Aug. 26, 1930. B. M. STANNARD 1,774,191

PANEL UPHOLSTERY AND METHOD OF APPLYING SAME

Filed April 1, 1929

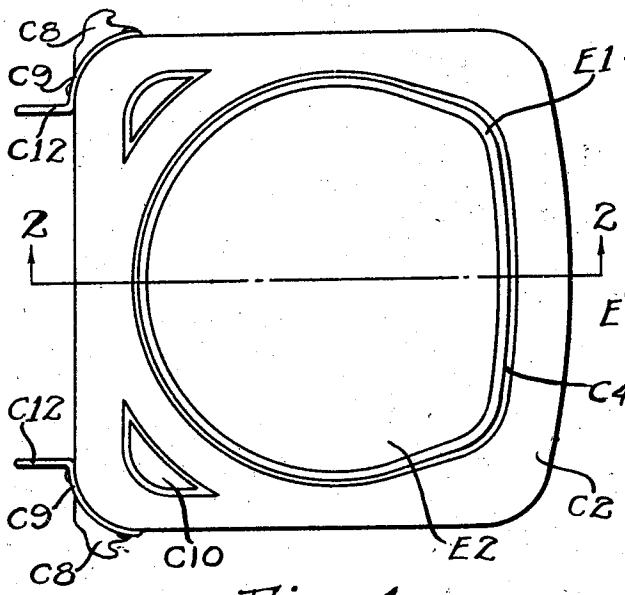


Fig. 1.

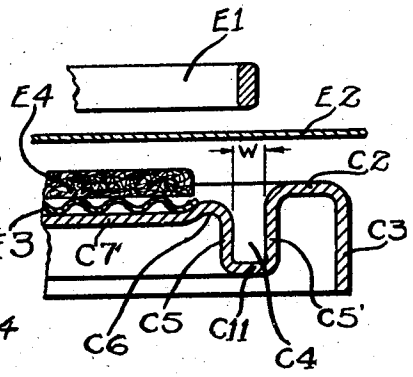


Fig. 5.

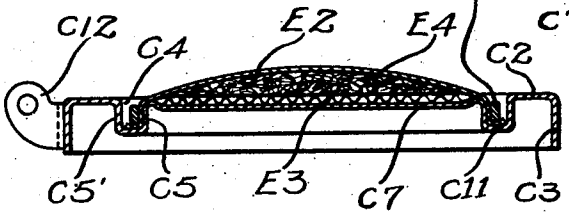


Fig. 2.

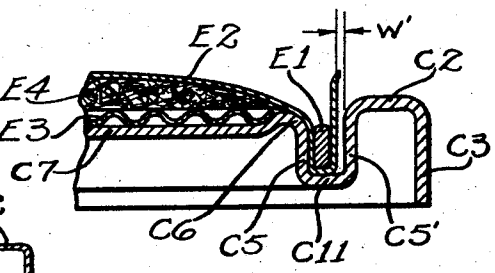


Fig. 6.

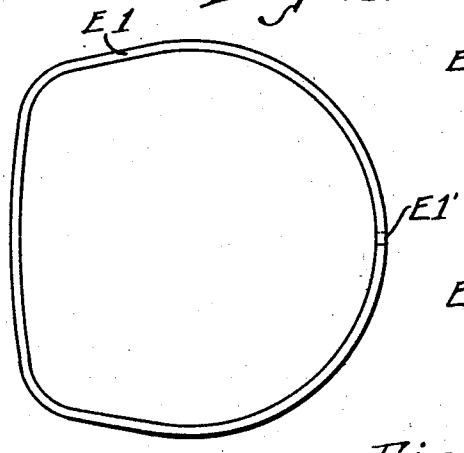


Fig. 3.

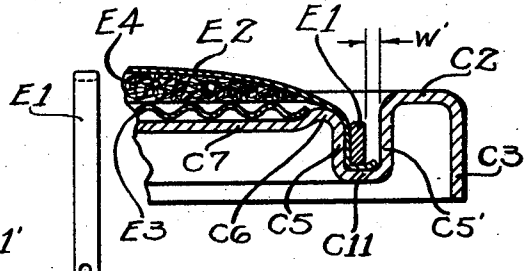


Fig. 7.

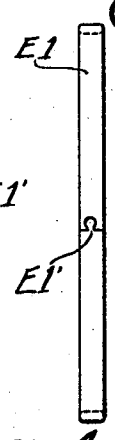


Fig. 4.

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UNITED STATES PATENT OFFICE

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PANEL UPHOLSTERY AND METHOD OF APPLYING SAME

Application filed April 1, 1929. Serial No. 351,603.

The present invention is a continuation in part of my pending application Serial No. 302,173, filed Aug. 27, 1928 and relates to composite panels or the like, more particularly to chair members such as provide for a one-piece metal seat or back panel to which upholstered pads may be applied in a neat and effective manner. An object is to provide for a chair member of this character in which cushioned upholstery fabric may be firmly secured into any grooved seat or back panel by the use of an endless clamping band adapted to embed the fabric border into such groove in an improved and novel manner. An important constructive feature resides in the use of stretchable clamping means that permits of securing the cover fabric inwardly of the panel perimeter and which cover is in turn reenforced by an underlying backing plate. As an additional differentiation, the groove wall spacing is preferably kept wider than the thickness of the inserted clamping strap to the end that a clearance gap may be provided for around the exterior of the assembled band. Such improved disposition on part of the fabric binder, readily compensates for expected differences in the run of fabric heft and likewise for all ordinary variations of fabrication in either the panel groove width or the ring filler thickness.

A further object consists in constructive features that facilitate rapid and economical securement of said upholstery covering on a productive scale at the least expenditure of labor and the minimum of fabric waste resulting from defective pads. Embodied herein are further structural details and a mode of manipulation for applying upholstery to either metal or wooden panels designed to accomplish the foregoing and related purposes, all of which will be more explicitly set forth hereinafter.

Reference is had to the annexed one sheet of drawings which are illustrative of certain specific embodiments of my invention, like characters of reference indicate like parts, and in which drawings:

Fig. 1 shows a top view of my upholstered metal seat panel adapted for use in connection with foldable seats, and Fig. 2 is a cross sectional view thereof as taken along line 2—2 of Fig. 1 to indicate the manner in which a sealing ring may be utilized to trim the margin of the upholstery cover fabric.

Fig. 3 illustrates in plan, a preferred style of sealing ring used to secure the upholstery pad to a metal seat or back panel, and Fig. 4 is an end view of said strap-like ring.

Fig. 5 represents enlarged fragmental view of Fig. 2 and discloses the relationship of the component upholstery elements prior to forcing said ring into an endless panel groove, while Fig. 6 is illustrative of the aforesaid upholstery after said sealing ring has been secured in place but prior to trimming the margin of the upholstery fabric.

Fig. 7 shows a sectional view similar to Fig. 6 except that said fabric has now been perimetrically trimmed to complete my seat upholstery process.

The present disclosure is more largely concerned with perfecting said upholstered cushion means as applied to a unitary sheet-metal panel affording an endless groove into which the fabric margins may be firmly secured. Referring in detail to the drawings, Fig. 1 shows the annular top or body contacting seat side face C^2 of my one piece sheet-metal frame or panel as equipt with my improved upholstered cushion mounting, it being apparent that by identical means such upholstery might likewise be applied to the forward or body contacting face of a chair back, also to any kind of fixedly mounted panel other than the foldable metal chair type herein more specifically described.

As will be seen from the sectional views, my relatively thin sheet-metal panel may provide for an annular top side face C^2 preferably having the marginal edges thereof downturned into a depending circumscribing flange C^3 designed to augment the normal stiffness of the flat top plate. Within the confines of said flange there may further be provided a sunken endless groove C^4 having complementary inner and outer side-wall faces C^5 and $C^{5'}$ respectively, that are perimetrically disposed in rectangular relation to the panel side and kept amply spaced to provide for a relatively wide groove dimension

W therebetween. The bottom of said side walls may be integrally interconnected by a transverse ledge wall C^{11}. The length of the upstanding innermost groove wall C^5 is shown somewhat shorter than its mate with its uppermost edge fashioned into a centering bead C^6; this in turn, may be spanned by an integrally formed dished crown plate element C^7 that may be slightly depressed relative to the level of the top face C^2, as shown. It is emphasized that said plate serves as a backing means for laterally reenforcing my upholstery fabric and as used in association with an endless binding means, constitutes an important feature of the present invention.

The particular plan contour given to said groove C^4 is immaterial; as applied to a seat frame, its shape may be made somewhat unsymmetrical in the fashion shown in Fig. 1, where a substantially straight length portion is provided adjacent to the swingable outermost edge of this particular seat disclosure while toward the pivoted rear seat edge, said groove may be given a more rounded shape that recedes from the respective contiguous corners of the substantially square shape here given to the seat face. If desired, said rear seat corners may each be equipt with an outwardly projecting stop lug such as C^8 and this may be further attached to the seat flange C^3 by strap means such as C^9 that respectively terminate in a perforated hinge element C^{12}. Each of the rear corner regions may further be provided with depressions of triangular shape such as C^{10}, which feature is however non-essential except for decorative purposes.

The upholstered cushioning pad E as applied to my metal seat or back panel, is associated with an endless clamping ring or band E^1 which as detailed in Figs. 3 and 4, is preferably made up from strap stock bent into an endless loop that closely conforms to the shape and size given to the innermost groove wall C^5 and is intended to be stretched somewhat when said band is forced into place. The ends of said ring may be fastened together in any suitable fashion but to facilitate ease and cheapness in fabrication, it is preferred to resort to the interlocking style of keeper joint $E^{1'}$ indicated in Fig. 4 but the ring ends may also be soldered, welded or otherwise joined together.

Said cushioning means may further comprise a sheet of pliable textile such as tapestry fabric, leather, leatheroid, or the like suitable chair upholstery material designated as E^2. Underneath the assembled fabric and on top of the metal crown plate C^7 there is provided a suitable cushioning material which may comprise a relatively thin layer of corrugated paper board or the like sheet filler medium E^3; superimposed thereon is shown a relatively thick layer of wadding E^4 preferably comprising felt or other soft fibrous cushioning material.

Both the filler medium E^3 and the cushioning material E^4 are intended to be first cut out of sheet stock to an approximate size or shape somewhat smaller than the contour defined by the inner groove wall C^5 in the manner indicated by Fig. 5, where the component upholstery parts are shown partially assembled and centered upon the depressed panel plate C^7 prior to their securement to said metal panel. The inside dimension of my stretchable metal sealing band E^1 is preferably made of bore size that will properly embrace the outermost dimension given to the groove wall C^5, hence when this ring is firmly pressed down into the groove with the margin of the fabric E^2 interposed in clamped relation therebetween in the fashion indicated in Fig. 6, said fabric thereby becomes snugly drawn and stretched over the enclosed sheet wadding E^4, which in turn causes the edges of the latter cushioning medium to assume a somewhat tapered form that imparts a neat rounded appearance to the finished upholstery as a whole. It will be observed that the external ring dimension is not allowed to fill the whole of the groove width W in the conventional manner but (see Fig. 6) is purposely so disposed as to leave a clearance gap W′ between the circumscribing groove wall $C^{5'}$ and the exterior of the embedded fabric, which gap is made sufficiently large to prevent clamping the perimetric fabric portion outwardly against the last named wall.

By the use of a suitable knife or cutter, adapted to reach through said gap, the projecting edge of the fabric may thereupon be trimmed off adjacent to the exposed free bottommost ring edge in the fashion shown in Fig. 7. Said ring is preferably made of a strap width approximately equal to the effective depth of the groove C^4 so that said exposed ring edge may fall substantially flush with the beaded perimeter of the panel plate C^7 and assuming this ring to have been previously nickel plated, the finished upholstery may thereby be given an exceedingly effective trim. It will be obvious that the described band securement is intended to be kept to proper size such as will frictionally maintain the fabric in a proper stretched relation across that portion of the body contact facing that is circumscribed by said frame groove and that the provision for a gap clearance space W′ prevents dragging or crimping the fabric border portion downwardly toward the transverse groove wall C^{11} but instead confines the frictional draw on part of the band to that fabric portion lying interiorly of said band.

A further structural feature resides in cooperatively disposing the upholstered fabric cover E^2 relative to the underlying backing

plate C^7, in such manner that there shall be no tendency to dislodge my endless binder hoop when the seat panel is subjected to heavy body loading. The use of such a substantially rigid backing plate causes the tensioned fabric to be relieved rather than augmented under increased seat load; hence my binder hoop does not need any supplementary fastenings to prevent its being dislodged even when merely retained in place by frictional clamping engagement. My hoop is preferably entered in such fashion that it simultaneously tucks the entire fabric perimeter into the panel groove, and thereupon serves to continuously bind the fabric margin against only the innermost groove wall.

The mode of applying fabric to a metal panel is thought to have been made manifest by the foregoing description; taking up my improved method for assembling said article, the steps involved may be more specifically defined as follows:

Firstly, providing for a panel and forming in one of its sides, a groove of the relatively wide endless type; secondly, placing a fabric upon said panel side in an overlapping covered relation to said groove; thirdly, tucking the fabric border region down into the panel groove by means of a relatively narrow band that is sized to be stretched and frictionally hold the fabric border in engagement with the innermost groove face C^5 but still provide for a clearance gap W′ therearound relative to the outermost or circumscribing groove face $C^{5'}$; and lastly, reaching into said gap with a cutter to trim off the surplus fabric border lying in close adjacency to the bottommost edge of the inserted band, the thrust of the cutting edge being counteracted by the underlying bottom wall C^{11} of the panel groove.

By the use of the described instrumentalities, the metal seat and back frame panels of a chair or the like, may first be japan finished in any desired color, whereupon a harmonized shade of fabric may be applied thereto, all of which results in producing a pleasing and attractive upholstered product. The non-metallic cushioning medium when attached to my metal panel further removes the disagreeable cold seat feel to which a user of an all-metal chair might otherwise be subjected. In addition, my sheet-metal seat panel by virtue of the described groove formation and its circumscribed flange reenforcement, is made relatively stiff and amply rigid to resist undue distortion under normal body loads, and the mode of initially stretching and securing the upholstery thereon is such as will during extended use, obviate loosening or sagging on part of the fabric. This result is herein obtained in a simple and expeditious manner without need of resorting to nails, prongs, cement or other extraneous ring or fabric securement of any kind.

Although certain specific embodiments and shapes of metal seat members have herein been set forth, I do not wish to be limited to the cited arrangement or form of panel parts, since various changes may be resorted to, all without departing from the spirit and scope of my invention, heretofore described and more specifically pointed out in the appended claims.

Claims:

1. A seat panel having an endless groove sunk into one side thereof and which groove comprises spaced inner and outer wall faces, an upholstery material positioned upon said one panel side with the border thereof entered into said groove, and securing means of the endless band type positioned over said inner groove face and clamping the fabric border thereto, said groove faces being sufficiently spaced to provide a clearance gap larger than the thickness of said material as disposed between the band exterior and the outer wall face.

2. A unitary sheet-metal panel comprising a centrally disposed backing plate having an endless rabbet-like groove wall element circumscribing said plate and which wall is disposed inwardly from the panel perimeter, an upholstery covering for said backing plate, and a metallic band interiorly sized to be expanded into embracing relation with said wall and clamp the interposed fabric border region thereagainst, said hoop being simultaneously forced into said embracing relation through the length thereof.

3. A one-piece panel comprising a substantially rigid and non-extensible backing face circumscribed by an endless sunken groove that is inset from the panel perimeter, a pliant covering material superimposed upon said face in stretched cooperative relation, and an endless binding hoop entered into said groove, the width spacing given to said groove being such as to provide a clearance gap around the exterior of the entered hoop and which gap is wider than the thickness of said covering material.

4. A unitary sheet-metal panel comprising a centrally disposed backing plate having a spaced double-walled struck-up ridge circumscribing said plate and which ridge is inset from the panel perimeter, an upholstery web means covering said plate with a web border region tucked between the walls of said ridge, and an endless hoop entered between the walls of said ridge and frictionally clamping said web border region against the innermost of the ridge walls, the exterior of the hoop being spaced from the outermost ridge wall by a distance greater than the web thickness to provide clearance therebetween.

5. A panel having a groove associated with one panel face and which groove comprises spaced endless inner and outer walls, an up-

holstery fabric spanning the panel region encompassed by the groove and having a fabric border region entered into said groove, and hoop means entered into the groove and over the inner wall thereof to clamp said fabric border region therebetween, said groove walls being sufficiently spaced to allow of inserting a cutting tool into said groove exteriorly of the hoop and sever the surplus fabric portion lying immediately beyond the first entered edge of the assembled hoop.

6. The method of fabricating a chair panel or the like and which method consists: firstly, in providing a grooved backing base means; secondly, in placing a covering material upon said base in overlapping relation to the groove thereof; thirdly, by the use of hoop means, entering the covering material into the groove of said base and binding said material therein, said base serving to support the surplus border material portion extending beyond the entered hoop; and fourthly, while thus supported trimming the surplus fabric material lying exteriorly contiguous to the first entered hoop edge.

7. The method of upholstering panels or the like having one face thereof provided with a sunken groove comprising complementary inner and outer side-walls together with an interconnecting bottom wall and which groove is adapted to receive a stretchable binding hoop means therein while the complementary walls thereof are sufficiently spaced to provide for a clearance gap along the exterior of the entered hoop, and which method consists: firstly, in placing an upholstery cover upon said one panel face with the cover border disposed to overlap the inner groove wall; secondly, by the use of said hoop entered into said groove, causing said overlapping border region to be clamped about the inner side-wall and bringing a portion of the cover border into adjacency with said bottom wall; and thirdly, severing the surplus cover border lying exteriorly of and contiguous to the first entered hoop edge by the introduction of a cutter within the aforesaid clearance gap, said bottom wall upholding said adjacent cover portion while the cutter severs said surplus border.

In testimony whereof, I have herewith set my hand this 29th day of March, 1929.

BRUCE M. STANNARD.