

Nov. 17, 1959

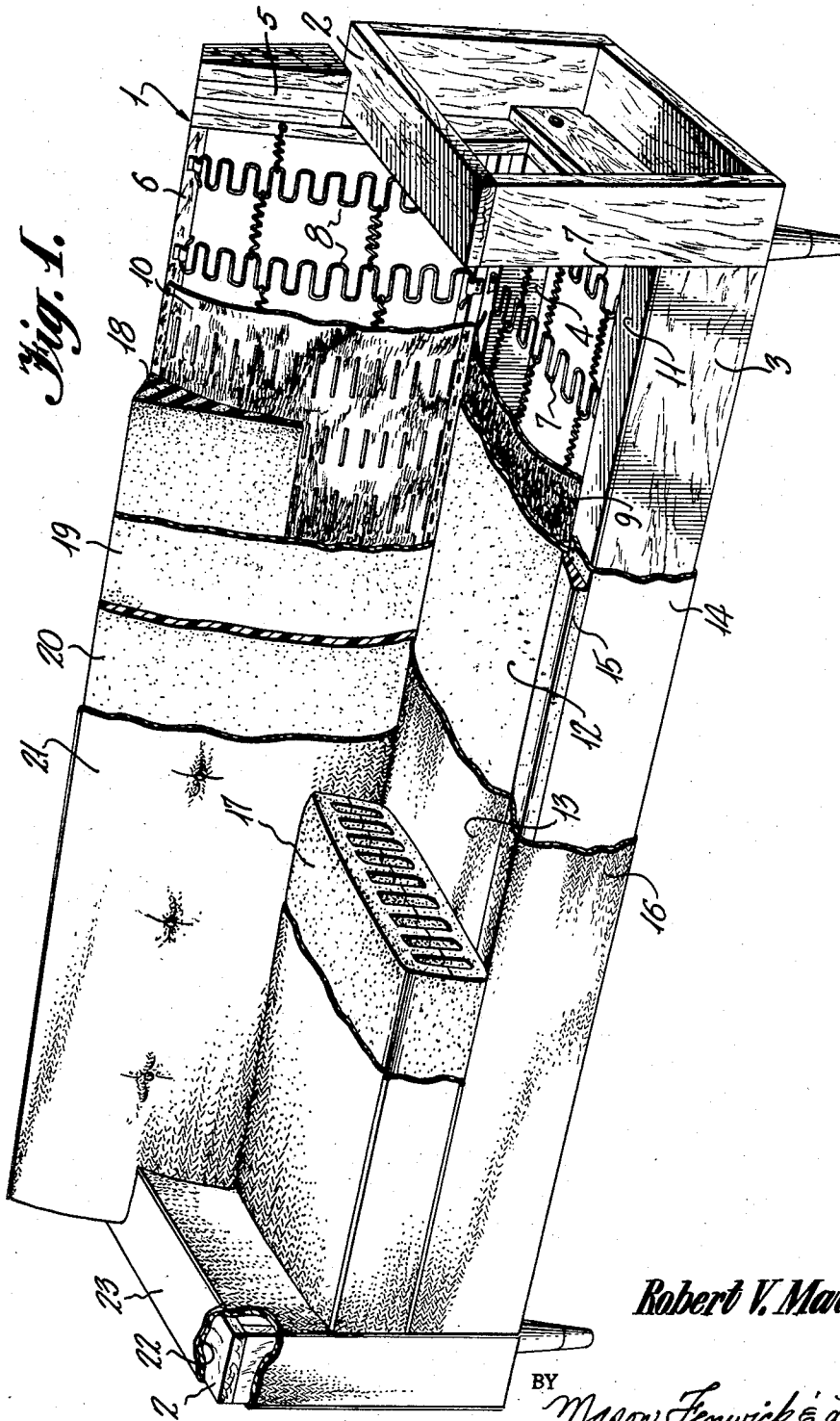
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2,913,041

UPHOLSTERED FURNITURE AND METHOD OF CONSTRUCTING

Filed March 26, 1957

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 2.

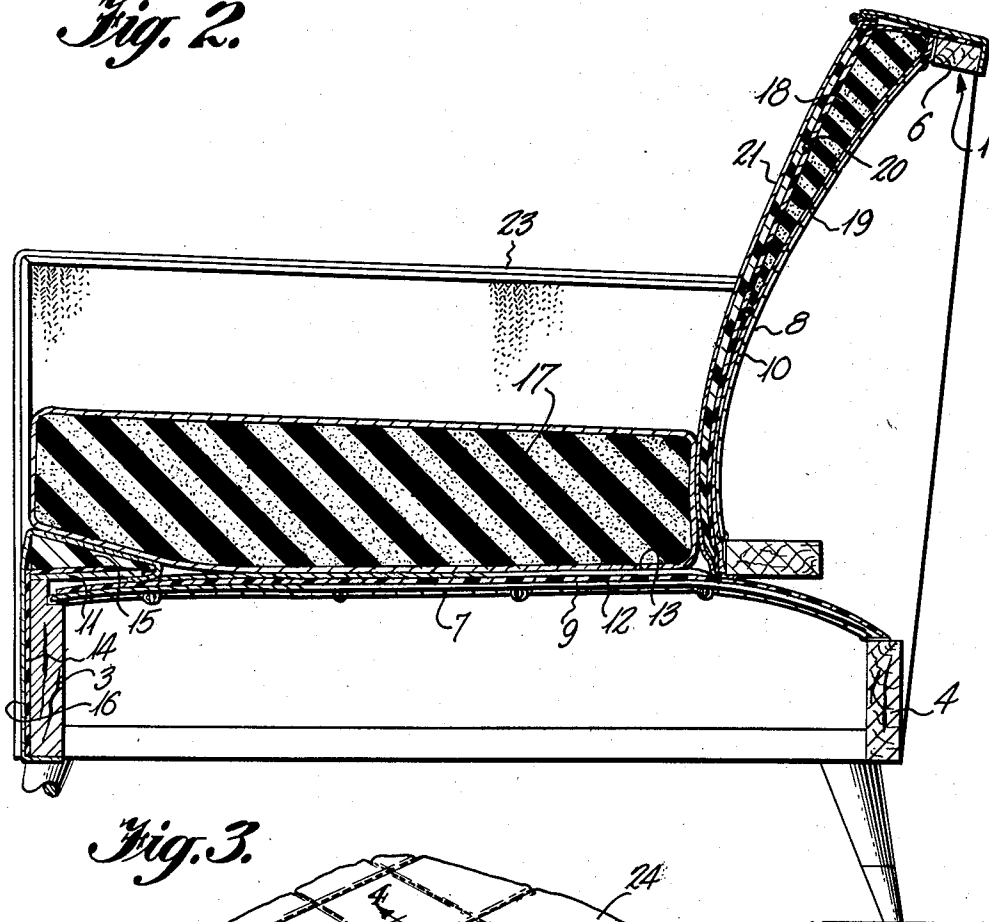


Fig. 3.

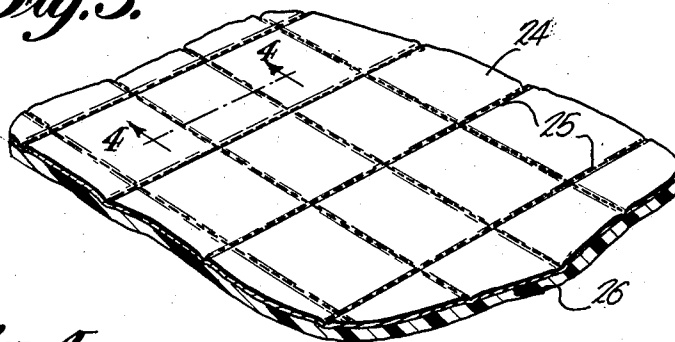
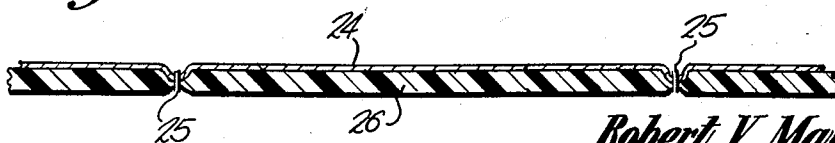


Fig. 4.



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UPHOLSTERED FURNITURE AND METHOD OF CONSTRUCTING

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5 Claims. (Cl. 155—180)

This invention relates to furniture and particularly to furniture of the so-called upholstered type and to the manner of manufacturing such furniture.

It has been the custom in manufacturing upholstered furniture to first make a frame, install spring structure, apply sheets of insulating material over the springs, place layers of cotton, felt, rubberized hair, etc. on the insulating material and apply the cover material. The last step of this process is the work of the highly skilled upholsterer. The padding, or filling, must be shaped, adjusted, and tucked beneath the cover as the cover material is stretched over a prescribed area. The appearance of the furniture depends almost entirely upon the skill with which this last step is performed. A large percentage of the time and expense involved in the manufacture of upholstered furniture goes into this one step.

The object of the present invention is to provide furniture structure which will eliminate the requirement for skilled upholsterers in the manufacture of so-called upholstered pieces.

A more specific object is the provision of a structure adapted to completion without using filling of cotton, etc., and in which the padding can be applied simultaneously with the cover material.

Another object is the provision of upholstered furniture in which a foamed plastic in sheet form is used as padding material.

Still another object is the method of constructing upholstered furniture wherein the filler and cover materials are joined and applied to the furniture as a unit by a single operation.

Other objects of the invention will become apparent from the following description of one practical embodiment thereof, when taken in conjunction with the drawings which accompany, and form part of, this specification.

In the drawings:

Figure 1 is a perspective view of a piece of upholstered furniture constructed in accordance with the principles of the present invention, parts being broken away to show the interior structure and the manner of fabrication of the piece;

Figure 2 is a vertical section through the piece of furniture, cut from front to back;

Figure 3 is a fragmentary perspective view of a piece of cover material stitched to a sheet of plastic filler prior to the application to the furniture; and,

Figure 4 is a section through the material shown in Figure 3, taken on the line 4—4 of Figure 3.

In general, the invention relates to the replacement of the ordinary fillers for upholstered furniture by a foam plastic in sheet form to eliminate the necessity for the usual shaping, adjusting, etc. of the filling in upholstering furniture and at the same time, permit the stitching, tufting, etc. of the cover material to the plastic sheets prior to application to the furniture.

Referring to the drawings in detail, the furniture is built upon the usual frame 1, of hardwood and dowelled

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together, consisting of the box-like arm frames 2 at the ends connected by the front seat rail 3 and the rear rail 4. Shaped, back supports 5 rise vertically above the rear rail and they are connected at their tops by the top rail 6. This is more or less standard construction. To this base structure, standard springing is attached. The springs shown are of the sinuous variety and extend across the seat, as at 7, and the back, as at 8. Suitable insulating material 9 is used to cover the seat springs and insulating material 10 is applied over the back springs.

The above structure is conventional, and forms the basic structure for much of the furniture now being manufactured. The present invention relates to the construction of the piece upon this basic form.

The conventional frame is modified in one respect, however. A strip of plywood 11 is placed upon the top of the front rail 3 with its front edge in the vertical plane of the front surface of the front rail and nailed to the rail. The strip is sufficiently wide to form a horizontal, rearwardly extending ledge at the top of the rail. The frame is now ready for covering.

The seat is first covered by sheets of foam plastic 12 such as the various urethanes of which polyurethane is an example. These sheets are stapled to the frame at appropriate places by means of an air stapling gun. Over these sheets of foam plastic the seat cover material 13 is placed and stapled to the frame.

The plywood filler strip and front rail are then covered by sheets of foam plastic 14. On top of the plywood filler strip, a strip of polyurethane foam 15, wedge shape in cross-section, is laid. This polyurethane wedge provides a cushioning for the front edge of the seat which is usually unpadded and quite hard. The polyurethane foam replaces the filling commonly used and has been found ideally suited to this purpose. The usual cover material 16 is then put on covering the seat edge and front rail. If the cushions 17 are to be used, the cover 13 over the seat may be of different material from the strip 16 used to cover the front rail. Cushions 17 may be cored latex foam construction with a fabric or plastic cover.

In order to shape the back and to provide a very soft upper edge, a wedge 18 of latex foam may be used. This is covered by a sheet 19 of polyurethane foam which completely covers the wedge, top rail and back of the piece. This will be stapled to the wooden frame as needed. The urethane foam will thus form a cover for the latex cushioning material and hold the wedge in place against the springs. At the same time, the urethane foam sheet will keep the latex cushion from sagging, and, due to the nature of the urethane will serve to firmly, yet yieldingly, hold the underlying materials together much in the nature of the subcutaneous tissues of the body.

The back is completed by another sheet 20 of polyurethane foam and the usual cover material 21 which can be applied as separate steps or joined, as will be described, and applied as a unit.

Strips 22 of sheet polyurethane foam are placed over the surfaces of the arm portions of the frame, and the arms are then covered by the cover material 23. Here again, the foam plastic and the cover material may be first joined and then fixed in place on the frame.

The structure described can be assembled without the need for skilled labor. The various sheets of material can be placed over the part to be covered and stapled in place. The sheets can be cut to size through the use of patterns and their use eliminates all shaping of filling material.

This method of constructing furniture lends itself ideally to sub-assembly by sewing padding sheets and cover material together prior to placement on the frame.

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This increases the labor at the sewing stage but the subsequent savings more than offset the increase.

In Figures 3 and 4 of the drawings, a section of cover material 24 is shown stitched, as at 25, to a sheet of polyurethane foam 26. By regulating the thread tension, the stitching can be drawn more or less into the foam sheet to provide a sculptured appearance in the finished cover material. In Figure 3, the stitching is shown as running in spaced parallel rows in both directions. This causes the cover material to have a quilted look. Tufting may be done in the same manner prior to application of the cover and padding to the frame.

By working out patterns for different pieces of furniture, all cover material and polyurethane foam padding sheets can be cut in advance, joined together and the entire cover job performed in one operation by stapling the material to the frame. This greatly simplifies and speeds up the building of upholstered furniture.

While in the above one embodiment of the invention has been disclosed, it will be understood that the details of structure shown and described are by way of example and the invention may take other forms within the scope of the appended claims.

What is claimed is:

1. A method of constructing furniture upon an open frame defining a back and a seat bridged by springing comprising, cutting a flat sheet of urethane foam to appropriate size and shape to provide a padding for the back, cutting flat cover material to appropriate size and shape to finish the back, attaching the urethane foam sheet and the cover material together at spaced positions and compressing the urethane foam to form a contoured predetermined design in the outer surface thereof and to form a unitary substantially flat sub-assembly wherein the foam sheet and cover material are free for relative movement intermediate the positions of attachment, and shaping and attaching the sub-assembly to the frame.

2. A method of constructing furniture upon an open frame defining a back and a seat bridged by springing comprising, cutting a flat sheet of urethane foam to appropriate size and shape to provide a padding for the back, cutting flat cover material to appropriate size and shape to finish the back, attaching the urethane foam sheet and the cover material together and compressing the urethane foam to form a contoured predetermined design in the outer surface thereof by stitching along spaced lines to form a unitary substantially flat sub-assembly wherein the urethane foam sheet and cover material are free for relative movement between the lines of stitching, and shaping and attaching the sub-assembly to the frame.

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3. In a method of constructing furniture as claimed in claim 2, controlling the thread tension during the stitching operation to regulate the compression of the urethane foam sheet along the lines of stitching to provide a sculptured appearance in the cover material.

4. A method of constructing furniture upon an open frame defining a back and a seat bridged by springing comprising, cutting a flat sheet of urethane foam to appropriate size and shape to provide a padding for the back, cutting flat cover material to appropriate size and shape to finish the back, attaching the urethane foam sheet to the cover material and compressing the urethane foam to form a contoured predetermined pattern in the outer surface thereof by tufting to form a unitary substantially flat sub-assembly wherein the urethane foam sheet and cover material are free for relative movement between the positions of tufting, and shaping and attaching the sub-assembly to the frame.

5. A method of constructing furniture upon an open frame defining a seat and a back bridged by springing comprising, covering the springing of the back with insulating material, placing a piece of cushioning material of appropriate size and shape against the insulating material to provide desired contour to the back, stretching a sheet of urethane foam over the cushioning material and attaching the foam sheet to the frame to hold the cushioning material in place upon the back and yieldingly hold the cushioning material against sagging, cutting a flat sheet of urethane foam to appropriate size and shape to provide padding for the back, cutting flat cover material of appropriate size and shape to finish the back, attaching the urethane foam padding sheet and the cover material together at spaced positions and compressing the urethane foam to form a contoured predetermined design in the outer surface thereof and to form a unitary substantially flat sub-assembly wherein the foam padding sheet and cover material are free for relative movement intermediate the position of attachment, and shaping and attaching the sub-assembly to the frame.

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