

Jan. 7, 1964

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3,116,569

QUILTED HEADBOARD AND METHOD OF FABRICATION THEREOF

Filed May 29, 1962

3 Sheets-Sheet 1

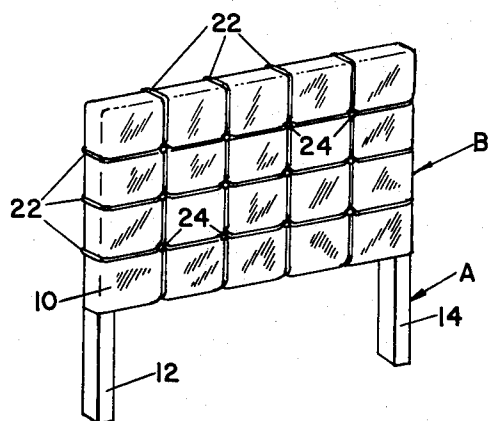


Fig. 1

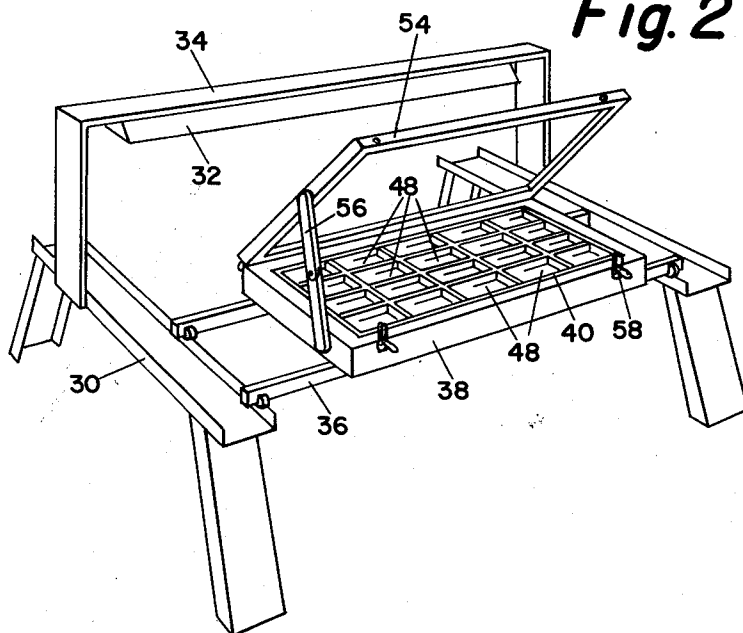


Fig. 2

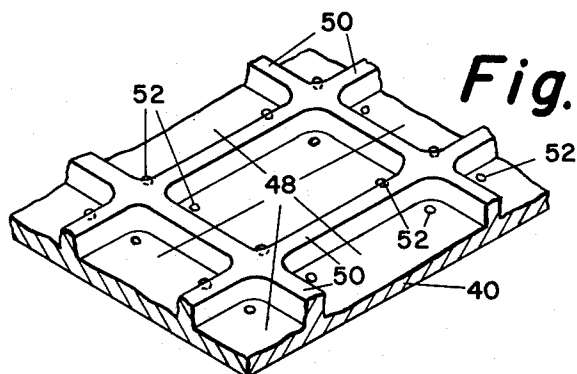


Fig. 3

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Fig. 4

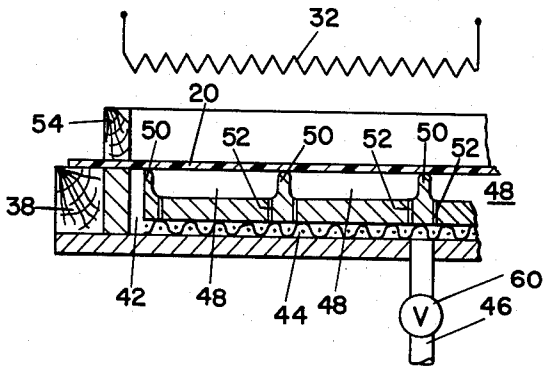


Fig. 5

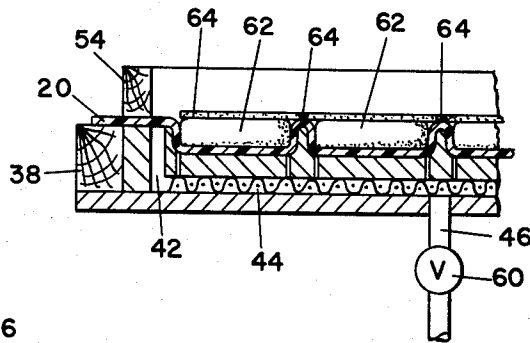


Fig. 6

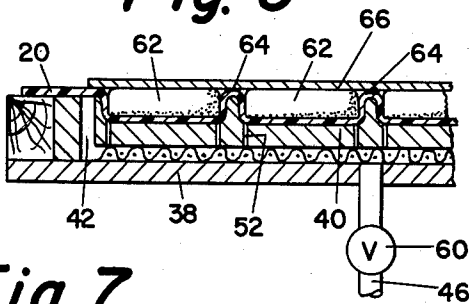
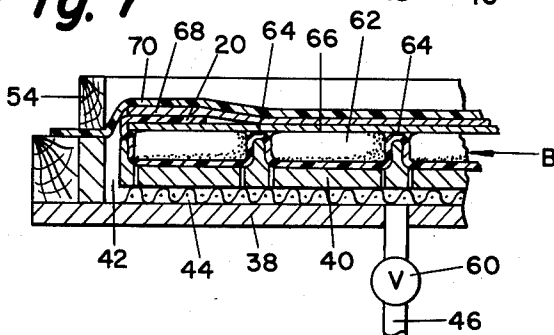


Fig. 7



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Fig. 8

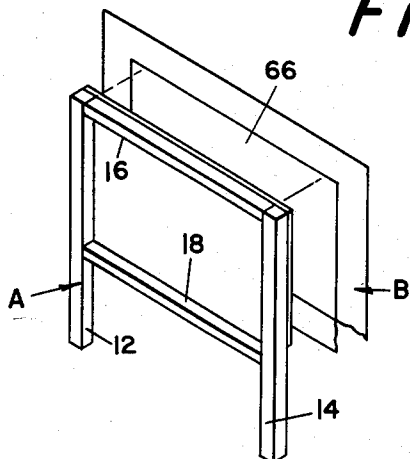


Fig. 9

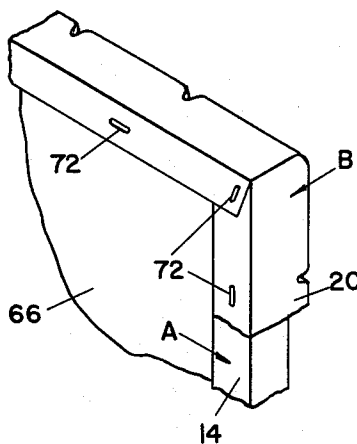


Fig. 10

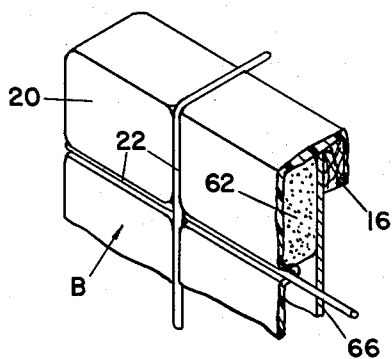
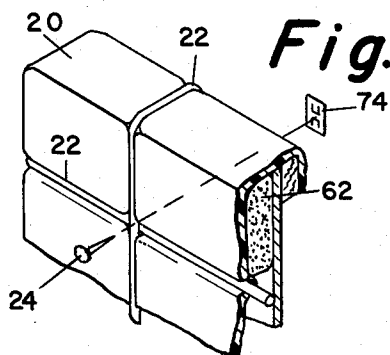


Fig. 11



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3,116,569

QUILTED HEADBOARD AND METHOD OF FABRICATION THEREOF

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Filed May 29, 1962, Ser. No. 198,556

4 Claims. (Cl. 45—138)

This invention relates to a padded or quilted headboard of the type commonly used with "Hollywood" bed constructions, and more particularly relates to a new and improved method for the fabrication of such quilted work.

The usual manner of making quilts is to stitch together in lines or other patterns two layers of fabric filled or stuffed with padding material. In the upholstery field, a quilted effect is also produced by drawing clusters of thread, called tufts, tightly through padding sandwiched between cloth facings or by dimpling with pins having button heads. Heretofore, the stitching and the tufts extended through the padding itself so as to cause it to be resiliently compressed and act directly against the forces of constraint. While the stitching afforded a stronger seam or joint, the product of a hand sewing operation through at least three layers of material is necessarily expensive. The tufting operation, although performed more cheaply, is highly subject to failures resulting from the stresses imposed by the compressed cushion material. In either situation, the pulling of the stitches or the breaking of the tufts would cause the quilted appearance to become unintelligible and generally unsightly.

In recent years, the use of plastic facings has become more increasingly popular not only because of their modern attractive finishes but also by virtue of the ease in which they may be kept clean. However, it is readily apparent that stitching through heavy gauge plastic sheeting becomes a difficult and time consuming procedure. Furthermore, fastening or tufting of padded plastic sheeting by buttons or pins creates a great likelihood of tearing of the plastic facing immediately adjacent the punctured holes through which the padding is visible. All of this results for most part from the constant stress exerted by the paddings opposing the quilting junctures.

It is therefore an object of this invention to construct a padded headboard which does not require any stitching or puncturing to form the quilted appearance.

Another object of this invention is to preform the quilted configuration so that a minimum of stress will be exerted against the seams or points of juncture.

Another object of this invention is to provide a quilted appearance in a cushion by a method involving a minimum of hand operations.

Another object of this invention is to provide a method for making a cushioned headboard in which a quilted configuration is permanently impressed in the facing.

Still another object of this invention is to construct a quilted headboard which is highly attractive in appearance.

Yet another object of this invention is to vacuum form a quilted cushion for a headboard.

Other objects of this invention are to provide an improved article and method of the character described that is easily and economically produced, which is sturdy in construction, and which is highly efficient and effective in operation.

With the above and related objects in view, this invention consists of the details of construction and combination of parts as will be more fully understood from the following detailed description when read in conjunction with the accompanying drawing in which:

FIG. 1 is a perspective view of a quilted headboard embodied in this invention.

FIG. 2 is a perspective view of a vacuum forming mold which is used in the method of this invention to produce a quilted effect in plastic sheeting.

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FIG. 3 is an enlarged fragmentary view of a portion of the mold.

FIG. 4 is a sectional view illustrating a first phase of the method embodied in this invention.

FIG. 5 is a sectional view showing a second phase of the method of this invention.

FIG. 6 is a sectional view demonstrating the next phase in the forming of the quilted cushion.

FIG. 7 is a sectional view illustrating the final phase in the forming of the quilted cushion.

FIG. 8 is an exploded perspective view showing the quilted cushion about to be applied to a headboard frame.

FIG. 9 is a fragmentary perspective view showing the cushion stapled to the headboard frame.

FIG. 10 is a fragmentary perspective view of the penultimate step of the method wherein strips of braid are drawn between the quilted pockets and stapled to the back of the headboard frame.

FIG. 11 is a fragmentary perspective view of the final step of the method of this invention wherein upholstery pins are inserted through the intersecting lines of braid and clamped through the molded cushion element.

Referring now in greater detail to the drawings in which similar reference characters refer to similar parts, I show in FIG. 1 a quilted headboard comprising a frame A to which a quilted cushion element B embodying this invention is secured.

The headboard frame A, as shown in FIG. 8, is fabricated of a pair of wood legs 12 and 14 interconnected in a conventional manner by transverse members 16 and 18 to define a support for the cushioning element B. The cushioning element B has a plastic sheet facing 20 which is molded in a rectangularly quilted or pocketed configuration. The embodiment illustrated shows an orientation in regular rows and lines, but it is to be understood that any quilted pattern may be incorporated. A strip of braid or ribbon 22 may be laid in the depressions intermediate the convexly disposed pockets and a button 24 pinned through the intersections of crossing lines of braid. However, it is to be noted that the pockets in the facing are permanently molded therein and not retained in quilted configuration merely by the braid 22. The method for permanently forming the quilts in the facing will now be described in detail.

In FIG. 2, I show a vacuum forming apparatus which comprises a stand 30 having a series of heating elements 32 mounted in a hood 34 at the upper rearward portion thereof. A carriage 36 holding a platform table 38 is adapted to be rolled back under the hood 34 so that the rays of heat may directly impinge upon the mold 40 and the plastic sheeting 20 during the vacuum forming operation. The platform 38 is recessed at 42, the margins of the recessed area defining a boundary slightly larger than the periphery of the mold itself. The mold 40 rests upon a spacer screen 44 which enables the recessed area under the mold to act as a manifold when connected to a vacuum or exhaust line 46.

In FIG. 3 is illustrated a fragmentary portion of the mold 40 and shows a plurality of cavities 48 therein defined intermediate elevated webs 50. The cavities 48 are shaped to form the negative of the final configuration into which the facing sheet 20 is to be molded. Pin hole ports 52 extend from each of the four corners of each cavity 48 through the mold 40 and directly communicate with the vacuum recess 42 and suction line 46. Referring back to FIG. 2, a clamping frame 54 is hinged to the rear of the platform 38 and is adapted to be held in an elevated position by a folding hinge 56. When the hinge 56 is collapsed, the frame rests flat on the platform 38 outside the marginal edges of

the recess 42. Clamp 58 maintains the frame 54 firmly against the sheet 20 when the latter is laid flat over the mold 40.

The first step of my method proceeds with the carriage 36 at the front of the stand 30 and the clamping frame 54 elevated above the platform 38. The sheet of plastic 20 is smoothly laid over the mold 40, the edges of the sheet extending beyond and overlying the margins of the recess 42. The total area of the sheet 20 is of such a size as is convenient to enable tacking of the formed cushion B about the headboard frame A. Suitable plastic compositions from which the sheet 20 may be calendered can be vinyl chloride, vinylidene chloride, polyvinyl butyral and other conventional polymers and co-polymers ordinarily used in making such facings. The frame 54 is then lowered and peripherally sandwiches the sheet 20 against the margin of the platform 38, and the clamp 58 positively presses the frame about the sheet.

Referring to FIG. 4, the carriage 36 is rolled back under the hood 34 so that the sheeting 20 is exposed to the rays of heat from the elements 32. When the sheet 20 has begun to soften, as determined by slight wrinkles appearing in the face thereof, valve 60 is opened. The vacuum applied to the cavities 48 through the ports 52 cause the sheet 20 to be vacuum formed in a plurality of concave pockets conforming substantially to the mold cavities. The carriage 36 is then rolled to the front of the stand 30 where the sheet is allowed to cool with the pockets or quilts permanently impressed therein.

The next step of the operation is illustrated in FIG. 5. With the vacuum preferably still maintained on the mold cavities, block 62 of padding material are set into each of the molded pockets. These cushioning blocks 62 are cut or molded to fill the pockets in the facing sheet 20 and are of a thickness slightly greater than the depth of a pocket. While I prefer to use as the padding material a pressed wood product made by the Wood Conversion Corporation and known as "Tufflex," any suitable cushioning material may be employed for this purpose. After all of the blocks 62 are inserted, a rib 64 of suitable adhesive is applied to each of the webs which project about the facing pockets. However, cement is not applied to the marginal area of the sheet peripherally framing the pocketed zone so that the circumferential margin may be stretched and tacked about the frame A without restriction.

The vacuum is now turned off by closing valve 60, and the frame 54 is raised up from the facing sheet 20. A backing 66 of rigid material such as chipboard is then placed over the sheet 20 and covers the padding blocks 62 as shown in FIG. 6. The backing 66 is to be cemented to the ridges outlining each of the individual pockets in the facing in order to fully enclose the cushions in place. The overhanging edges of the facing sheet 20 are then folded back over the chipboard sheet 66 as shown in FIG. 7. A second backer plate 68, which may be just another chipboard backer, is laid upon and about the overhanging edges to sandwich them against the backer 66. The entire surface of the stack is then covered by pressure sheet 70 which extends beyond the periphery of the recess 42. The pressure sheet 70 is the same size as and may be in fact an original plastic facing sheet prior to its being vacuum molded. Procedurally, the sheet 70 is the next facing to be molded after the instant cushioning element is completed. The edges of the sheet 70 are securely clamped against the table platform 38 by the frame 54, and the vacuum line 46 opened through valve 60. Since the marginal edges and space between the mold 40 and the platform 38 is closed by the sheet 70, this sheet will be drawn down by the suction and press the backing 66 into firm contact with the adhesive ridges 64.

After the backing 66 is securely cemented to the webs of facing sheet 20, the cushioning element B is removed from the mold 40 and is fully formed preparatory to affixing it to the wood frame A as shown in FIGS. 8 and 9.

The overhanging edges of the molded facing sheet 20 in the fully formed cushion element B are drawn in tension behind the upper portions of the legs 12 and 14 and cross members 16 and 18 where they are stapled at 72. This operation is preferably performed upon heated tables (not shown) warmed to a temperature of approximately 160° F. to 180° F. so that the plastic sheet is in a slightly softened condition which enables it to be conveniently worked. It is here deemed worthy of mention that the lateral edges of the formed cushion are smooth since cement had not been applied to the back of the facing sheet 20 peripheral to the pocketed zone.

Referring now to FIG. 10, the strips of braid 22 are laid in the crevices intermediate the rows of outwardly facing convex quilts and are then drawn behind the frame A where they are stapled in the same manner as the overhanging edges of the facing. The upholstery pins 24 are inserted through each intersection of the lines of crossing braid and extend through the facing web to project behind the backing 66. As shown in FIG. 11, a retainer clamp 74 in the nature of a spring lock nut is pressed over the pointed end of the pin 24 into abutment with the backing 66 to frictionally lock the pins and backing in place. If desired, a cover board (not shown) may be tacked about the frame A over the stapled edges of the facing sheet 20 to act as a dust cover and to prevent persons from accidentally touching the sharp pointed ends of the pins 24.

As is apparent, the upholstery pins 24 do not pierce the padding blocks themselves, but merely reinforce the cemented areas 64 around the cushion blocks 62. Since the facing 20 has already been molded, minimum stress is imposed on the seams so that the quilts may permanently retain their attractive appearance.

Although this invention has been described in considerable detail, such description is intended as being illustrative rather than limiting, since the invention may be variously embodied, and the scope of the invention is to be determined as claimed.

I claim as my invention:

1. A method for making a quilted headboard comprising the steps of peripherally clamping a thermoplastic sheet over a die having a plurality of rows of aligned cavities communicating with a suction line, applying heat to the clamped sheet until it has softened, applying suction to the die until the sheet has formed a plurality of pockets conforming to the configuration of the die cavities, inserting a block of padding material into each of the molded pockets, applying a rib of cement to the webs intermediate the pockets, superimposing a flat stiff sheet of backing over the molded sheet so as to cover the padding blocks, folding the overhanging edges of the plastic sheet over the backing, peripherally clamping a second sheet of flexible material over the backing, applying suction to the bottom of said second sheet until the backing has been securely pressed into contact with and cemented to the webs to form a padded cushion.

2. The method of claim 1 wherein the padded cushion is mounted upon a headboard frame and the overhanging edges of the plastic sheet stapled to the back of said frame, laying strips of braid in the molded depressions intermediate the rows of pocketed padding and tacking the ends of the braid to the back of the frame, and inserting an upholstery pin through intersecting lines of braid whereby the pin will extend through the web of the sheet and the backing without piercing the padding.

3. A method for making a quilted cushion comprising the steps of vacuum molding a sheet of thermoplastic material so as to form a pocketed configuration, inserting blocks of padding into the formed pockets in the sheet,

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applying cement to webs intermediate the formed pockets, superimposing a stiff backer over the sheet so as to cover the blocks of padding, and vacuum drawing the backer into firm contact with the cement coated webs until adhesively secured thereto and thereby forming a padded cushion.

4. A method for making a quilted cushion comprising the steps of positioning a sheet of thermoplastic material over a die having a plurality of rows of aligned cavities with the margins of the sheet disposed over a flat surface perimetricaly spaced with respect to the die, peripherally clamping the sheet in flat disposition against the perimetrical surface, applying heat to the clamped sheet until it has begun to soften and then exhausting the cavities so that the portion of the sheet overlying the cavities will be distended therein against the cavity walls to form a plurality of molded pockets conforming to the configuration thereof, inserting blocks of resilient padding material into the respective pockets, the blocks having lateral dimensions conforming substantially to the lateral dimensions of the pockets and a thickness greater than the depths thereof, applying a rib of cement to upstanding webs of the sheet defined intermediate the pockets, superimposing a flat stiff backer having lateral dimensions co-extensive

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with those of the die in overlying relationship with respect to the blocks within the pockets, folding the over-hanging edges of the plastic sheet down flat about the margins of the backer, superimposing a second sheet of flexible material over the backer with the margins of the second sheet overlying the perimetrical surface, peripherally clamping the second sheet flat against the perimetrical surface, and exhausting the annular space defined intermediate the die and the perimetrical surface so that the second sheet will be vacuum drawn down against the backer whereby the backer will compress the blocks of padding and will itself be pressed into adhesive contact with the cemented webs to define a padded cushion.

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