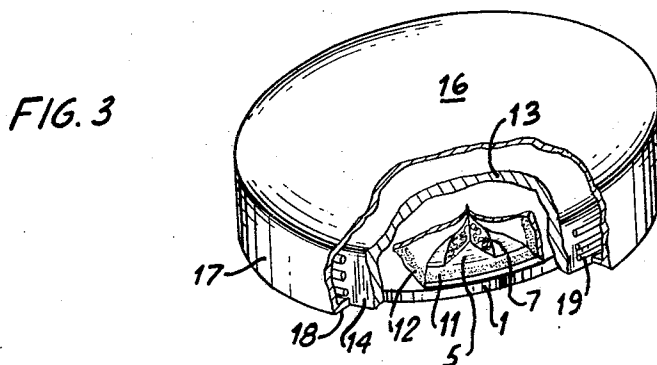
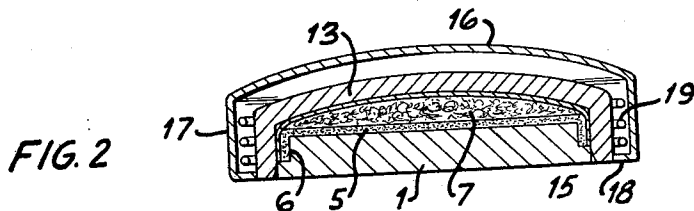
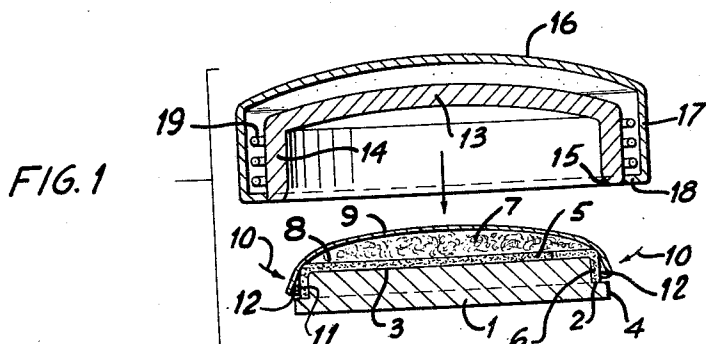


Dec. 11, 1962

A. FRIEDMAN
METHOD OF MOLDING CUSHIONS
Filed Aug. 31, 1959

3,068,138



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METHOD OF MOLDING CUSHIONS
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Filed Aug. 31, 1959, Ser. No. 837,275
4 Claims. (Cl. 156-212)

The present invention is directed to a method of producing seats for chairs, settees and the like and more particularly to a molding operation for this purpose.

In the past, it has been customary in the production of 10 such upholstered seats to provide a board or the like, place padding thereon, cover the padding with an upholstery fabric, then nail the edges of the fabric to the board. In so doing, the operator placed tension on the fabric by hand and drove in a nail to hold it in place, 15 and repeated the operation until the fabric was secured all around the padding. This had a number of disadvantages in that the operation was slow and required a highly skilled mechanic. Because the fabric was held 20 down at spaced points, the stress induced in the fabric when the chair was in use was concentrated at the nails resulting in accidental tearing of the fabric. The tension applied during the fabrication was not uniform so that the padding was in some cases not uniformly held causing lumps to form after some use, and it accentuated the 25 tendency to tearing of the fabric at the nail bobs.

The present invention is intended and adapted to overcome the difficulties and disadvantages inherent in the making of seats and the like as described above, it being 30 among the objects of the invention to devise a process which is rapid, effective and economical in the production thereof.

It is also among the objects of the invention to produce a seat of the character described which is uniform 35 in the distribution of the padding and which will not become lumpy or distorted even after long usage.

It is further among the objects of the invention to provide a process, and a product thereof, which includes the molding together of the several elements, and is a 40 simple one-step operation which can be used to give the desired results time after time.

In practicing the invention, there is first formed a base of fibrous material, such as paper pulp, which is molded 45 under pressure to form a solid body. While this is the preferred form of base, other equivalent bases may be used. The base has a rim of substantial depth which may be in the form of a flange. The base is placed on a bottom die in a molding press, the padding is cut to the proper size and shape to fit onto the horizontal portion 50 of the base and is placed thereon. A suitable thermoplastic or thermosetting adhesive is applied to the periphery of the base. The cover fabric is cut to the proper size and shape, and the portion of the under side thereof which is to eventually contact the flange or rim of the 55 base, is also provided with a film of the same adhesive. A top die is provided which has a depending flange adapted to contact the edges of the fabric as the die descends, pull it tight with uniform tension all around, then force the edges into contact with the flange of the 60 base. Since the flange of the top die is heated, and also the flange of the bottom die if desired, the adhesive is activated and forms a permanent bond which holds the several elements together in their predetermined relative positions without danger of accidental displacement.

The invention is more fully described in connection 65 with the accompanying drawing, in which like reference characters indicate like parts.

FIG. 1 is a vertical cross-sectional view taken through a mold, showing the several elements in place prior to the molding;

FIG. 2 is a view similar to FIG. 1 showing the mold 70 in closed position; and

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FIG. 3 is a perspective view of the assembly as shown in FIG. 2 with parts broken away for clearness.

The drawing shows the making of a circular seat, but the invention is not limited thereto. The bottom die 1 5 has a shoulder 2 along the lower part of its periphery forming a horizontal extension 4. There is provided a fiber board 5 having a depending flange 6; it may be formed on bottom die 1 and a suitable top die or in any other suitable manner. Suitable padding 7, which is preferably of foam rubber, is placed on fiber board 5, 10 a piece of the padding tapering toward its edges 8. A piece of fabric 9 of circular form and of sufficient diameter to fit over the flange 6 of the board is laid on top of the padding 7. As shown by the arrows 10 of FIG. 1, the lower edges 15 of the fabric extend outwardly of the fiber board.

An adhesive 11 in the form of a thin film is applied to the surface of flange 6. Any suitable adhesive responsive to heat and pressure to form a permanent bond may be used, such as a thermosetting synthetic or natural rubber latex, or a thermoplastic adhesive, such as polyethylene or a polyvinyl acetate-chloride. A similar film 20 of said adhesive 12 is placed on fabric 9. Then the adhesive may be dried or it may be applied and dried prior to the assembly in the mold.

The top mold consists of an arched portion 13 with a depending flange 14 and a rounded lower edge 15. A cover 16 is spaced from the top mold and has a flange 17 spaced from flange 14. An intumed rim 18 is secured to the lower edge of flange 14 to enclose electric 25 heating element 19.

In the operation, fiber board 5 is formed on lower die 1 by a usual molding procedure or is produced elsewhere and placed on said lower die. Foam rubber 7 of the 30 desired consistency, size and shape is placed on board 5 which already has adhesive 11 thereon. Cover 9 having adhesive 12 along the inner edge is placed on foam rubber 7. Heated die 13 is lowered so that rounded corner 15 engages the edge of fabric 9 forcing it down to tighten against the foam rubber and then inward to make 35 contact between adhesive films 11 and 12. The heat and pressure cause adherence therebetween and the completion of the seat in a one-step operation.

Although the invention has been described setting forth a single embodiment thereof, the invention is not limited to the details shown and described. For instance, seats 40 of shapes other than round may be replaced by other materials, such as wood, and may be made differently. The dies may be different in construction than as shown and other heating means may be used. Various suitable materials may be used as, for example, the board need not be solid or the combination of board and padding may be constructed of a frame, springs and padding materials of any suitable kind. These and other changes 45 may be made in the details, and the invention is to be broadly construed and to be limited only by the claims appended hereto.

1. A method of making seat cushions by a molding operation which comprises—

- (1) forming a rigid base of substantially flat surface having an integral rigid rim depending at about a right angle therefrom;
- (2) placing said base on the lower of the members of a two-part mold to support both base and rim against pressure, said lower member being entirely below said base and rim, said lower member having an uninterrupted flat upper surface and depending sides at said right angle to said surface;
- (3) placing padding having a convex upper face on said base to cover only said flat surface;
- (4) covering said padding with a fabric the edges of said fabric extending beyond the edges of said base and over said rims;

- (5) introducing a heat activatable adhesive onto at least one of said rim and extending part of said fabric;
 - (6) moving said complementary part of said mold onto said fabric to contact the edges of said fabric and pull it tight and to press uniformly on the area of the convex padding to hold the fabric smoothly on said padding;
 - (7) then moving the extending part of said fabric downwardly and inwardly into pressure contact with said sides, said complementary part having an uninterrupted lower contact surface of the same contour and size as the upper convex face of said cushion, and
 - (8) heating said mold to activate said adhesive and heat seal said rim to said fabric against said sides and to produce a cushion having a rigid base integrally molded thereto.
2. A method according to claim 1 characterized in that said complementary part of said mold has a concave lower face.
 3. A method according to claim 1 characterized in that said adhesive is thermosetting.
 4. A method of making cushions by a molding operation which comprises—
 - (1) forming a rigid base having an integral rigid rim depending at about a right angle therefrom;
 - (2) placing said base on the lower of the members of a two-part mold to support both base and rim against pressure, said lower member being entirely below said base and rim, said lower member having an uninterrupted upper surface and depending sides at said right angle to said surface;

- (3) placing padding having an upper face tapering to the edge of said base to cover only said surface;
- (4) covering said padding with a fabric the edges of said fabric extending beyond the edges of said base and over said rims;
- (5) introducing an activatable adhesive onto at least one of said rim and extending part of said fabric;
- (6) moving said complementary part of said mold onto said fabric to contact the edges of said fabric and pull it tight and to press uniformly on the area of the convex padding to hold the fabric smoothly on said padding;
- (7) then moving the extending part of said fabric downwardly and inwardly into pressure contact with said sides, said complementary part having an uninterrupted lower contact surface of the same contour and size as the upper convex face of said cushion, and
- (8) pressing the edges of said mold parts together and activating said adhesive to seal said rim to said fabric against said sides and to produce a cushion having a rigid base integrally molded thereto.

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