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ELASTOMER FURNITURE SUPPORT

Filed March 18, 1963

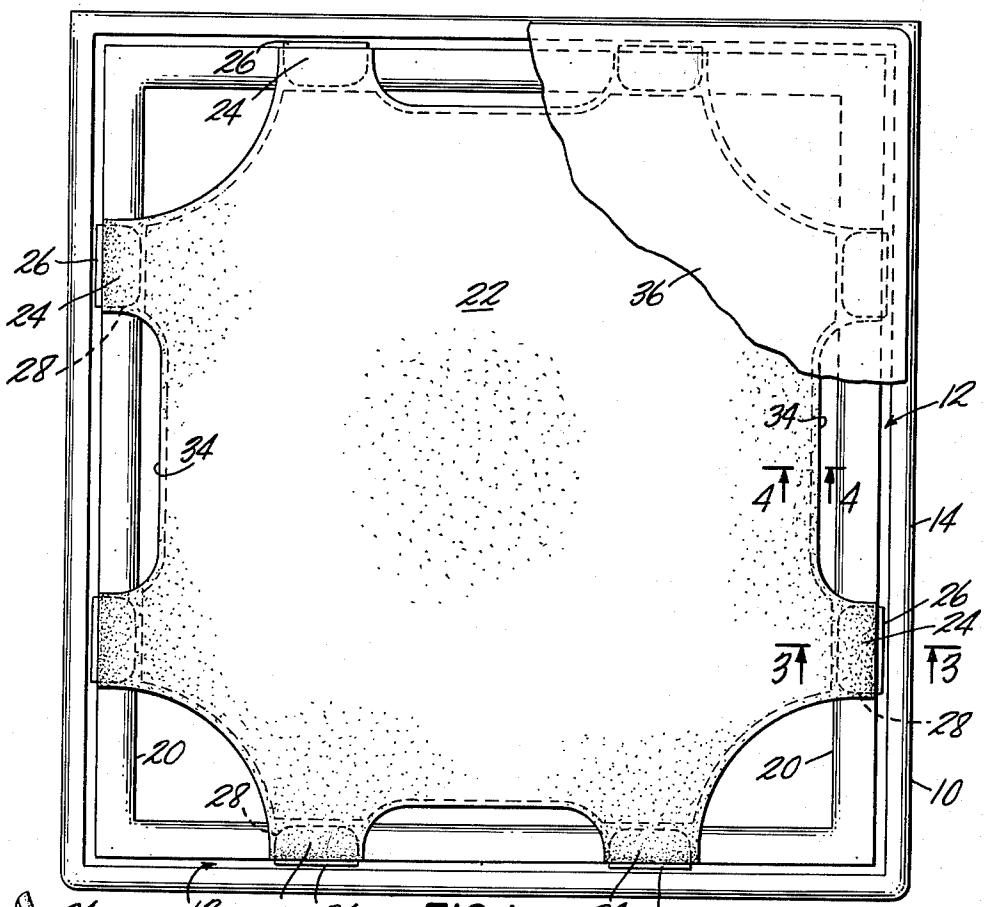


FIG. 1

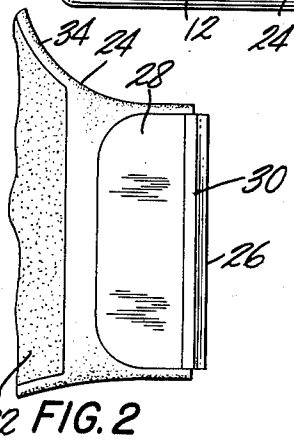


FIG. 2

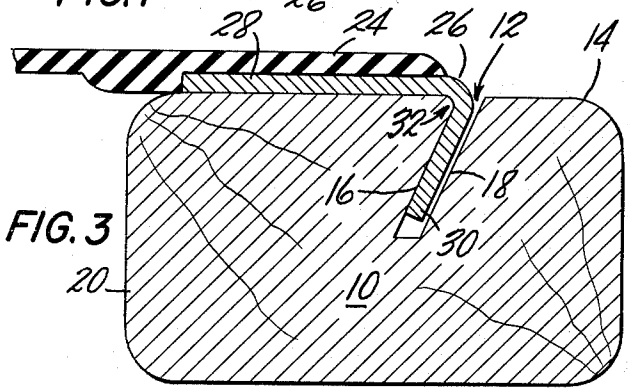


FIG. 3

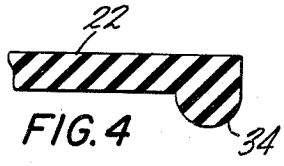


FIG. 4

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ELASTOMER FURNITURE SUPPORT

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The present invention relates to furniture, and more particularly to elastomer supports therefor.

A popular type of construction for chairs or sofas is one in which loose cushions rest on elastomer supports suspended in frames forming a portion of either the back rests or seats of the chairs and sofas. In accordance with the present invention the elastomer supports are held suspended in the frames by metal hooks which are bonded to the supports and inserted into grooves on the frames. With such a hook and groove arrangement, the elastomer supports are quickly attached to the frames by unskilled workmen and the elastomer supports, the hooks, and the grooves are covered by the cushions in the completed chairs and sofas so that they will not be visible.

Preferably the elastomer supports are in the form of platforms with the hooks positioned all around the periphery thereof. This keeps the platforms in a predetermined position in the frame which, in combination with the hook and groove arrangement, prevents the platform from becoming accidentally removed from the frame.

It is also desirable that the hooks be attached to tabs curving smoothly out from the main body of the platform and that the platform be thicker at these tabs and all around the edge of the platform for the proper distribution of the forces exerted on the platform by the hooks. Proper force distribution is important because it prevents tearing and ripping of the platform and assures the platform will be uniformly resilient across the entire surface.

For a better understanding of the present invention the following description of an embodiment thereof should be read while referring to the accompanying drawings of which:

FIG. 1 is a top view of an elastomer platform positioned on a wooden frame;

FIG. 2 is a bottom view of a tab and metal hook used in attaching the platform to the frame;

FIG. 3 is a section along line 3—3 through a metal hook, the wooden frame and the elastomer tab; and

FIG. 4 is a section along line 4—4 through the edge of the platform.

In the illustrated embodiment, a rectangular wooden frame **10** has a groove **12** in its upper surface **14**. This groove extends around all four sides of the frame and has side walls **16** and **18** which slant inwardly from the upper surface **14** of the frame towards the inner surface **20** of the frame.

Stretched over the top of the frame is a substantially rectangular elastomer platform **22** with tabs extending outwardly at right angles from each of its four sides. The tabs are arranged in opposing pairs and each tab **24** has a piece of metal attached to it by bonding during the forming of the platform. The metal pieces are rectangular pieces of steel plate bent to form V-shaped, acute angled hooks **26**. The longer portion **28** of each hook is bonded to the tab, and the shorter portion **30** extends away from the surface of the platform, facing inwardly towards the hook on the opposing tab.

To assemble the platform **22** on the frame, the platform is stretched and the smaller end **30** of each hook **26** is placed into the groove **12** flat against the interior wall **16** of the groove. With the hooks in position the platform is held stretched across the frame by the hooks, and the hooks in turn are held against the interior wall **16** of the groove and the upper surface **14** of the frame by the forces

in the platform trying to restore the platform to its unstretched configuration.

The acute angle **32** between the planar longer **28** and shorter **30** portions of the hook and the angle between the planar inner wall **16** of the groove and the top surface **14** of the frame are equal so that each hook is held flat against the surfaces **14** and **16** of the frame and the groove respectively by the platform's restoring forces. In addition, most forces normally exerted on the platform would also tend to force the hooks against the surfaces **14** and **16** of the frame and the groove so that it is very unlikely that any of the hooks would be accidentally knocked loose from the frame.

Preferably the acute angle **32** is between 25° and 85° since this has been found to be the best range consistent with providing both quick installation of the platforms onto frames and sufficient grasping of the frame by the hooks. However, any angle less than 90° and more than 0° is operable under the proper conditions.

As pointed out previously, the platform is attached to the frame by hooks extending from all four sides. This is very important since it assures that when the platform is inserted into the frame it will be oriented in a position predetermined by the design of the platform and the frame, and when the platform is accidentally displaced it will be returned to the predetermined position by the restoring forces. This, in combination with the hook and groove arrangement described above, reduces the possibility of accidental removal of the platform from the frame to a minimum.

The tabs and the edge of the platform **34** are thicker than the remainder of the platform to facilitate the bonding of the hooks to the tab and to distribute the forces exerted at the tabs. This prevents tearing of the platform in the area of the tabs and makes the platform uniformly resilient over its entire surface for sitting comfort.

After the platform **22** has been assembled in the frame the cushion **36** is put in place over the platform. As shown, the cushion completely covers the groove, metal hooks and the platform to make the assembled chair or sofa aesthetically appealing.

Described above is just one embodiment of the present invention and it should be realized that modifications of this embodiment are possible. For instance, instead of using a platform for the support for the cushions a number of strips of elastomer could be used. Therefore it will be understood that this is intended to cover all changes and modifications of the embodiment of the invention herein chosen for purpose of illustration which do not depart from the spirit and scope of the invention.

I claim:

1. A device comprising a frame with an opening therein, said frame having groove means around the opening extending inwardly from the surface of the frame towards the opening, an elastomer support tensioned across the opening, and at least two V-shaped metallic hooks bonded to the platform facing each other and positioned in part in the groove means to be held against the walls of the groove means and forced towards the surface of the frame by the restoring force in the tensioned support.

2. A seat comprising a frame having groove means extending from one surface of the frame into the frame towards the center of the frame, an elastomer platform tensioned across the center of the frame, said elastomer platform having extending tabs positioned around its periphery in opposing pairs and a V-shaped metal hook bonded to each of the tabs with the hook facing towards the opposing tab the hooks being positioned in part in the groove means to be forced towards the walls of the groove means and the surface of the frame by the restoring force in the tensioned platform.

3. The structure of claim 2 wherein the periphery of the platform is curved adjacent each of the tabs.

4. The structure of claim 3 wherein the tabs and the periphery of the platform are thicker than most of the remaining platform.

5. A support member comprising an elastomeric platform having integrally formed elastomeric tabs extending therefrom in a force opposing relationship, V-shaped metal clips having two flat opposing arms which are arranged at an acute angle of between 25 and 85 degrees with respect to one another, the outer side of one of said arms of each such clip being bonded to a separate one of said tabs, a frame positioned under the platform and having groove means in its top surface which receives the other arm of each of said clips to hold the platform under tension across the frame, the angle of said groove means with respect to the top surface of the frame being substantially the same as the angle between the two arms of the clips so that the clips are forced towards the top of the frame and the wall of the groove means and said groove means being substantially longer than the width of the clips to permit adjustment of the position of the clips in the groove means.

6. A support member comprising an elastomeric platform having integrally formed elastomeric tabs extending therefrom in more than two directions in a force opposing relationship; substantially rigid V-shaped clips having two substantially flat opposing arm portions which are arranged at an acute angle with respect to one another, the first of said flat opposing arm portions of each such clip being bonded to a separate one of said tabs; and a frame having slot means in its surface which receive the second of said flat opposing arm portions of said clips to hold the platform under tension across the frame said slot means being substantially longer than the width of said second of said flat opposing arm portions to permit the adjustment of the position of the clips in the slot means.

7. A support comprising a frame having groove means extending into the frame at an acute angle to the surface of the frame, substantially rigid V-shaped clips having two substantially flat opposing arm portions which are arranged with respect to each other at an acute angle that is substantially the same as the acute angle at which the groove means extends into the frame with respect to its surface, said clips being distributed around the frame, one of said arms of each clip overlying the surface of the frame and the other arm of each clip extending into the groove means at substantially said acute angle to the surface, and an elastomer platform tensioned across the frame and bonded to the clips to hold the platform under tension on the frame and said clips forced into the groove means and towards the surface of the frame by the restoring force in the tensioned elastomer platform.

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