

[54] CUSHION OR MATTRESS CONSTRUCTION

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[51] Int. Cl. .... A47c 27/04, A47c 27/20

[58] Field of Search ..... 5/345, 351, 353, 354

[56]

References Cited

UNITED STATES PATENTS

2,862,214	12/1958	Thompson et al. ....	5/353
2,878,012	3/1959	Crites.....	5/353
3,178,735	4/1965	Thompson et al. ....	5/353
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[57]

ABSTRACT

A cushion or mattress is provided which is formed of a plastic foam structure having top and bottom walls containing a plurality of coil springs extending between the top and bottom walls, each of the coil springs being completely enclosed in a synthetic fabric casing, and the springs and casings completely filling the interior of the foam structure in a side-by-side relationship. The top and bottom of the casings are adhesively bonded to the inner surface of the top and bottom walls, and no clips or ties of an kind are required in the construction of the product. The foam structure is composed of latex or urethane foam, and the casings are formed of a fabric material composed of olefin, nylon and polyester. The adhesive has a strong affinity for the foam and for the synthetic fabric so that a thin layer of the adhesive provides an instantaneous firm bond between the foam and the synthetic fabric.

2 Claims, 4 Drawing Figures

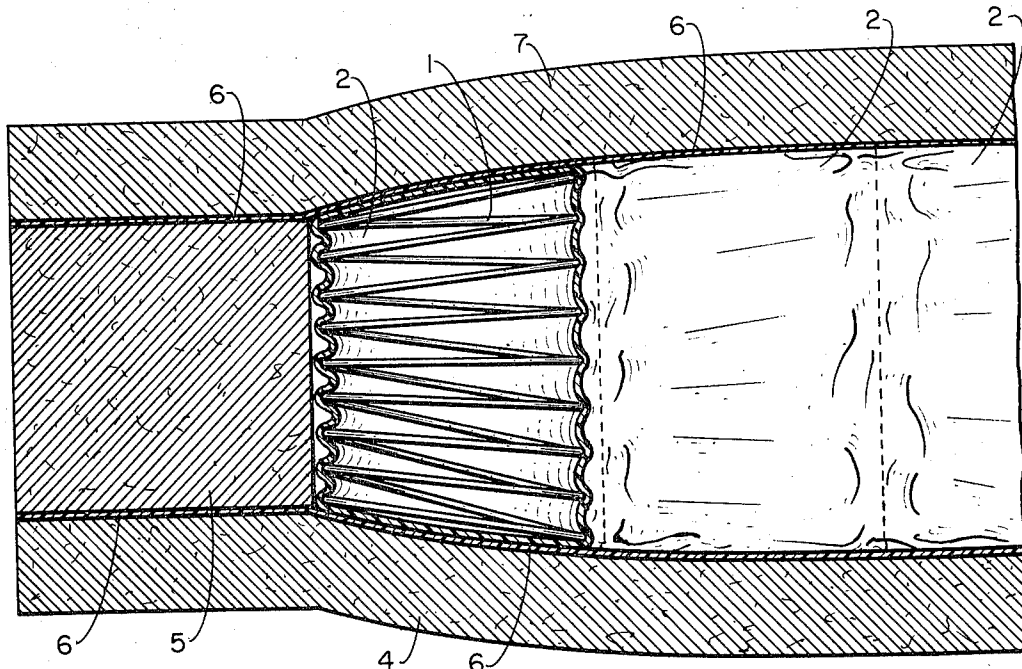


Fig. 1.

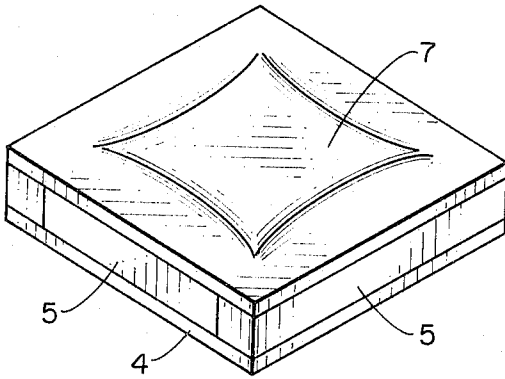


Fig. 4.

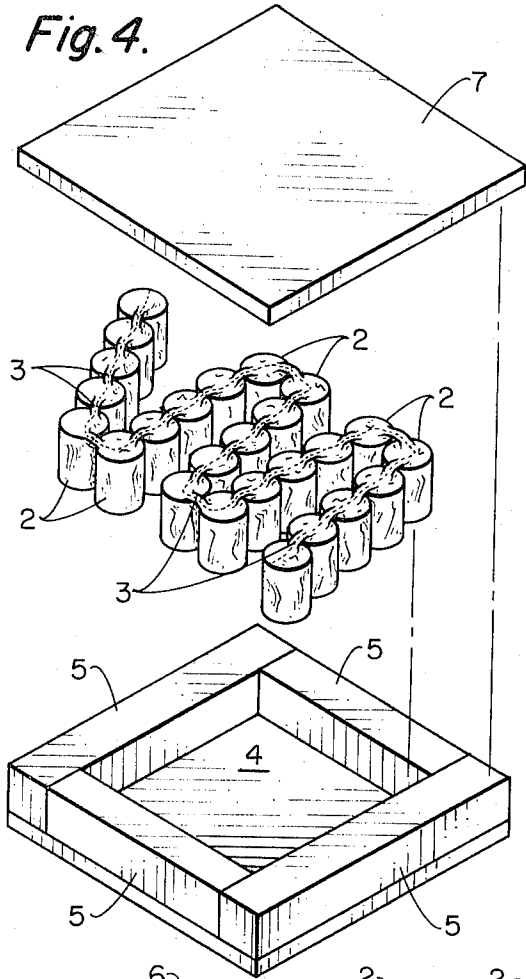


Fig. 2.

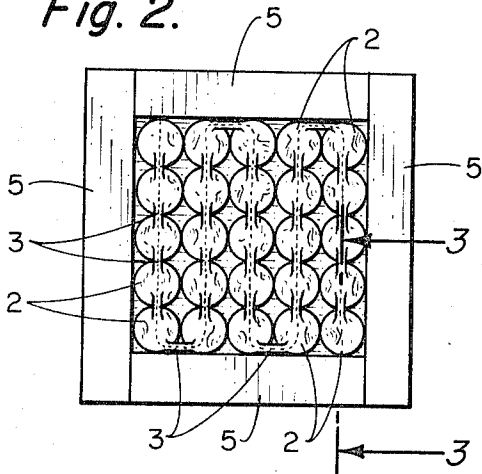
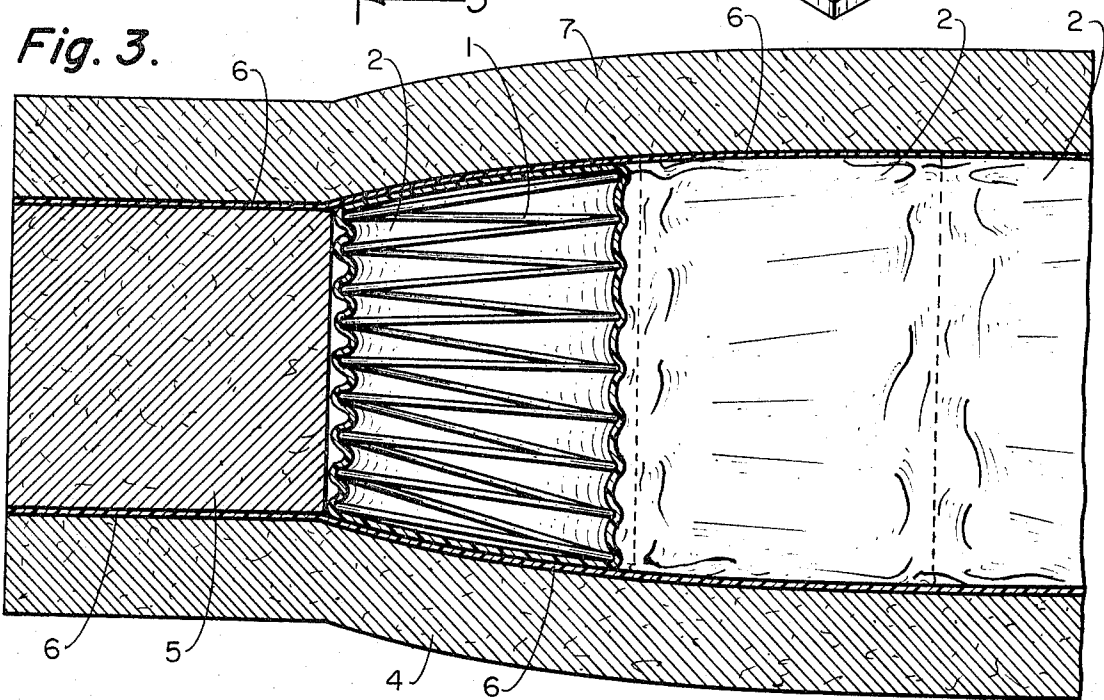


Fig. 3.



## CUSHION OR MATTRESS CONSTRUCTION

## BACKGROUND OF THE INVENTION

A cushion or mattress construction is described in U.S. Pat. No. 2,862,214 which is assigned to the present assignee. The construction described in the patent includes a box-like structure composed of latex-coated hair pads which form the top, bottom and sides of the structure. The cavity within the structure is filled with coil springs contained in pockets formed of a burlap strip. The coil springs extend between the top and bottom of the structure, and the springs are completely enclosed in the burlap pockets. The springs and burlap casings completely fill the cavity within the structure. The tops and bottoms of the burlap pockets are glued to the inner surfaces of the top and bottom latex-coated hair pads.

The structure described in the patent has enjoyed wide-spread commercial success. However, certain manufacturing difficulties have arisen in the fabrication of the product. For example, effective gluing was found to be very difficult between the rubberized hair pads and the tops and bottoms of the burlap casings. This was because the porous rubberized hair pads absorbed the glue, as did the burlap, so that abnormally large quantities of glue had to be used in order to effectuate a satisfactory bond.

Also, cutting and handling the rubberized hair pads presented problems since the material is difficult to work with. Also, the oil normally present in the burlap was found to have an adverse effect on the adhesive bond. The disadvantages of the structure described in the patent, both from a manufacturing standpoint and from a use standpoint, are obviated by the improved structure of the present invention. The replacement of the rubberized hair pads by pads of latex or urethane foam in the structure of the present invention, and the replacement of the burlap casings with casings of an olefin/nylon/polyester synthetic fabric, provide homogeneous surfaces of relatively low porosity, so that a superior, complete and uniform bond can be achieved between the casings and the top and bottom walls of the structure with relatively small amounts of glue. Moreover, the foam is more flexible, easier to cut and handle, and amenable to a wider range of cushion densities, than is the latex hair material used in the prior art. Moreover, no clips or ties of any kind are used in the construction of the cushion or mattress in the practice of the invention, and the adhesive is the sole element which maintains the product in a unitized condition.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a cushion or mattress which may be constructed in accordance with the concepts of the invention;

FIG. 2 is a plan view of the structure of FIG. 1, with the top wall removed to reveal the internal components of the structure;

FIG. 3 is a fragmentary sectional view of the structure, on an enlarged scale with respect to the representation of FIG. 2, and taken along the line 3—3 of FIG. 2; and

FIG. 4 is an exploded perspective representation of the structure, illustrating the various components which make up the assembly.

## DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENT

The cushion or mattress of the invention, in the illustrated embodiment shown in FIGS. 1-4, includes a plurality of helically coiled springs 1 which are encased in compartments 2 provided in a strip 3 of synthetic fabric material. The fabric material thereby provides casings for each of the coil springs 1, and the fabric casings completely enclose the individual coil springs.

The synthetic fabric used for the casings may be of a type marketed by the Phillips Fibers Corporation of Greenville, South Carolina. Three synthetic fabrics have been used in constructed embodiments of the invention, and all have been found to be satisfactory. These three fabrics, all obtained from the Phillips Fiber Corporation, have the following compositions: Fabric A, 97 percent olefin, 3 percent polyester; Fabric B, 54 percent olefin, 43 percent nylon, 3 percent polyester; and Fabric C, 65 percent olefin, 32 percent nylon, 3 percent polyester.

The springs 1, encased in the compartments or casing 2 of the synthetic fabric material are placed in an internal cavity formed by a box-like structure which, in turn, includes a bottom pad 4, preferably of uniform thickness, side wall pads 5, and a top wall pad 7. The pads 4, 5 and 7 may be composed, for example, of latex or urethane foam, or the equivalent. The coil springs 1 in their compartments 2 are contained within the cavity formed in the interior of the box-like structure in side-by-side relationship, as shown in FIG. 2, with the coil springs extending between the bottom wall 4 and the top wall 7.

An adhesive layer 6 on the inner surface of the top wall 7, and on the inner surface of the bottom wall 4, serves to bond the top and bottom walls 7 and 4 to the side walls 5 and to the tops and bottoms of the casings 2 of the synthetic fabric. The synthetic fabric forming the casing 2, and the foam forming the top and bottom walls 7 and 4, each has low porosity, so that relatively small amounts of glue may be used to form the adhesive layers 6, and yet to achieve a firm adhesive bond between the top and bottom walls on one hand and the tops and bottoms of the casings 2 on the other hand. A neoprene base adhesive with resin modifiers has been found to be excellent for the purpose, because of the strong affinity of such an adhesive for the urethane foam and for the synthetic fabric.

The resulting structure of the invention is relatively simple to manufacture because of the ease with which the foam and the synthetic fabric can be handled, cut and worked. Also, the assembly is economical because relatively small amounts of adhesive need be used, as compared with the prior art structures, and because of the low porosity of the foam and the synthetic fabric.

The invention provides, therefore, an improved cushion or mattress which is relatively economical and easy to fabricate, since it does not require any clips or ties of any kind, and yet which is sturdy in its construction and capable of long usage.

Having described the invention as related to a particular embodiment, there is no intention that the invention should be limited by any of the details of the description, unless otherwise specified. Rather, the invention is intended to be construed within its spirit and scope as set forth in the accompanying claims.

What is claimed is:

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1. A cushion or mattress comprising:  
 an encasing structure defining an enclosed cavity and  
 having top and bottom walls formed of latex or ure-  
 thane foam material;  
 a plurality of coil springs and a corresponding plural-  
 ity of synthetic fabric casings for said coil springs  
 completely filling said cavity in side-by-side rela-  
 tionship with said coil springs extending between  
 said top and bottom walls and completely enclosed

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by said casings, in which said synthetic fabric in-  
 cludes olefin, nylon and polyester; and  
 a thin adhesive layer bonding said casings to the inte-  
 rior surface of each of said top and bottom walls.

2. The cushion or mattress structure defined in claim  
 1, in which said adhesive layer comprises a neoprene  
 base adhesive with modifying resins.

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