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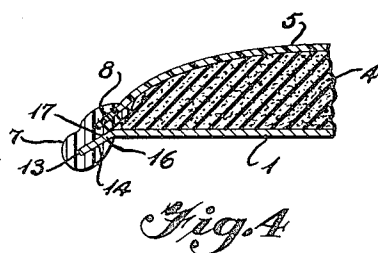
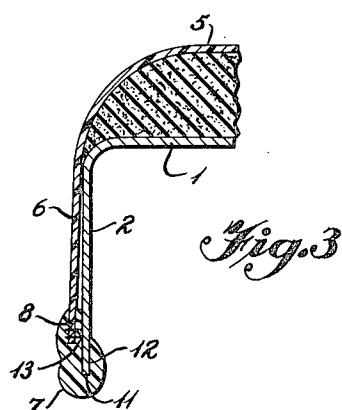
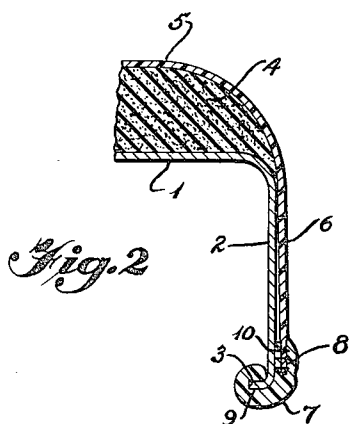
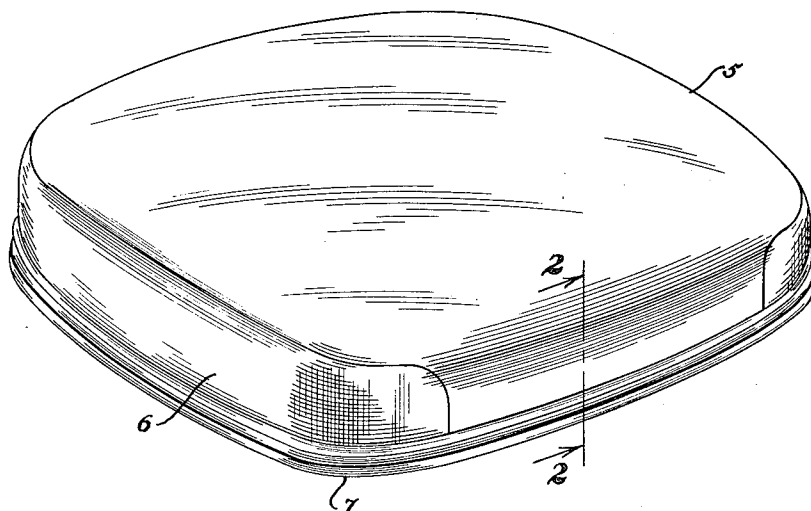
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UPHOLSTERED SEAT STRUCTURE

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Fig. 1



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UPHOLSTERED SEAT STRUCTURE

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This invention relates to an upholstered seat structure; and, more particularly, to a cushioned body supporting member having a covering material thereover which is maintained in a uniform state of tension.

The application of upholstery covering materials to the seat and back members of office furniture has been an expensive operation in the manufacture of such equipment. In applying these materials it has been necessary, heretofore, to employ either special tools or fittings. Moreover, it has been customary to secure the covering materials in a manner such that the edges of the coverings are not free to move adjacent the points or areas thereof secured to the seat or back portion of the chair. When the chairs are in use and the covering material is distorted by the application of body weight the covering material is subjected to great stress at the points or areas thereof secured to the back or seat with the result that such covering materials fail very rapidly. Another disadvantage of covering materials which are firmly secured to the seat and back portions of office furniture is that skilled persons must be employed to replace worn covering materials.

The foregoing disadvantages of upholstered chairs and seats are overcome by this invention which, briefly, consists of providing a cushioned body-supporting member having an overlying covering material. The body supporting member is provided with a projecting rim portion or ledge which extends outwardly from the edge of the cushion and terminates in a peripheral edge spaced from the cushion edge. A resilient annulus or frame-like member having a pair of spaced slots is provided for securing the covering material to the body-supporting member. The peripheral edge of the covering material is secured in one of the slots provided in the resilient annulus and the remaining slot in said annulus is adapted to engage the peripheral edge of the projecting rim portion of the body supporting member. The dimensions of the covering material and the resilient annulus are so proportioned that the covering material is maintained, uniformly, in tension.

It is, therefore, the principal object of this invention to provide a body-supporting member of a seat structure with a covering material which may be applied to the body-supporting member without the use of special tools or fittings. Another object of this invention is to provide a body-supporting member of a seat structure with a covering material which is secured in a manner such that the terminal edges thereof are free to move when the chair is used and thus distribute the stress in the covering material adjacent the points or areas thereof secured to the body-supporting member. Still another object of this invention is to provide a cushioned body-supporting member of a seat structure with a covering material which may easily and simply be installed or replaced without the assistance of skilled labor. A further object of this invention is to provide a cushioned body-supporting member of a seat structure with a covering material having the edges thereof secured in a resilient annulus which is provided with a slot for engaging

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the peripheral edge of the body-supporting member and for maintaining the covering material in uniform tension. The foregoing and other objects of this invention will be apparent from the following description taken in connection with the drawing wherein;

Figure 1 is a perspective view of a chair seat embodying the preferred form of this invention;

Figure 2 is an enlarged fragmentary sectional view taken along line 2—2 of Figure 1;

Figure 3 is an enlarged fragmentary sectional view showing a modified form of an upholstered body-supporting member embodying the principles of this invention; and

Figure 4 is an enlarged fragmentary sectional view showing another modified form of an upholstered body-supporting member embodying the principles of this invention.

Referring to the drawing in detail a chair seat comprising the preferred embodiment of this invention is shown in Figures 1 and 2. The seat consists of a rigid horizontally disposed plate 1 having a depending side wall 2 which terminates in an inwardly extending flange 3. This rigid supporting structure may be formed of metal or a reinforced synthetic resinous material. A cushion 4 formed of foamed rubber, foamed latex or similar cushioning materials is supported by the rigid plate 1. A sheet of covering material 5 extends over the cushion 4 and is provided with marginal portion 6 which overlies the depending side wall 2 of the supporting structure. The covering material, preferably, is formed of a flexible, resilient sheet of a synthetic resinous material; such as, for example, a vinyl resin or a polymer of butadiene and acrylonitrile. The covering material 5 may, if desired, be reinforced with a textile fabric backing.

The covering material 5 is secured to the rigid supporting structure of the seat by a resilient closed frame-like member or annulus 7 which is formed from flexible rubber or synthetic rubber materials. The annulus 7 is provided with a spaced pair of slots 8 and 9. The terminal edge of the depending portion 6 of the covering material 5 is secured in the slot 8. An adhesive may be employed to secure the edge of the covering material 5 in the annulus 7 or these members may be firmly bonded to one another by heat sealing methods which are commonly employed in the plastic bonding art. Alternatively, the annulus 7 may be prepared by molding operations and the terminal edge of the covering material 5 embedded in and secured to the annulus 7 when the latter is thus formed. The slot 9 which is also provided in the annulus 7 is positioned transversely with respect to the slot 8 and is thus adapted to receive and engage the inwardly extending flange 3 of the side wall 2. The slot 9 is deep and has extensive opposing walls thus providing a large gripping surface for engaging the flange 3. The annulus 7 is also provided with an inner face 10 which merges with one wall of the slot 9. The inner face 10 is parallel to the slot 8 in which the edge of the covering material 5 is secured and this inner face functions as a bearing surface and is adapted to maintain the depending portion 6 of the covering material 5 in spaced relation with respect to the side wall 3 of the rigid supporting structure. The covering material is thus afforded greater freedom of movement with respect to the rigid supporting structure when a weight is applied to the seat. The covering material, moreover, is not subjected to undue wear which would occur if it were in direct contact with the side wall 3.

The covering material 5 and the resilient annulus or frame member 7 are so proportioned in size that the annulus firmly engages the flange 3 when the latter is positioned in the slot 9. Thus, the annulus 7 is slightly smaller than the peripheral length of flange 3 and must be ex-

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panded slightly when it is applied to the latter element. The dimensions of the covering material are so proportioned that cover is maintained under tension when the annulus 7 engages the flange 3. In this manner, the covering material is free of wrinkles and tends to maintain the form of the cushion 4. The tension under which the covering material 5 is maintained in uniformly distributed in all directions since the resilient annulus 7 is free to move lengthwise of the side wall 2 as well as transversely thereof. This freedom of movement of the annulus 7 provides for redistribution of any stress in the covering material 5 which may become concentrated in a particular area until the stresses are uniformly distributed throughout the annulus 7 and the covering material 5.

It will be apparent from the foregoing that the covering material 5 may be applied to the cushioned rigid supporting structure merely by stretching the covering material 5 and the annulus 7 and then inserting the flange 3 in the slot 9 in the annulus. The covering material 5 is thus firmly retained in place without special fittings, adhesives or other securing means. The walls of the slot 9 firmly engage the flange 3 and the transverse disposition of the slot and the flange with respect to depending portion 6 of the covering material 5 further enhance the positive engagement of the covering material to the rigid supporting structure.

The principles of this invention are also employed in the modified form of seat structure shown in Figure 3. In this form of the invention a rigid supporting member 1 and a side wall 2 are provided. The latter terminates in a peripheral edge 11. A cushion 4 is provided on the plate 1 and a covering material 5 having a depending portion 6 is also provided. An annulus 7 formed of a resilient material is provided with a slot 8 in which the peripheral edge of the depending portion 6 of the covering material 5 is secured. The annulus 7 is also provided with a slot 12 which is spaced from and parallel to the slot 8. The wall 13 of the slot 12 serves to maintain the depending portion 6 of the covering material in spaced relation with respect to the side wall 2. The elements of the structure shown in this form of the invention function and cooperate in the same manner as the corresponding elements shown and described in the preferred embodiment of the invention.

A second modification of this invention is shown in Figure 4 as consisting of a rigid supporting plate 1 having a depending ledge 14 which extends outwardly from the cushion 4 supported on the plate 1 and terminates in a peripheral edge 15. The covering material 5 overlies both the cushion 4 and the ledge 14 and terminates in an edge which is secured in a slot 8 provided in a resilient annulus 7. The annulus 7 is provided with a second slot 16 which is adapted to receive and firmly engage the ledge 14. The slot 16 is substantially parallel to the slot 8 and is provided with a wall 17 which maintains the covering material 5 in spaced relation with respect to the ledge 14.

It will be apparent that, in each of the forms of the invention described above, the body-supporting member includes a rigid plate 1 which supports a cushion 4. The plate 1 is provided with a depending portion or ledge which extends outwardly from or beyond the edge of the cushion to provide a peripheral terminal edge spaced from the edge of the cushion. The covering material 5 overlies both the cushion and the projecting portion of the rigid plate 1 in each form of the invention. The resilient annulus 7 is secured to the peripheral edge of the covering material 5; and, in each form of the invention, is provided with a slot for receiving and engaging the peripheral terminal edge of the projecting portion of the plate 1. The annulus 7 is also provided, in each instance, with means for maintaining the portion of the covering material overlying the projecting portion of the plate 1 in spaced relation with respect to the latter element. Finally, in each form of the invention the slot in the resilient annulus and the projecting rim portion of the rigid supporting structure engaged thereby are co-planar, and the plane

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of the slot in which the terminal edge of the cover is secured is spaced from and parallel to the plane of the adjacent projecting rim portion.

The seat structures described above provide a covering material which is easily applied to and removed from the rigid supporting structure. The covering material is maintained under uniform tension constantly. The covering material and the resilient annulus are free to move and thus redistribute any concentrated stress in either of these elements when the seat is in use. This structure provides for longer life in use and seat covers, when worn, may be replaced without the use of special tools and skilled labor.

I claim:

1. An upholstered seat structure comprising a body-supporting member provided with a cushion, said body-supporting member having a peripheral projecting rim portion extending outwardly from said cushion and terminating in an edge spaced from said cushion, a flexible covering material overlying said cushion and having a peripheral portion terminating in an edge spaced from said cushion, and a resilient annulus provided with a spaced pair of slots, the terminal edge of the peripheral portion of said covering material being secured in one of said slots and the terminal edge of the peripheral projecting rim portion of said body supporting member being detachably secured in the remaining slot in said annulus, said covering material being maintained uniformly in tension by said resilient annulus.

2. An upholstered seat structure as set forth in claim 1 wherein the slot in said resilient annulus and the surfaces of said projecting rim portion engaged thereby are coplanar and the plane of said slot in which the terminal edges of said covering material are secured is spaced from and parallel to the plane of the adjacent surface of said projecting rim portion.

3. An upholstered seat structure comprising a rigid body-supporting member provided with a cushion, said body-supporting member having a peripheral rim portion projecting beyond said cushion and terminating in an edge spaced from said cushion, a flexible covering material overlying said cushion and having a peripheral portion overlying said peripheral projecting rim portion, said peripheral portion of said covering material having an edge positioned adjacent the terminal edge of said peripheral rim portion, and a resilient annulus provided with spaced slots, said edge of said peripheral portion of said covering material being secured in one of said annulus slots, the terminal edge of said peripheral projecting rim portion being detachably secured in the other of said annulus slots, said resilient annulus being provided with a bearing surface spaced from said annulus slot in which said edge of said covering material peripheral portion is secured and in contact with the adjacent surface of said peripheral projecting rim portion to maintain the peripheral portion of said covering material in spaced relation with respect to the adjacent surface of said peripheral projecting rim portion.

4. An upholstered seat structure as set forth in claim 3 wherein the dimensions of said covering material and said resilient annulus are so proportioned that said covering material and said resilient annulus are maintained in tension when engaged with said cushioned body-supporting member.

5. An upholstered seat structure as set forth in claim 3 wherein said slots in said resilient annulus are parallel to each other.

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