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Gorman

[11] **3,896,531**

[45] **July 29, 1975**

[54] **UPHOLSTERY SYSTEM METHOD AND APPARATUS**

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[52] **U.S. Cl.** **29/91.1;** 297/440

[51] **Int. Cl.** **B24b 39/00**

[58] **Field of Search** ..... 297/440; 160/392, 394, 160/395, 397; 24/243 K; 29/91.9

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Assistant Examiner—Andrew M. Calvert
Attorney, Agent, or Firm—Pravel & Wilson

[57] **ABSTRACT**

An upholstery system method and apparatus for furniture and the like in which the upholstery covering is releasably affixed to a base member for enabling changing of the covering as desired. A clasp apparatus adapted for mounting with the base member for releasably securing upholstery coverings such as sheets, panels, fabrics and the like with the base member is also disclosed.

3 Claims, 8 Drawing Figures

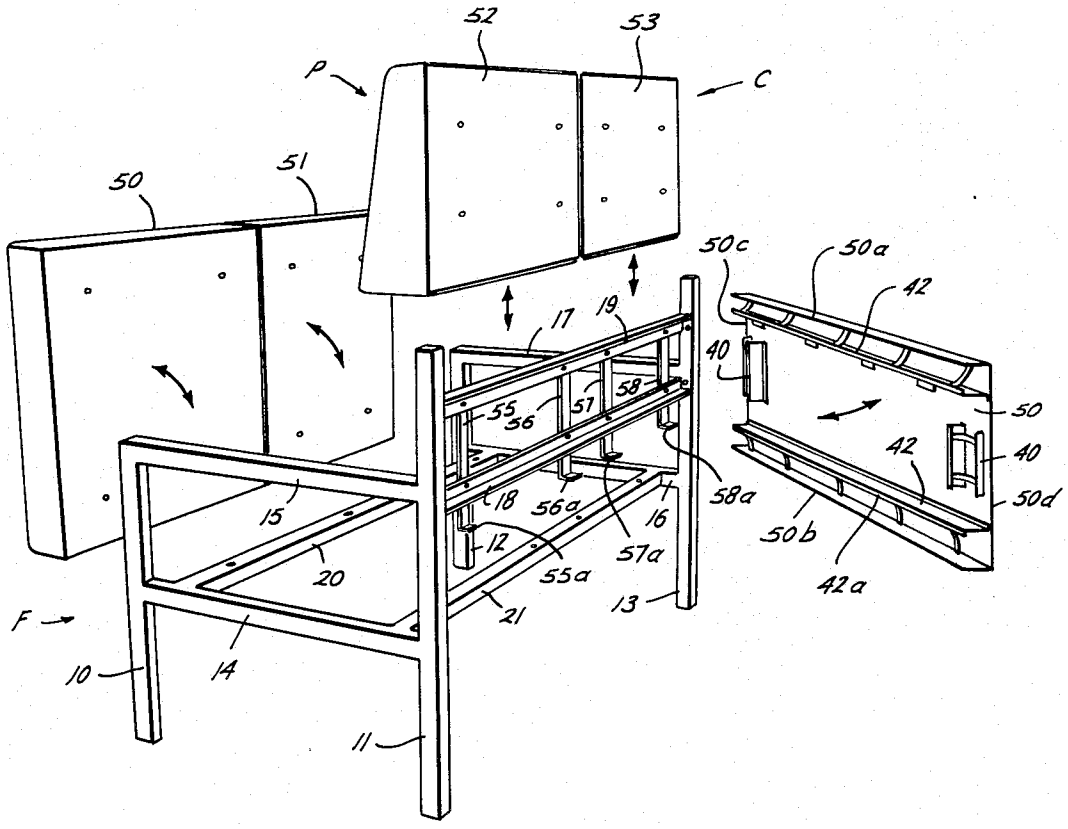


Fig. 1

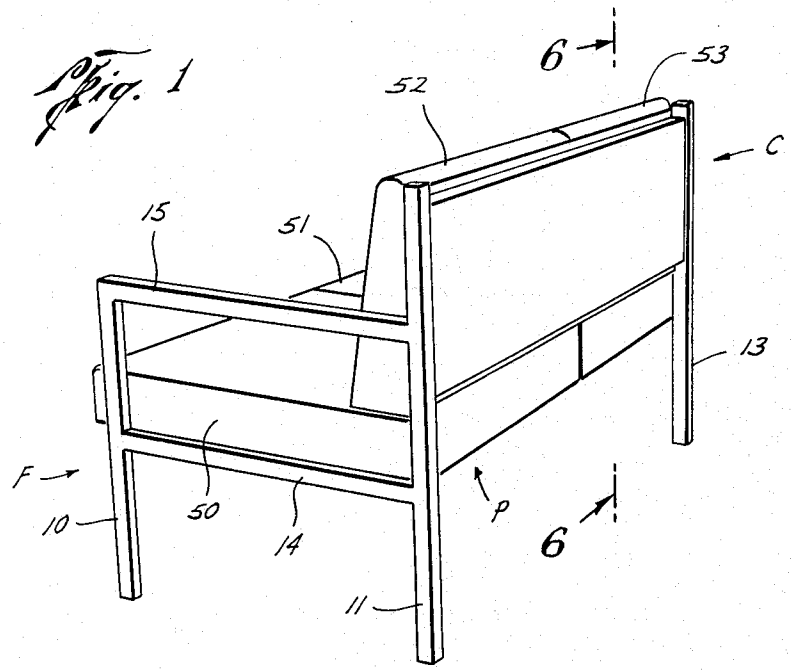

6
53
52
C
15
51
13
F
50
14
P
10
6
11

Fig. 2

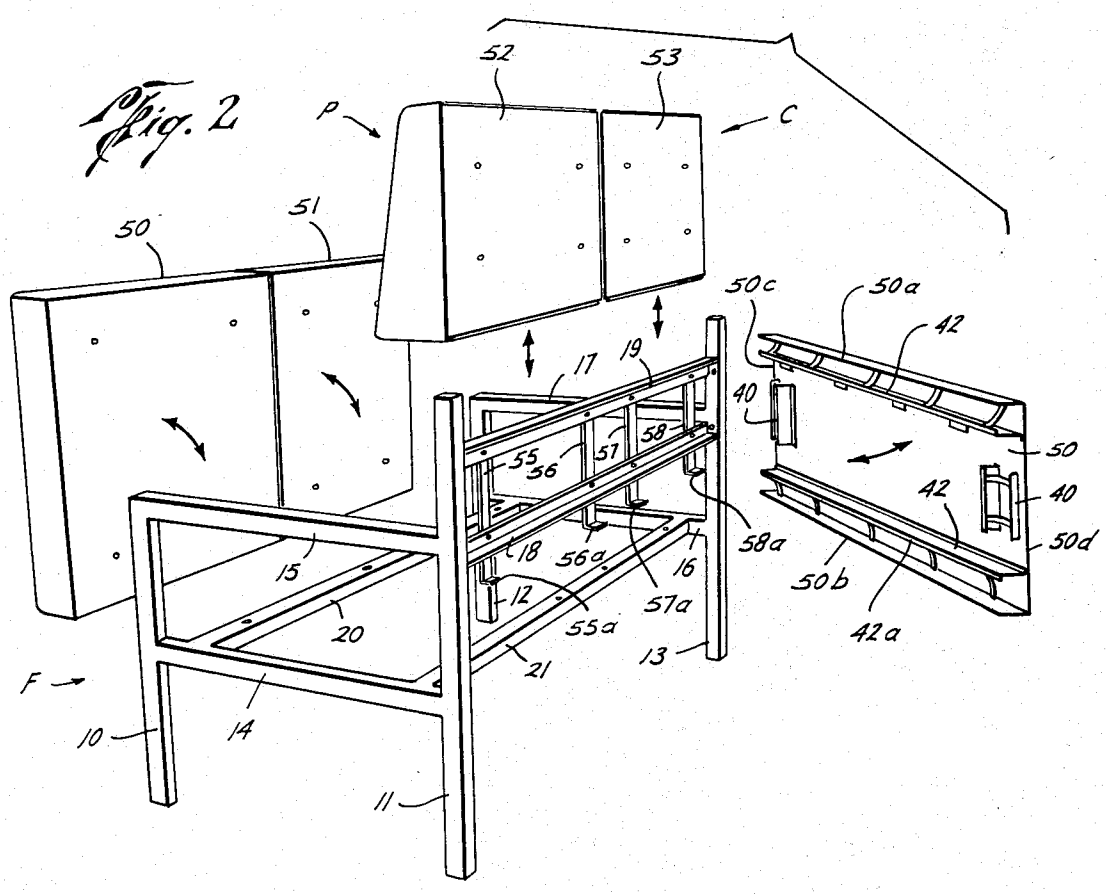

52
53
P
C
50
51
50c
50a
42
17
19
40
55
56
57
58
50
42
40
58a
50d
50b
18
56a
16
12
57a
55a
42a
15
20
13
21
F
10
14
11

Fig. 3

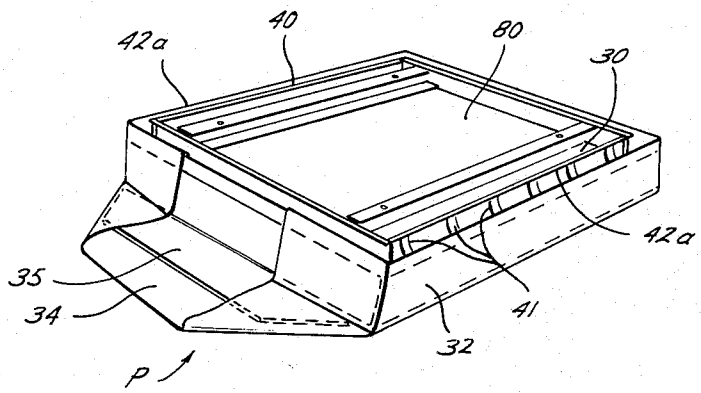


Fig. 4

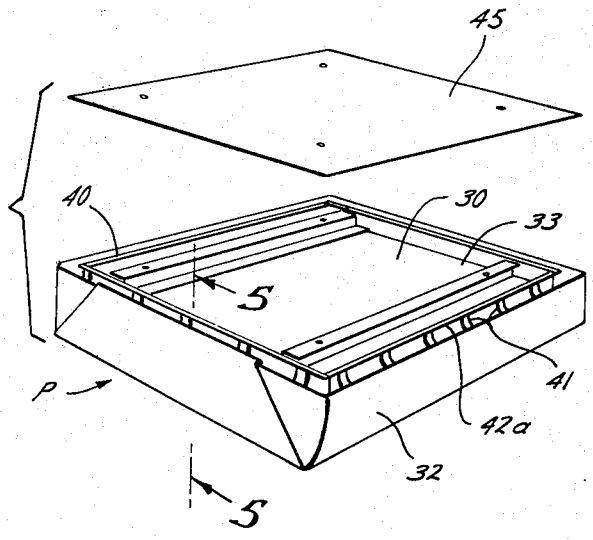


Fig. 5

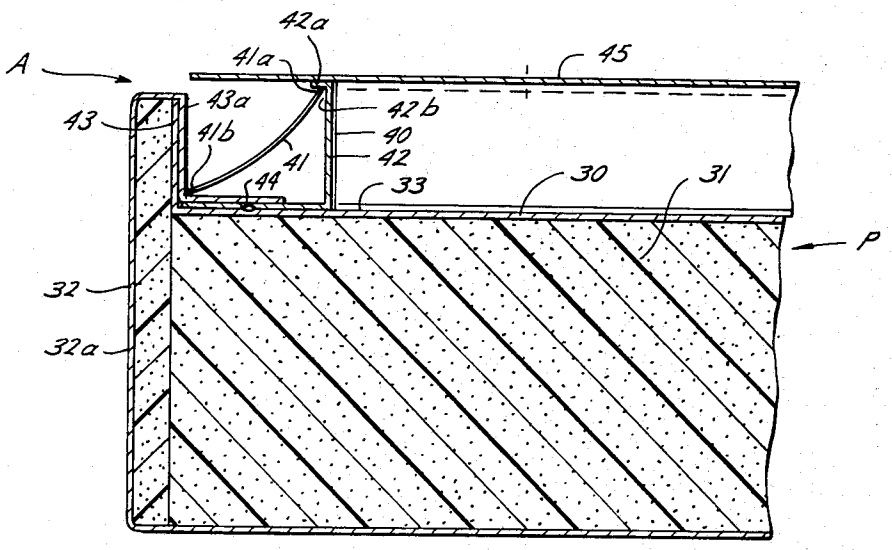


Fig. 6

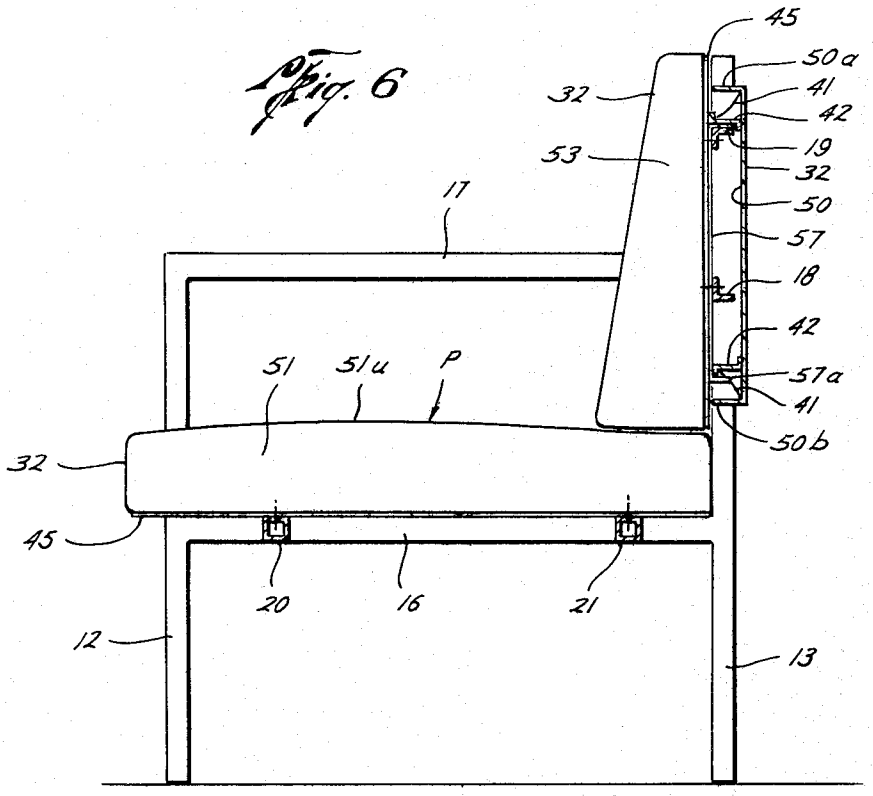


Fig. 7

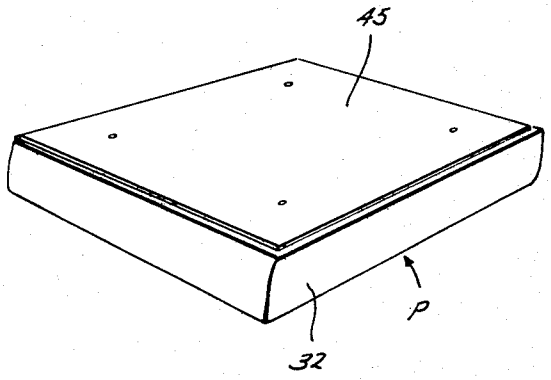
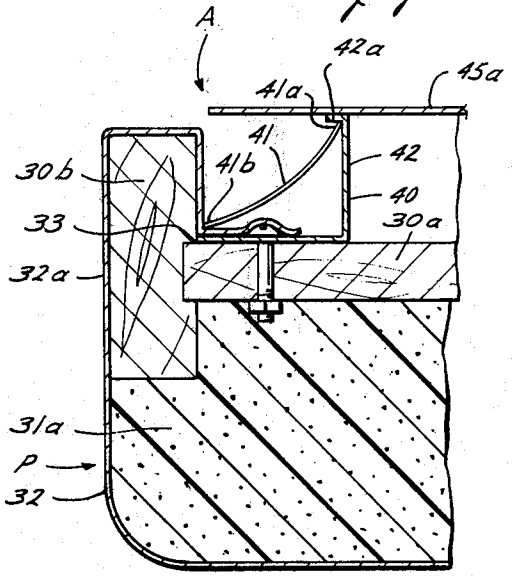


Fig. 8



UPHOLSTERY SYSTEM METHOD AND APPARATUS

BACKGROUND OF THE INVENTION

This invention relates generally to the field of an upholstery system method and apparatus and more particularly to an upholstery system for securing upholstery coverings and the like with a base member to form a cushion structure without sewing or otherwise seaming the covering.

Upholstering of furniture and the like has previously required the expensive services of skilled craftsman in fabricating and permanently attaching the covering material to furniture. Damage to such upholstery was expensive and difficult to properly repair which was a major disadvantage in some commercial applications where the furniture was continually subjected to extreme abuse. In addition, permanently attached decorative upholstery coverings have limited the number of creative options available to interior decorators as well as requiring furniture dealers to stock large expensive inventories of furniture.

Snap fasteners or clasps, such as disclosed in U.S. Pat. Nos. **1,896,200** and **1,907,785,** have been known for some time. Many fasteners, such as disclosed in U.S. Pat. No. **3,310,861** were permanently deformed when installed were therefore usable only once. Specialized fasteners used for particular purposes as disclosed in U.S. Pat. No. **1,864,477** were also known. Other prior art fasteners, for example, such as disclosed in U.S. Pat. No. **1,940,636,** required that special tools be used to attach the clasp or fastener.

SUMMARY OF THE INVENTION

Method and apparatus for an universal upholstery system suitable for use with furniture in which a covering is releasably affixed to a base member to permit rapid and frequent changing of the covering when desired without special tools or skills while presenting a pleasing appearance comparable to that achieved by conventional upholstering methods. A clasp apparatus having a clamp frame, mountable with a cushion base, for receiving and holding a plurality of resiliently deformable steel strip beam members therein for securing upholstery fabrics and the like with the clasp frame in response to the deformation of the steel strips is employed to form an upholstery cushion.

An object of the present invention is to provide a new and improved upholstery system method and apparatus.

Another object of the present invention is to provide a new and improved clasp apparatus.

A further object of the present invention is to provide a new and improved upholstery cushion.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of the back portion of an upholstered chain utilizing the upholstery system of the present invention;

FIG. **2** is a view similar to FIG. **1** illustrating the manner of assembly of upholstered cushions with the chair frame;

FIG. **3** is a perspective view of an inverted seat cushion with the upholstery material partially installed;

FIG. **4** is a view similar to FIG. **3** with the upholstery material fully installed and bottom covering aligned for attachment;

FIG. **5** is a view taken along lines **5—5** of FIG. **4**;

FIG. **6** is a view taken along lines **6—6** of FIG. **1**;

FIG. **7** is a view similar to FIG. **4** illustrating a second manner of installing the upholstery material; and

FIG. **8** is a side view in section, of an alternate cushion employing the clasp apparatus of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. **1** illustrates a chair device C employing the upholstery system method and apparatus of the present invention. While the preferred embodiment of the present invention disclosed will be for a two chair chair device C, it is readily apparent that the chain device C may include either single person chair devices or chair devices capable of supporting more than two persons.

The chair device C includes a support frame F and one or more support pads P mountable on the frame F. The pads P may be provided with a layer of cushioning material for the user and may be in dimensioned to provide support for more than a single user.

The present invention is also directed to a clasp apparatus, generally designated A in FIG. **5,** mounted with a pad base structure for releasably securing upholstery coverings, sheets, panels, films, fabrics and the like with the structure in a desired manner. The clasp apparatus A is equally well suited for releasably securing any material of this general nature and the apparatus A should not be considered limited in any manner by the type or nature of the materials secured thereby.

The clasp apparatus A is particularly well suited for use in upholstering furniture and will be disclosed hereinafter for use in the upholstered chair device, but the clasp apparatus A should not be considered limited to upholstered furniture as it may be utilized in other applications although it is an integral portion of the upholstery system of the present invention.

As illustrated in FIGS. **1** and **2,** the support frame F includes one or more substantially vertical or upright support members **10, 11, 12** and **13.** The front vertical leg **10** is connected to the rear vertical leg **11** by a pair of spaced, parallel, horizontal members **14** and **15,** with the upper horizontal member **15** also providing or forming an arm rest as is well known. The front and rear vertical legs **12** and **13** are connected in a similar manner by the horizontal members **16** and **17.** The rear vertical legs **11** and **13** are connected by a pair of spaced, substantially horizontal members **18** and **19** which also provide back support for the frame F while the lower horizontal side support members **14** and **16** are connected by a pair of spaced parallel members **20** and **21.** Preferably, but not necessarily, the frame F is made from structural aluminum or steel members and fabricated by welding to achieve a pleasing appearance. The support frame F may be designed in any style and as noted hereinabove designed to support any number of users. Also, if desired, the arm rest formed by the upper horizontal members **15** and **17** may not be employed.

The upholstery pads P are mounted or located on the frame F to provide desired support for the user in the well known manner. As illustrated in FIG. **5,** the pads P include a pad base or structural frame member **30** of any desired shape for mounting a suitable cushion or padding material **31** for user comfort. The padding material **31** may also be of any desired shape and is cov-

ered by an upholstery fabric or covering **32** to achieve a pleasing appearance and durability of use. The fabric **32** is releasably secured to the pad base or structural frame **30** by the clasp apparatus A and which may also, but not necessarily, serve to secure the cushion **31** with the structure **30.**

The clasp apparatus A, illustrated in FIG. **5,** includes a clamp frame **40** mounted with a substantially flat lower surface **33** of the pad structural member **30** about its periphery and a resiliently deformable beam or clip member **41** mounted with the clamp frame **40** at a first end **41***a* and with a second end **41***b* coacting with the clamp frame **40** for securing the sheet of upholstery material **32** with the clamp frame **40** in response to the deformation of the beam member **41.** It will be immediately apparent to those skilled in the art that the fabric **32** may be placed in engagement with either the first end **41***a* or the second end **41***b* of the beam **41** or both ends **41***a* and **41***b* for securing the fabric **32** with the clamp frame **40.**

The clamp frame **40** is preferably formed of a pair of longitudinally extending structural angle members **42** and **43** secured together, such as by spaced spot welds **44,** to form a substantially U-shaped channel member having a substantially uniform cross-sectional shape along its entire longitudinal length. In the embodiment illustrated in FIG. **5,** the angle member **43** is formed integral with the structural support member **30,** but it is readily apparent that the member **43** may be formed by a separate member secured to the structural member **30.** Both the formation of the clamp frame **40** integral with and mountable on the base member **30** is within the scope of the present invention. The first member **42,** having a shoulder portion **42***a* extending therefrom, forms a first surface shape or corner **42***b* for receiving the end **41***a* of the beam **41** and holding the end **41***a* in a position for blocking undesired movement of the beam to release the desired securing deformation when secured in the clamp frame **40.** The frame **40** forms a second surface shape or corner **43***a* with the inner surface of the angle **43** having a shape coacting with the end **41***b* for securing the upholstery fabric **32** with the clamp frame **40** while blocking undesired movement of the end **41***b* of the beam **41** to release the desired securing deformation of the beam **41.** The distance between the spaced, parallel corners **42***b* and **43***a* of the frame **40** are dimensioned less than the length of the beam **41** to resiliently deform the beam **41** when secured therein for holding the fabric **32** in position. The lip **42***a* is sized to enable the beam **41** to move into the securing position by deformation thereof and which will move to the securing position by resilient recovery from the deformed position in moving past the lip or shoulder **42***a.* Preferably, the shoulder **42***a* is dimensioned to enable the beam **41** to be snapped into position or removed by hand and without the need for special tools and the like.

For ease of releasably securing the securing fabric **32** with the clamp frame **40,** the beam **41** is preferably formed from a ribbon-like strip of spring steel which may be easily snapped in and out of the frame **40** by manipulation with the thumb and finger when desired. This construction enables the installation and removal from the clamp frame **40** of the beams **41** at a plurality of locations along the frame **40** for securing the fabric **32** without damage thereto or the need for special tools or training.

An escutcheon or decorative panel **45** may be secured with the base member **30** to conceal the clasp apparatus A and provide a more pleasing appearance to the pads P.

A second embodiment of the clasp apparatus A is illustrated in FIG. **8,** where the clamp frame **40** is secured with a wooden pad structure member **30***a* having a peripheral edge member **30***b* mounted therewith which cooperates with the angle member **42** to form the clamp frame **40** for deformably receiving the beam or snap member **41** therein. One or both ends of the beam **41** may cooperate with the clamp frame **40** for securing the upholstery fabric **32***a* with the frame **40** in response to the deformation of the beam **41.** A suitable panel **45***a* may be utilized in this embodiment to shield the clasp apparatus A from view and which is secured with the frame member **30***a* by any suitable means (not illustrated).

In the use and operation of the present invention, the frame F is fabricated as desired in any well known manner. The cushion or pad frames **30** are independently formed to provide the projecting member **43** thereon. The angles **42** are then located adjacent the member **43** with the longitudinally extending lip portion **42***a* projecting towards the peripheral member **43** and secured with the structural member **30.** The layer of cushion material means **31** is then mounted with the frame **30** and is preferably secured in a desired position by suitable means such as glueing and the like. Any suitable resilient cushioning material such as a spring arrangement or foamed rubber-like material may be employed although use of the latter is illustrated. The cushioning material may be encapsulated in a fabric covering in the usual manner, but such a covering is not necessary. The cushioning material **31** may be of uniform thickness, such as employed in the bottom cushions **50** and **51** or may be of a non-uniform thickness or shape such as employed in the back cushions **52** and **53.** The clasp apparatus A of the present invention is equally well suited for any shape of cushioning material **31.**

The upholstery fabric **32** is then placed on a work surface with a desired outside facing or viewed surface **32**a facing downwardly. Should it be desirable to use an inner covering **34** (FIG. **3**) to provide a slip plane for enabling relative movement between the layer of cushioning material **31** and the outer or upholstery covering **32** it is then placed over the covering **32.** The frame **30** and cushion material **31** are then placed on the upholstery fabric **32** with the cushion material **31** adjacent the covering **32.** One peripheral edge of the upholstery material is placed in the clamp frame **40** and a plurality of beams **41** are snapped into the securing position to secure the material **32** along one edge of the cushion or pad P. The opposite edge of the upholstery material is then placed in the clamp frame **40** opposite the previously secured edge and a plurality of beams **41** are snapped in the securing position in the clamp frame **40** along this edge of the pad P to secure the upholstery material **32** with the opposite edge of the cushion P. Trimming of the upholstery material **32** is not necessary to place the cushion P in the condition illustrated in FIG. **3.**

At this time, it is only necessary to repeat the sequence of positioning the remaining edges of the upholstery material in the clamp frame **40** and snapping the plurality of beam members **41** into position for securing these two opposite edges of the upholstery material

with the clamp frame **40**. It will also be immediately appreciated that the clasp apparatus A of the present invention is equally well suited for use with angular-folded crease corners (FIGS. **3** and **4**) and square-folded crease corners (FIGS. **1, 2, 6** and **7**) although the latter is preferred. As illustrated in FIG. **3**, a flat fold bar member **35** may be placed in either type of corner fold to present an attractive wrinkle-free covering **32** when viewed by hiding the folded double thickness of material behind the member **35**. The covering panel **45** is then secured in position by attaching to the cushion base **30** and the cushion P is then complete. The above sequence is repeated to assemble any number of desired cushions P. While the most desirable shaped cushion for ease of assembly is square, the shape and size of the cushion may be varied as desired.

As illustrated in FIG. **6**, the cushions P are preferably given a slightly domed shape adjacent the cushion support area indicated at **51***u* prior to mounting on the frame F to provide sufficient slack in the covering **32** when the cushions P are used to eliminate undesired stretching or deformation of the covering **32**. The dome effect may be achieved when initially forming the dome with the cushion material **31**, by adding appropriately shaped additional layers of cushion material either before or after securing the covering **32** to the frame **30** or by the use of a removably securable support pan like plate **80** (FIG. **3**) forcing the center of the cushion material **32** into the shape of a dome. Of course, the dome effect may be obtained by other methods well known to those skilled in the art.

The bottom or seat cushions **50** and **51** are secured with the horizontal members **20** and **21** by any suitable means, such as, but not limited to, bolting and the like. The back cushions **52** and **53** are secured to the back supports **18** and **19** in a similar manner.

As illustrated in FIG. **2**, clasp apparatus A of the present invention may also be utilized to releasably secure an upholstery fabric with a base member or removable panel **50** employed to provide a more desirable appearance for the chair C. The panel **50** includes upper and lower rearwardly extending peripheral lips or edges **50***a* and **50***b* cooperating with a pair of angles **42** to form a clamp frame adjacent the edges **50***a* and **50***b*. Separate U-shaped clamps **40** are secured to the back side of the panel **50** adjacent to edges **50***c* and **50***d* for securing the upholstery fabric **32** along those edges. The upholstery fabric **32** is installed in the peripheral clamp frame **40** along the edges **50***a*, 50*b*, 50*c* and **50***d* in the manner set forth hereinabove.

Mounted with the horizontal back braces **18** and **19** and a plurality of four downwardly projecting resilient mounting fingers **55, 56, 57** and **58** respectively. As illustrated in FIG. **6**, the members **55, 56, 57** and **58** are dimensioned to receive the angle **42** adjacent the lower surface **40***b* on the lugs **55***a*, 56*a*, **57***a* and **58***a* respectively, for supporting the panel. The angle **42** adjacent the upper edge **50***a* is dimensioned to engage the horizontal cross-member **19** for supporting the panel **50** thereon, and for forcing the portion **42***a* of the frame **42** adjacent the lower shoulder **50***b* to deform the lugs **55***a*, 56*a*, 57*a* and **58***a* for securing the panel **50** with the frame F. Other means of securing the base member are panel **50** with the frame F without departing from the scope of the present invention.

The foregoing disclosure and description of the invention are illustrative and explanatory thereof, and various changes in the size, shape, and materials as well as in the details of the illustrated construction may be made without departing from the spirit of the invention.

I claim:

1. A method of releasably securing a sheet of unformed decorative upholstery covering material to a base member having a cushion portion to form an upholstered cushion, including the steps of:

providing a cushion portion for a base member in a desired shape with the cushion portion forming at least one cushion corner;

arranging the sheet of unformed decorative upholstery covering material by positioning the sheet of unformed decorative upholstery covering material about the cushion portion in a desired manner;

folding the sheet of unformed decorative upholstery covering material at each cushion corner formed by the cushion portion in a manner for forming a sheet of folded decorative upholstery covering material about the cushion portion in a desired manner for viewing;

placing a shield member within a fold to eliminate wrinkles formed in the viewed surface of the sheet of upholstery covering material by the portion of the sheet of upholstery covering folded behind said viewed surface of the sheet of upholstery covering; and

deforming resiliently by engaging with the base member a plurality of clip members also engaging the sheet of folded decorative upholstery covering material without the use of tools for providing a plurality of forces for releasably securing the folded sheet of decorative upholstery covering material with the base member while avoiding piercing or damaging of the sheet of unformed decorative upholstery covering material.

2. The method as set forth in claim **1**, including the step of:

releasing the plurality of clip members without the use of tools to enable changing of the sheet of unformed decorative upholstery covering when desired without damaging the sheet of unformed decorative upholstery covering material.

3. A method of releasably securing a sheet of unformed decorative upholstery covering material having first and second opposed edges to a base member having first and second opposing side portions and a cushion portion to form an upholstered cushion, including the steps of:

disposing a sheet of unformed decorative upholstery covering material about the cushion portion in a desired manner;

arranging the first edge of the unformed decorative upholstery covering material adjacent the first side portion of the base member;

securing the first edge of the unformed decorative upholstery covering material by deforming resiliently a plurality of clip members adjacent the first side portion of the base member and the decorative upholstery covering material for providing a plurality of forces for releasably securing the first edge of the decorative upholstery covering material to the base member while avoiding the piercing or damaging of the decorative upholstery covering material;

arranging the second edge of the upholstery covering material adjacent the second opposing side portion of the base member;

securing the second edge of the upholstery covering material by deforming resiliently a plurality of clip members adjacent to the opposing second side portion of the base member and the decorative upholstery covering material for providing a plurality of forces for releasably securing the second edge of the decorative upholstery covering material to the base member while avoiding the piercing or damaging of the upholstery covering material and for providing a wrinkle-free upholstered cushion;

folding the sheet of unformed decorative upholstery covering material at each cushion corner formed by the cushion portion in a manner for forming a sheet of folded decorative upholstery covering material about the cushion portion in a desired manner for viewing;

placing a shield member within a fold to eliminate wrinkles formed in the viewed surface of the sheet of upholstery covering material by the portion of the sheet of upholstery covering folded behind said viewed surface of the sheet of upholstery covering; and

deforming resiliently by engaging with the base member a plurality of clip members also engaging the sheet of folded decorative upholstery covering material without the use of tools for providing a plurality of forces for releasably securing the folded sheet of decorative upholstery covering material with the base member while avoiding piercing or damaging of the sheet of unformed decorative upholstery covering material.

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