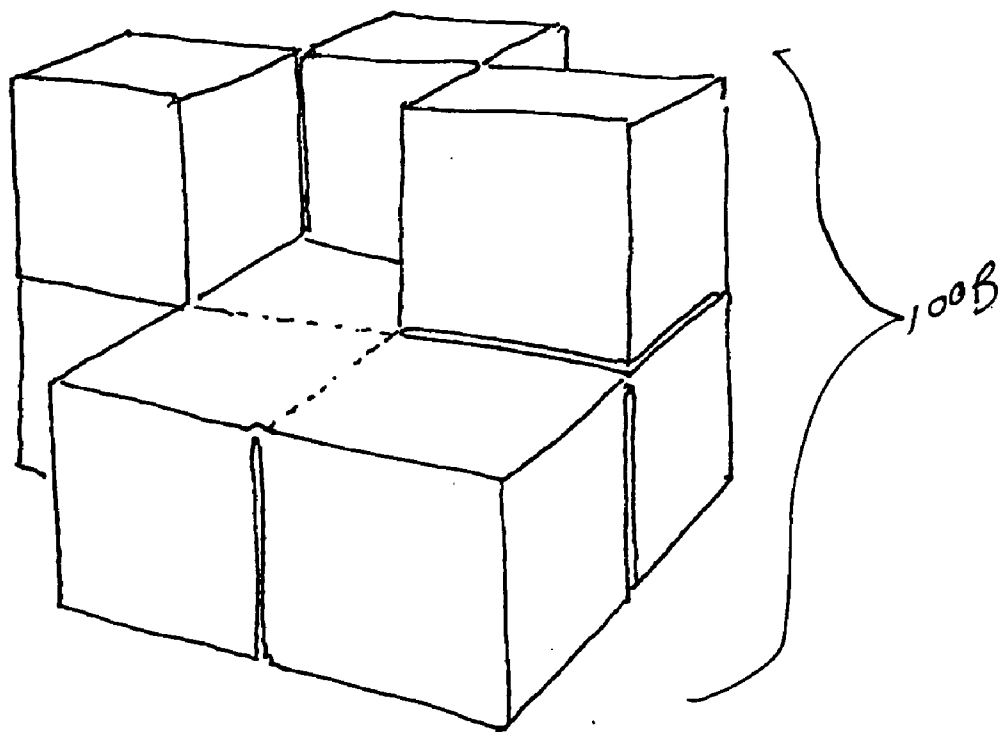


FIG. 7

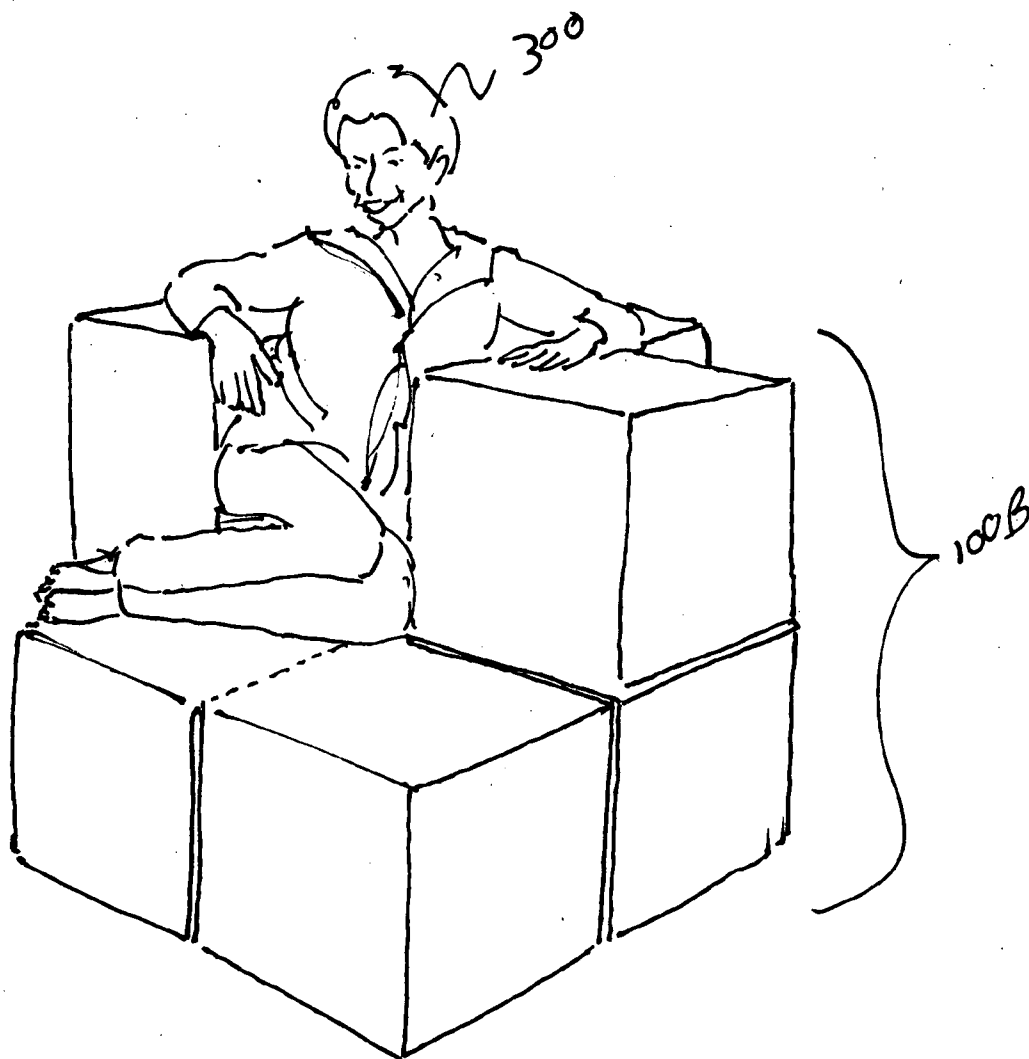


FIG. 8

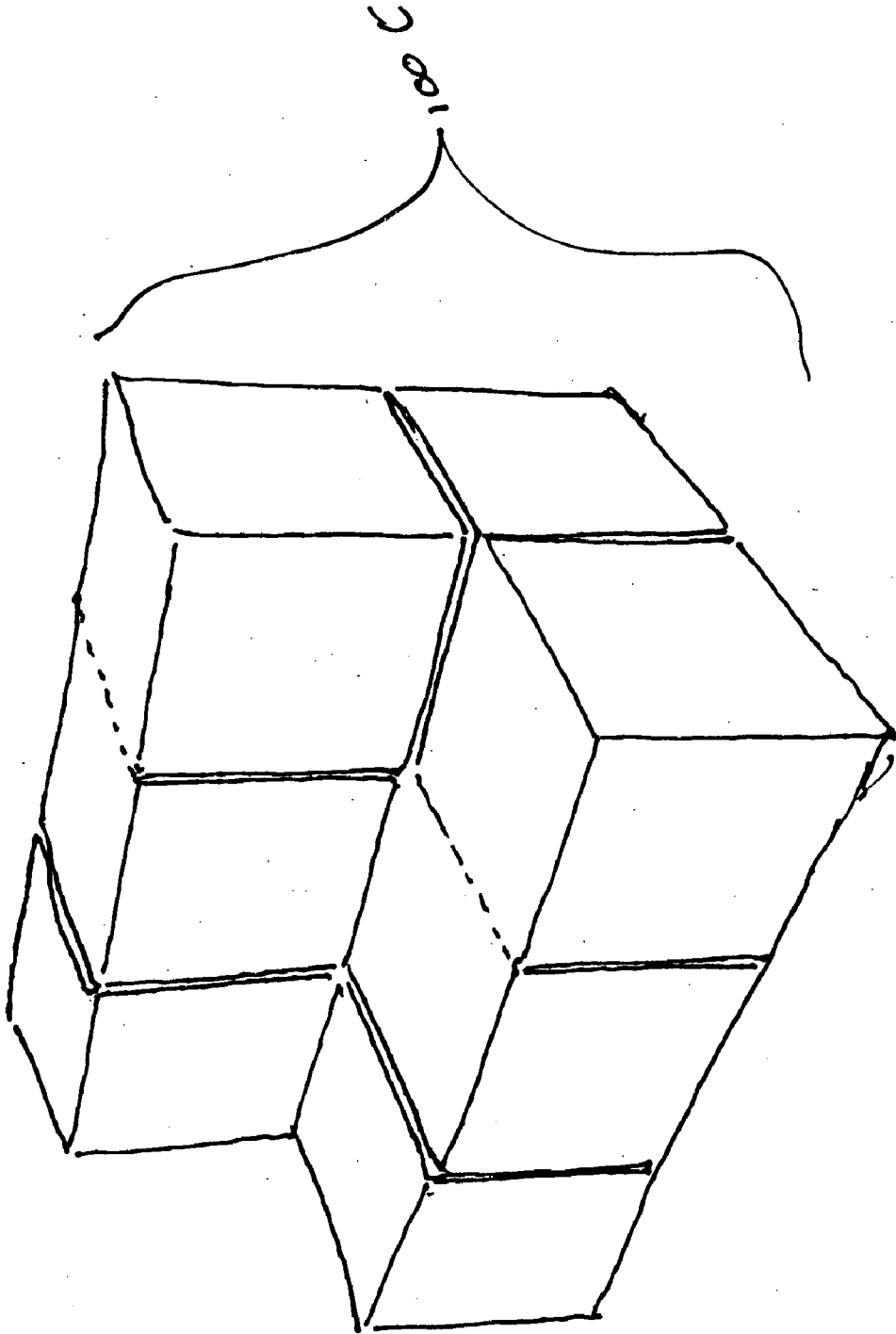


FIG. 9

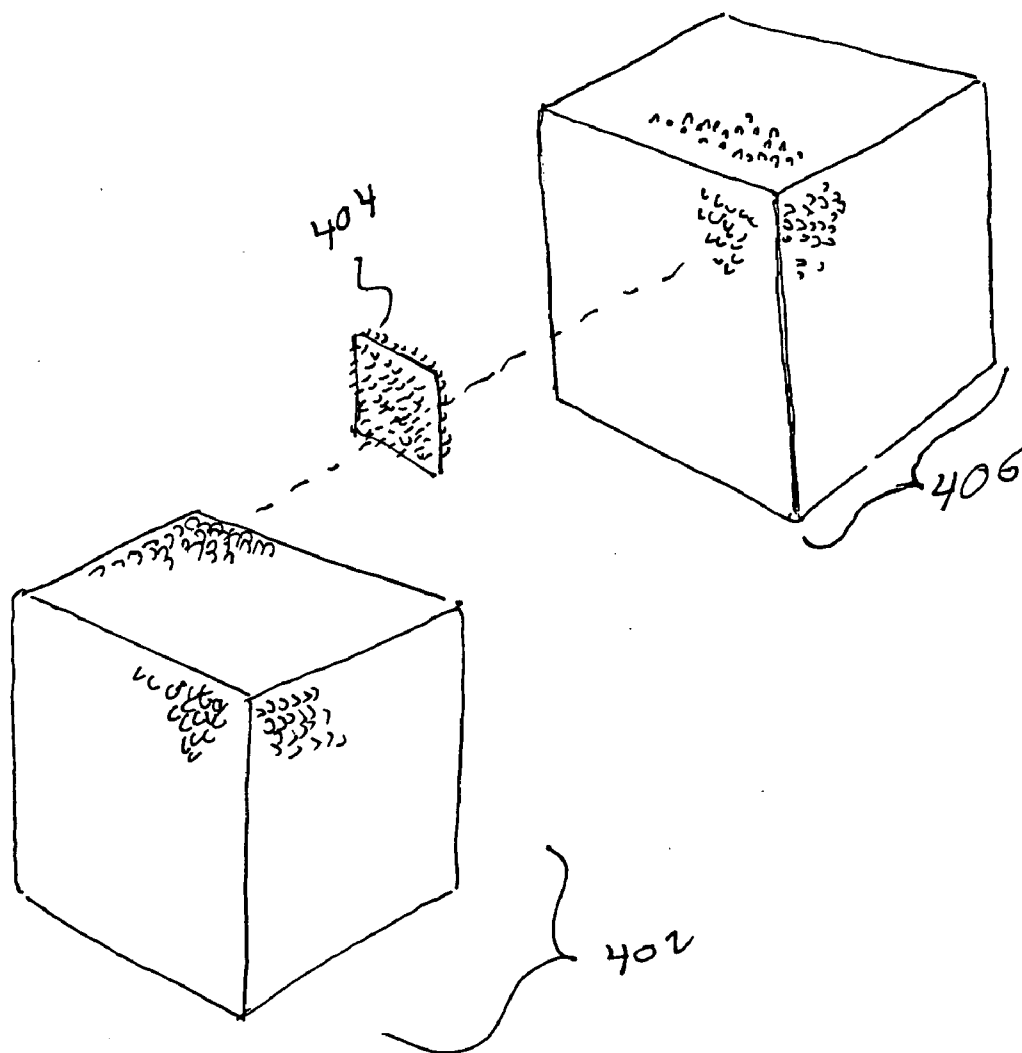


FIG. 10

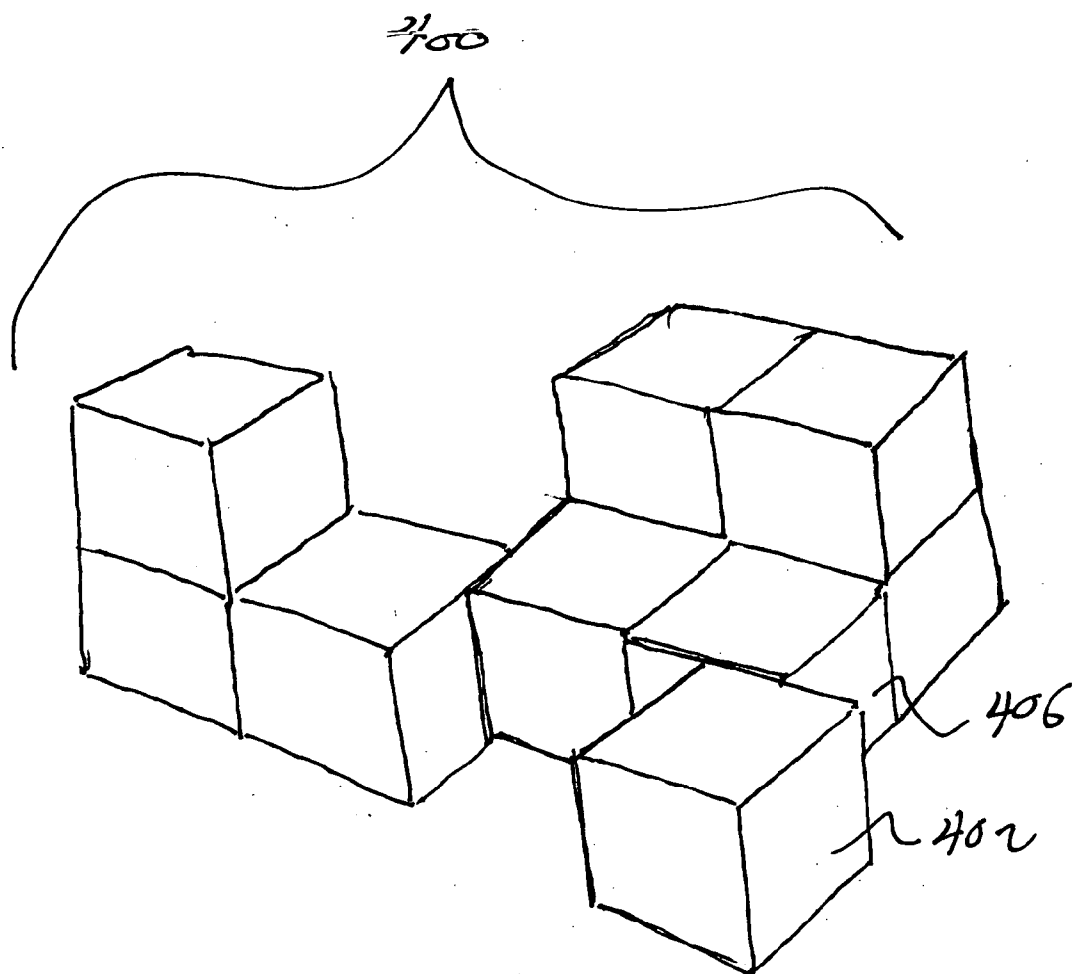


FIG. 11

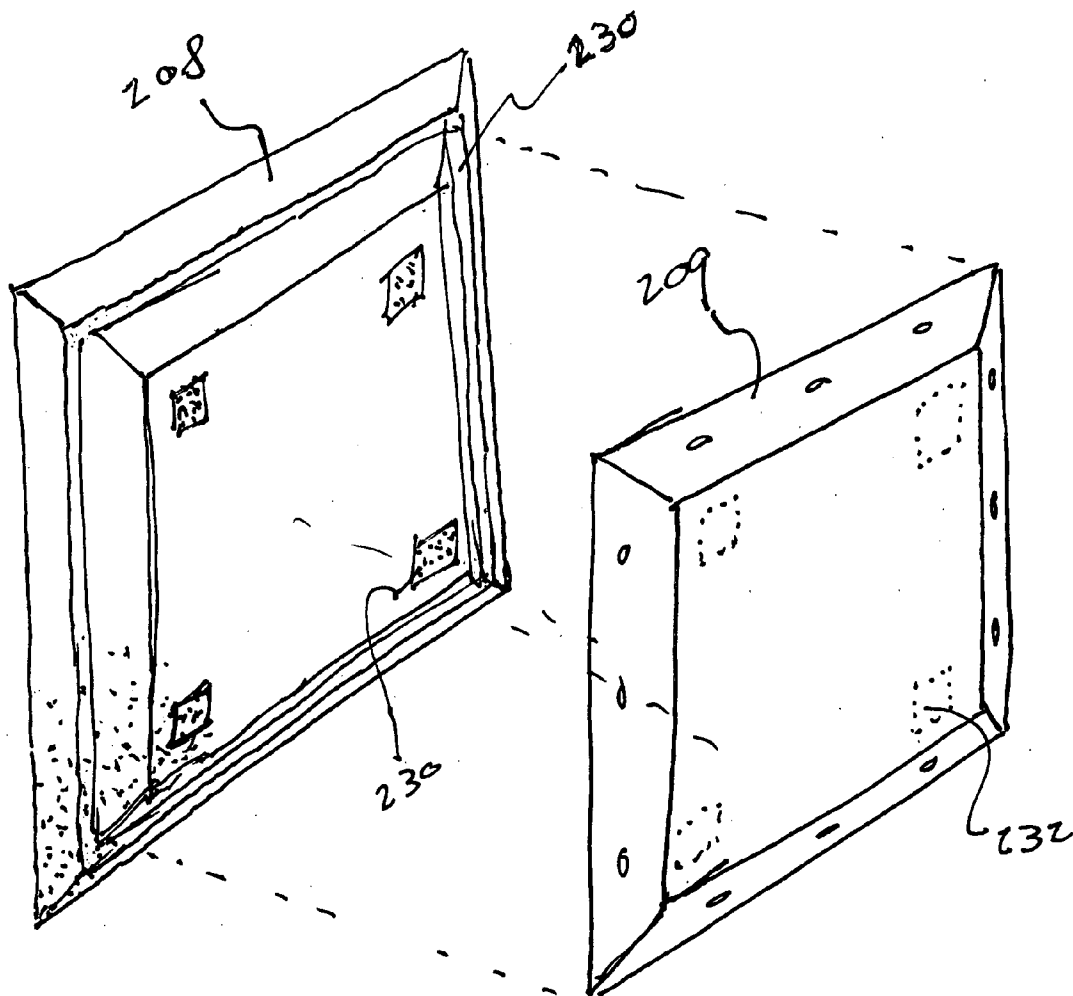


FIG 12

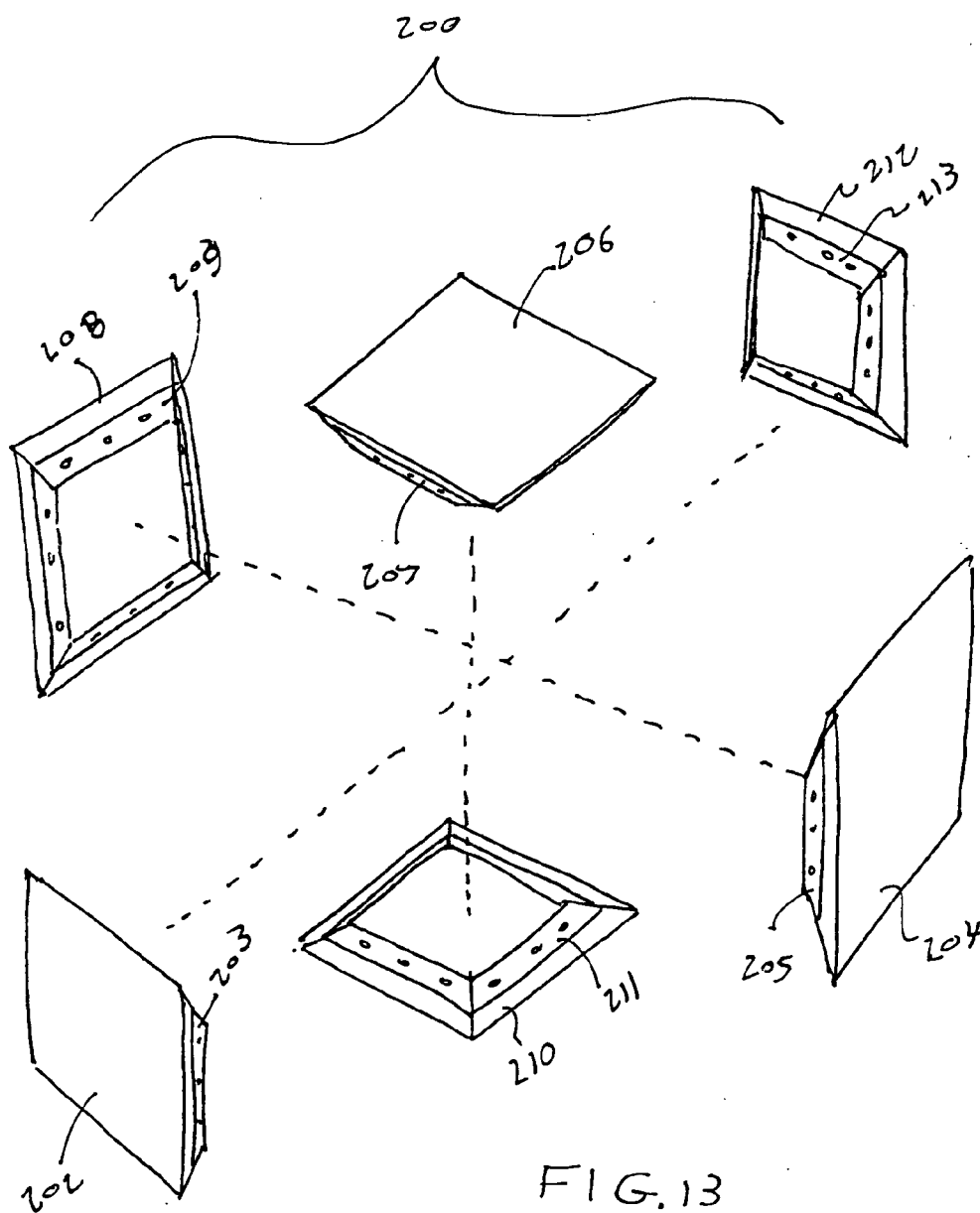


FIG. 13

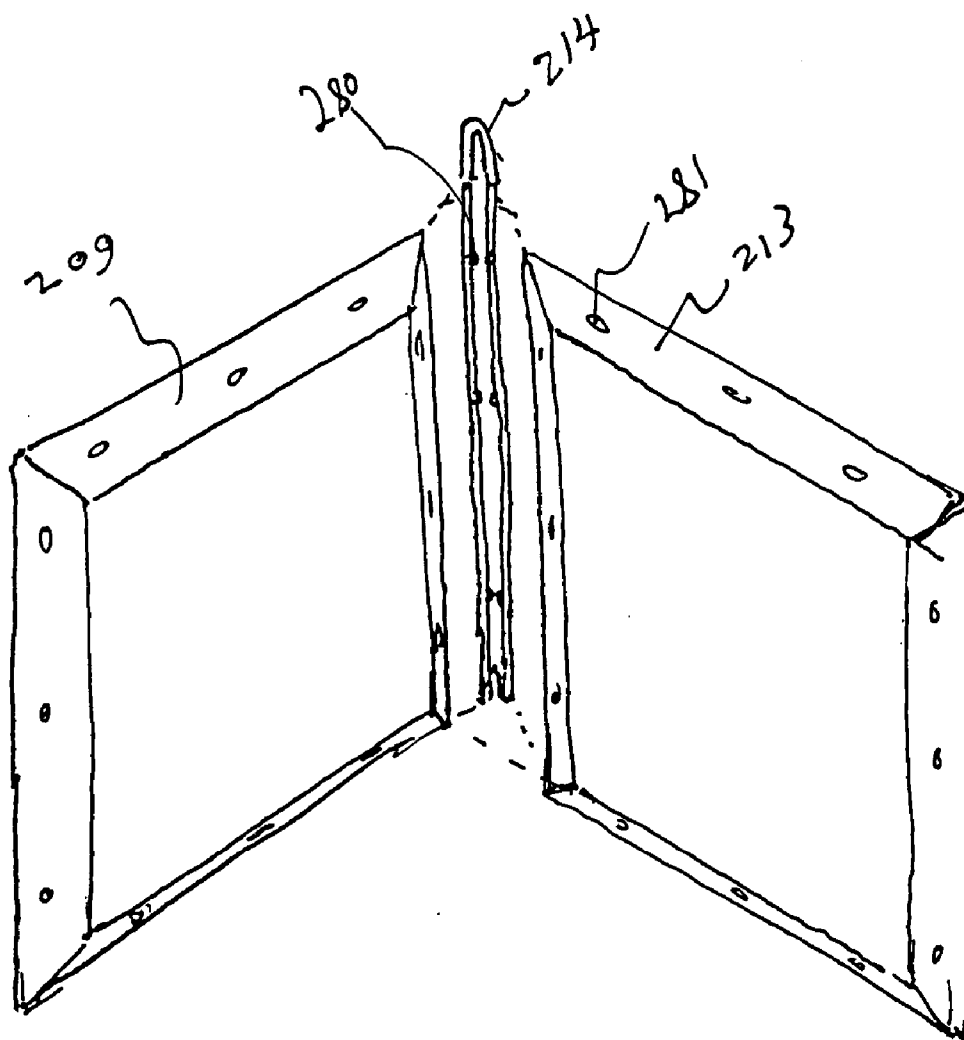


FIG. 14

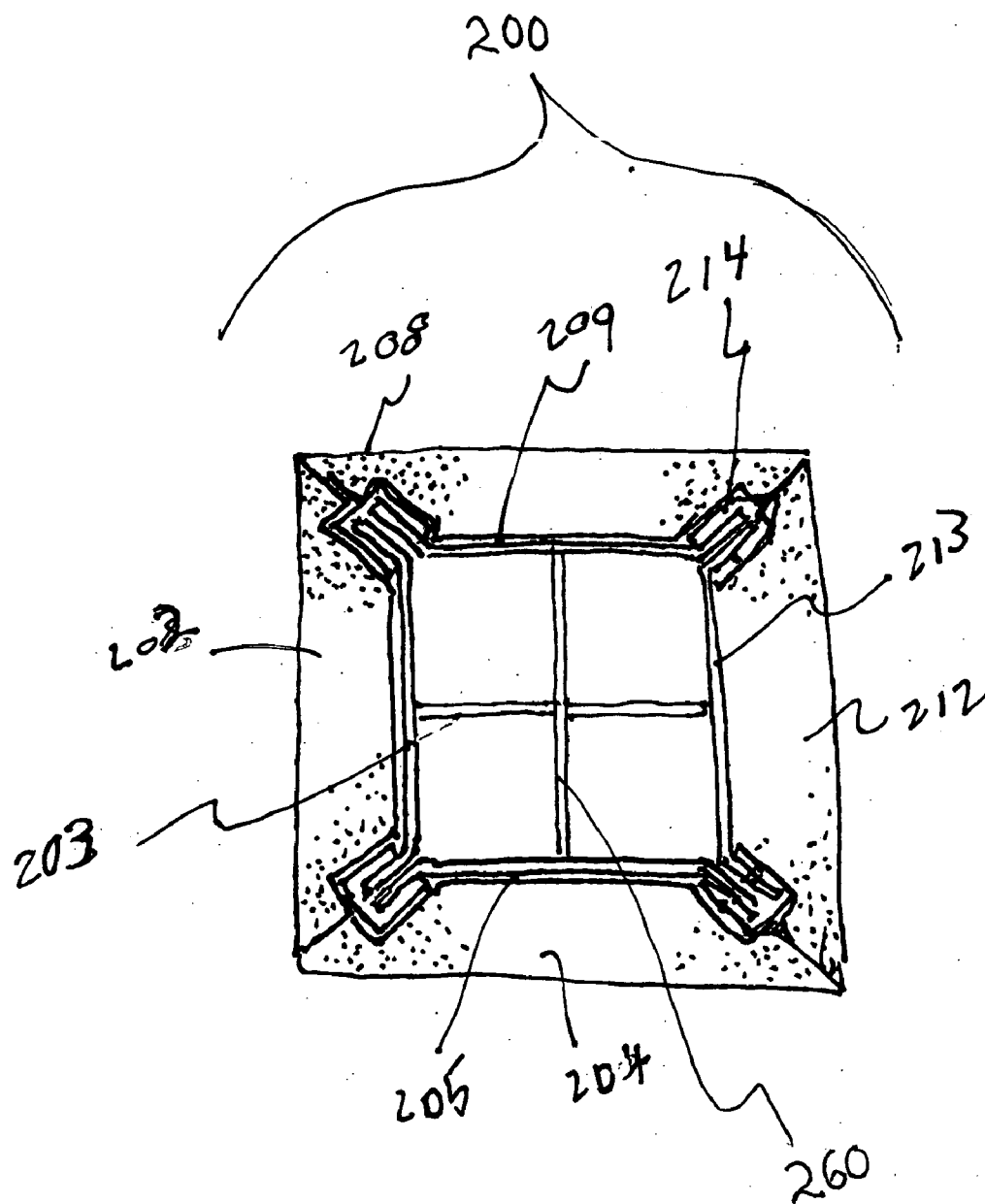


FIG. 15

## INTERACTIVE CUBE FURNITURE

### CROSS REFERENCE TO RELATED APPLICATIONS

[0001] Not Applicable

### STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not Applicable

### DESCRIPTION OF ATTACHED APPENDIX

[0003] Not Applicable

### BACKGROUND OF THE INVENTION

[0004] This invention relates generally to the field of upholstered furniture and more specifically to interactive cube furniture.

[0005] Upholstered padded furniture for the purpose of sitting or lying prone is very common in most households and office environments. Usually a piece of furniture is dedicated to one function such as a chair or bed and to a particular shape, such as a love seat or single club chair.

[0006] Various types of modular furniture have been designed and manufactured that allow a person to put a plurality of chair sections together to form a sofa or day bed.

[0007] Additionally, chairs been designed that convert from an upright back to a tilted back and raised foot portion, such as the well known Lazy Boy recliner.

[0008] Although these types of furniture perform adequately, they do not allow the user to purchase one furniture unit that can easily be folded into a variety of shapes to accommodate different seating and lying conditions. They also are not constructed of a plurality of identical structural elements that allow for economical manufacture and easy assembly. Finally, they do not generally allow the user to easily change upholstery coverings as often as desired.

### BRIEF SUMMARY OF THE INVENTION

[0009] The primary object of the invention is to provide a furniture system that uses identical cubes to make a variety of furniture shapes.

[0010] Another object of the invention is to provide an interactive cube furniture system where the cubes are hingedly attached so that they may be folded onto each other to create a variety of unique furniture shapes.

[0011] Another object of the invention is to provide an interactive cube furniture system where each cube is constructed of a plurality of flat panels that can be shipped flat and thereby take up less space for storage and shipping.

[0012] A further object of the invention is to provide an interactive cube furniture system where each assembled cube can be inserted into a multi-cube upholstery housing that forms a single structure having the ability to transform into a variety of furniture forms and making it easy to remove the cubes and insert them into a different upholstery housing as often as desired.

[0013] Other objects and advantages of the present invention will become apparent from the following descriptions, taken in connection with the accompanying drawings, wherein, by way of illustration and example, an embodiment of the present invention is disclosed.

[0014] In accordance with a preferred embodiment of the invention, there is disclosed Interactive Cube Furniture comprising: a square pad of poly foam material approximately eighteen inches on a side and approximately three inches thick having edges that taper forty-five degrees, a rigid square pan shape having edges that taper forty-five degrees and can fit snugly over said poly foam square, a U shaped channel that can connect the edge of one said pan the edge of another said pan, said foam and pan shapes assembled by said U shaped channels to construct a cube, said cubes capable of being inserted into an upholstery housing that can accept a plurality of said cubes, one panel of each cube of said upholstery housing capable of being opened via a zipper or other standard closure so that said cube assembly can be inserted and said upholstered cube can be zipped closed to form an entirely upholstered cube structure, and said upholstery structure using the flexible fabric of the upholstery construction to act as hinge members at certain locations thereby making the multi-cube assembly connected so that the cubes can be folded on top of each other in a variety of ways to create unique pieces of furniture from a single interactive system.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0015] The drawings constitute a part of this specification and include exemplary embodiments to the invention, which may be embodied in various forms. It is to be understood that in some instances various aspects of the invention may be shown exaggerated or enlarged to facilitate an understanding of the invention.

[0016] FIG. 1 is a perspective view of the invention.

[0017] FIG. 2 is a perspective view of two connected cubes of the invention.

[0018] FIG. 3 is a perspective view of a central cube of the invention.

[0019] FIG. 4 is a plan view of the invention.

[0020] FIG. 5 is a perspective view of the upholstery housing of the invention.

[0021] FIG. 6 is a perspective view of one cube folded up.

[0022] FIG. 7 is a perspective view of three cubes folded up.

[0023] FIG. 8 is a perspective view of a person sitting on the invention.

[0024] FIG. 9 is a perspective view of a sofa version of the invention.

[0025] FIG. 10 is a perspective view of an alternate version of the invention.

[0026] FIG. 11 is a perspective view of a furniture assembly formed by the alternate version of the invention.

[0027] FIG. 12 is an exploded view of a foam and pan portion of the invention.

[0028] FIG. 13 is an exploded view of the cube assembly

[0029] FIG. 14 is an exploded view of the joining of two pan portions.

[0030] FIG. 15 is a side section view of the cube of the invention.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0031] Detailed descriptions of the preferred embodiment are provided herein. It is to be understood, however, that the present invention may be embodied in various forms. Therefore, specific details disclosed herein are not to be interpreted as limiting, but rather as a basis for the claims and as a representative basis for teaching one skilled in the art to employ the present invention in virtually any appropriately detailed system, structure or manner.

[0032] Referring now to FIG. 1 we see a perspective view of the invention 100. The invention is comprised of a plurality of cubes that are held together at hinge points so that they can be folded over onto each other and interact to form a variety of furniture forms. The invention is formed of identical cube pairs 2, 4, 6, 8, and a central cube 10. A typical cube pair 2 as shown in FIG. 2 which shows two identical cubes 16, 18 connected by a fabric hinge 12. All sides of each of the cubes are upholstered. Central cube 10 is shown in FIG. 3 and includes fabric flanges 20, 22, 24, 26 that each attach to surrounding cube pairs 2, 4, 6, 8 as shown in plan view in FIG. 4. Central cube 10 also includes an upholstered panel on the top 30 and bottom, not shown. The dotted lines in FIG. 4 represent fabric hinge points. FIG. 5 shows the invention 100 turned upside down and showing the general upholstery housing, some hollow portions show unzipped panels 16A that are lifted up as shown by arrow 30. Foam cube assembly 200 can slip into the upholstered cube housing 16B and then zipper 32 or other known closure means closes the panel 16A to form an upholstered cube. In this way, a person can easily remove the cubes from one upholstery housing and insert them into one of a different color or pattern. Additionally, the user can remove and replace the cubes from the upholstery housing so that the upholstery portion may be cleaned. The foam cube assemblies 200 are identical and are composed of identical sub portions. FIG. 12 shows the key sub portions of foam pad 208 and rigid pan 209. Both the foam pad 208 and the pan 209 are square in shape and include forty-five degree mitered edges. The pan 208 fits snugly over the foam 209 and are held together by hook and loop fasteners 230, 232 or other known fasteners. A step 230 in the foam mitered edge allows the outside wall of the pan 209 edge to be flush with foam 208 edge. FIG. 13 shows an exploded view of a cube assembly 200 consisting of six foam panels 202, 204, 206, 208, 210, 212 and mating pan portions 203, 205, 207, 209, 211, 213. FIG. 14 shows a perspective view of two identical pan portions 209, 213 that are about to be connected by U shaped channel 214. Small protuberances 280 on channel 214 mate with apertures 281 in the pan 213 edge thereby keeping them from slipping up or down. FIG. 15 shows a section view of a cube 200. Foam panels 202, 204, 212, 208 are covered by pans 203, 205, 209, 213. The pans are held together by U channels 214. An optional inner egg crate type construction 260 made of corrugated fiber board or other rigid material can give extra strength to the cube so that it will hold additional weight. All the components of the cubes can be stored and shipped in a flat stacked form so that

they take up minimum space for shipping and storage and take up a minimum of space in a retail setting. Referring back to FIG. 6 we see the interactive cube assembly 100A where one cube is folded up as shown by arrow 180. In the preferred embodiment each cube is approximately eighteen inches on a side which makes them ideal for an adult seating environment. Obviously, smaller versions can be made for children, such as twelve inches on a side, or larger, such as twenty four inches on a side for oversized furniture. FIG. 7 shows the interactive cube assembly 100B where three cubes are folded up. FIG. 8 shows the cube furniture assembly 110B with a person 300 sitting on it. FIG. 9 shows another variation of the interactive cube assembly 100C so that it is conformed into a more standard sofa shape. FIG. 10 shows an alternate embodiment where each cube 402, 406 is has the same interior as the cubes shown in previous versions, but is covered in a loop type fabric that can removably retain a double sided hook type fastening plate 404 so that the cubes can be placed side by side or on top of each other in a wide variety of positions, one of which is shown in FIG. 11 as assembly 400. One other embodiment has been envisioned where the internal cube portions are constructed in a standard way, of RF welded poly vinyl panels that are assembled to form a cube shape which can then be inflated with air. Still another embodiment would use cubes made of solid foam and inserted into the upholstery housing as shown. Obviously, other configurations of cubes, either greater than, or less than the number shown in the present illustrations can be employed to create other configurations of interactive cube furniture.

[0033] While the invention has been described in connection with a preferred embodiment, it is not intended to limit the scope of the invention to the particular form set forth, but on the contrary, it is intended to cover such alternatives, modifications, and equivalents as may be included within the spirit and scope of the invention as defined by the appended claims.

What is claimed is:

1. Interactive Cube Furniture comprising:

- a square of poly foam material approximately eighteen inches on a side and approximately three inches thick having edges that taper forty-five degrees;
- a rigid square pan shape having edges that taper forty-five degrees and can fit snugly over said poly foam square;
- a U shaped channel that can connect the edge of one said pan the the edge of another said pan;
- said foam and pan shapes assembled by said U shaped channels to construct a cube;
- said cubes capable of being inserted into an upholstery structure that can accept a plurality of said cubes;
- one panel of each cube of said upholstery structure capable of being opened via a zipper or other standard closure so that said cube assembly can be inserted and said upholstered cube can be zipped closed to form an entirely upholstered cube structure; and
- said upholstery structure using the flexible fabric of the upholstery construction to act as hinge members at certain locations thereby making the multi-cube assem-

bly connected so that said cubes can be folded on top of each other in a variety of ways to create unique pieces of furniture.

2. Interactive Cube Furniture as claimed in claim 1 wherein said poly foam squares attach to said pan shapes by hook and loop fasteners or other known attachment means.

3. Interactive Cube Furniture as claimed in claim 1 wherein each said cube can contain an internal assembly such as egg crate construction corrugated fiberboard to further strengthen said cube thereby allowing it to support greater weight.

4. Interactive Cube Furniture as claimed in claim 1 wherein an alternate embodiment for attaching said cubes is to cover the outer surfaces of said cubes with a loop type fabric and to connect said cubes by squares of double sided hook type fastening plates thereby allowing the user to

assemble said cubes side by side in any combination or orientation to create unique furniture pieces.

5. Interactive Cube Furniture as claimed in claim 1 wherein an alternate embodiment for the internal structure of said cubes is to employ a cube consisting totally of poly foam rather than said combination of internal rigid construction and overlay of poly foam.

6. Interactive Cube Furniture as claimed in claim 1 wherein said cube size may vary from as little as twelve inches square, for children's furniture to as much as twenty-four inch's square for very large scale furniture.

7. Interactive Cube Furniture as claimed in claim 1 wherein an alternate version of said cubes are constructed of inflatable poly vinyl material and are hinged in a similar fashion as described in claim 1.

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