

[54] **UPHOLSTERY SUPPORTS AND THE MANUFACTURE THEREOF AND STRUCTURES INCORPORATING SUCH UPHOLSTERY SUPPORTS**

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[58] Field of Search.....297/442, 445, 452, 457; 160/368, 371; 5/187, 191, 230, 89; 267/102, 110

[56] **References Cited**

UNITED STATES PATENTS

3,351,959 11/1967 Turpin.....5/89 X

3,375,861	4/1968	Marlow	160/371
3,088,773	5/1963	Horrocks et al.	297/452 X
3,059,919	10/1962	Marchino	297/DIG. 2
3,208,085	9/1965	Grimshaw.....	297/452 X
3,120,407	2/1964	Propst	297/457
3,384,148	5/1968	Sarginson et al.....	297/DIG. 2
3,217,786	11/1965	Earl.....	297/452

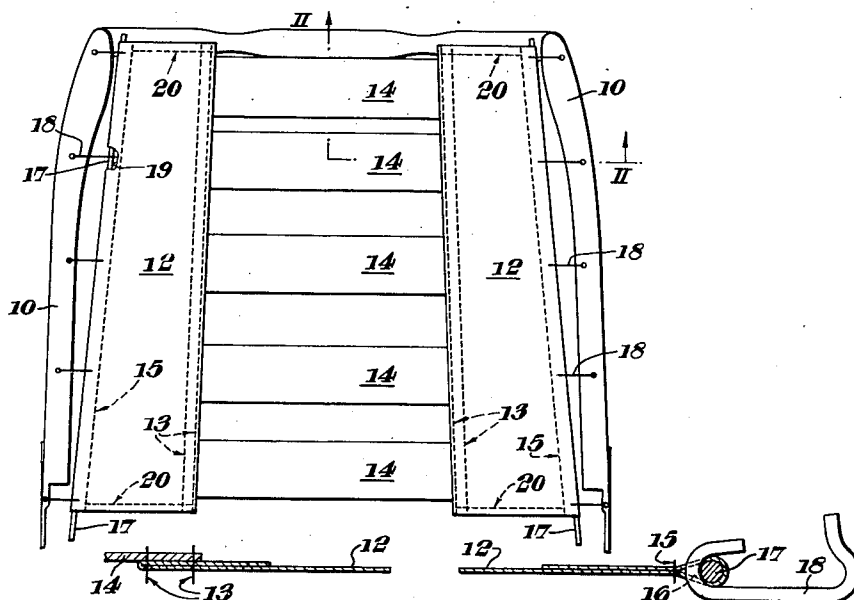
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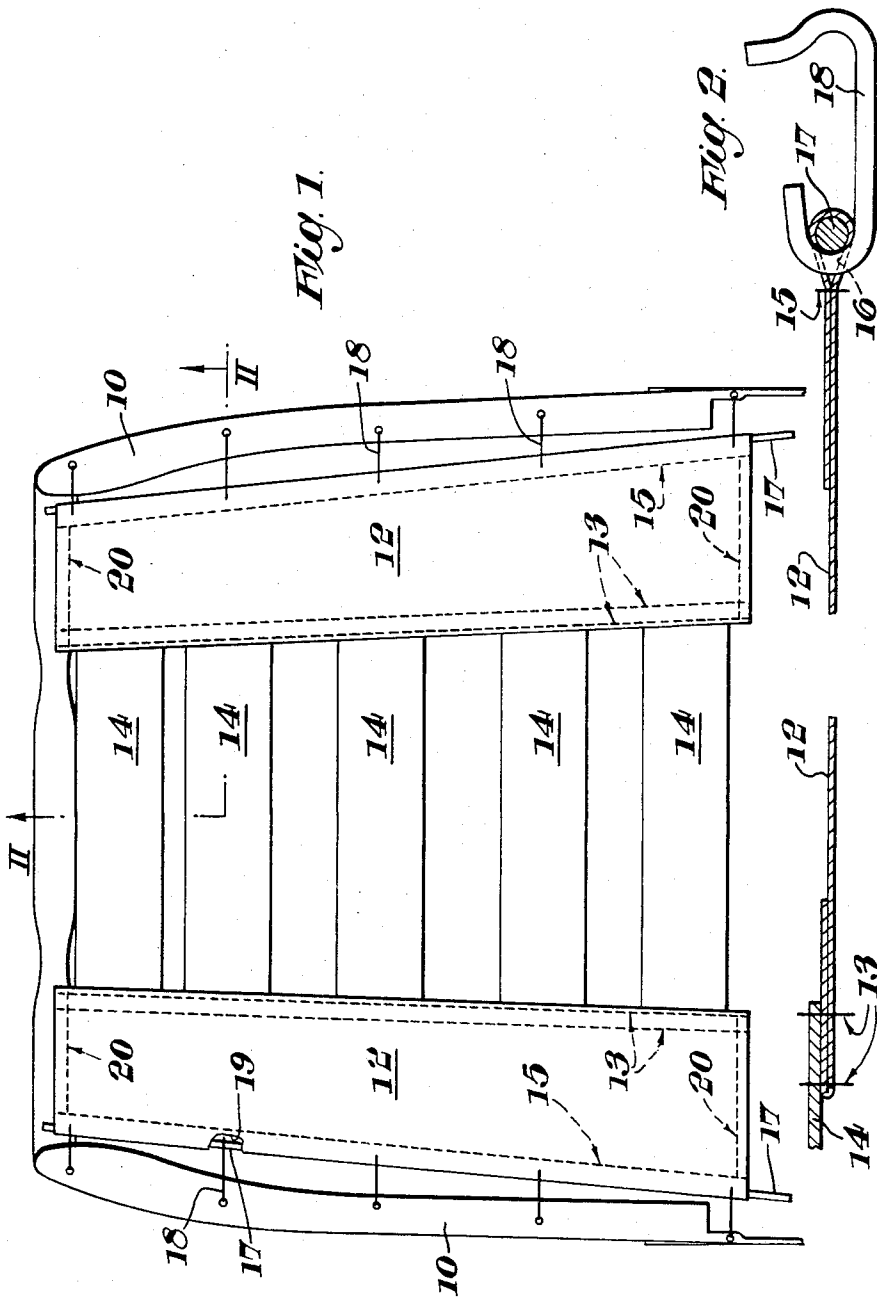
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[57] **ABSTRACT**

An upholstery support which comprises at least two flexible elements (e.g. of calico) to corresponding first locations on which there are firmly secured the ends of a number of separate strips of resilient strip material (e.g. of rubberized fabric), pockets being formed at second locations on the flexible elements and support rods being accommodated or being intended to be accommodated in said pockets, whereby the opposite ends of each of a number of hooked attachment arms can be caused to engage one of said support rods and a portion of an adjacent supporting frame.

8 Claims, 9 Drawing Figures



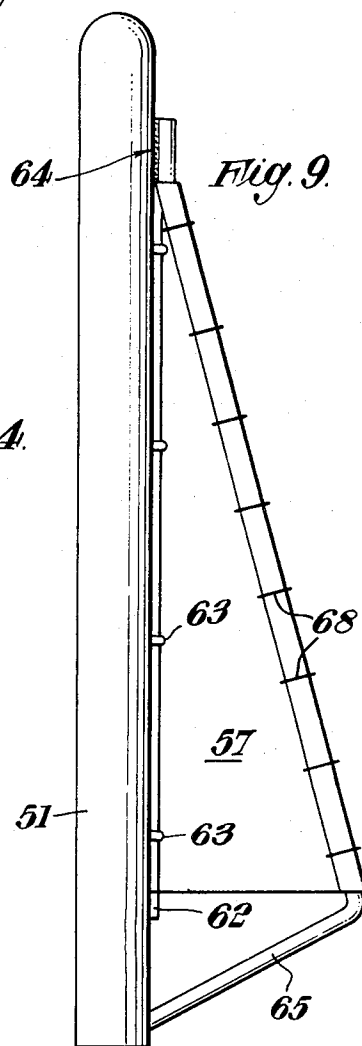
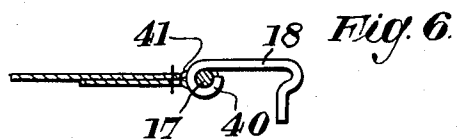
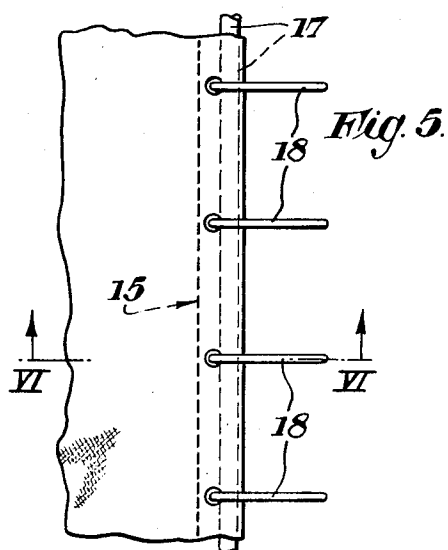
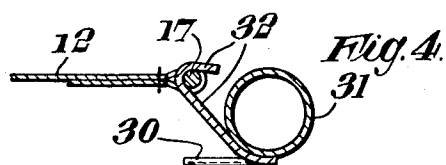
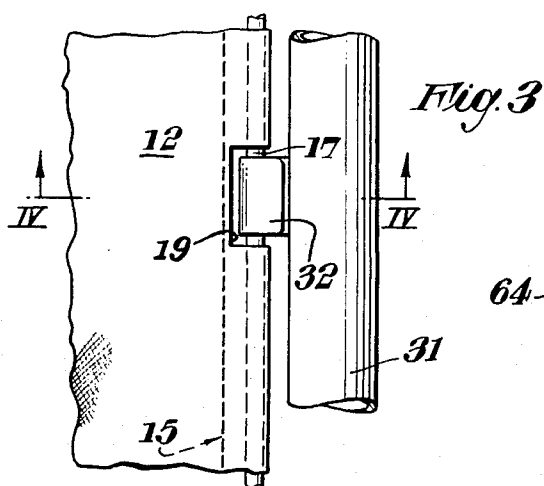


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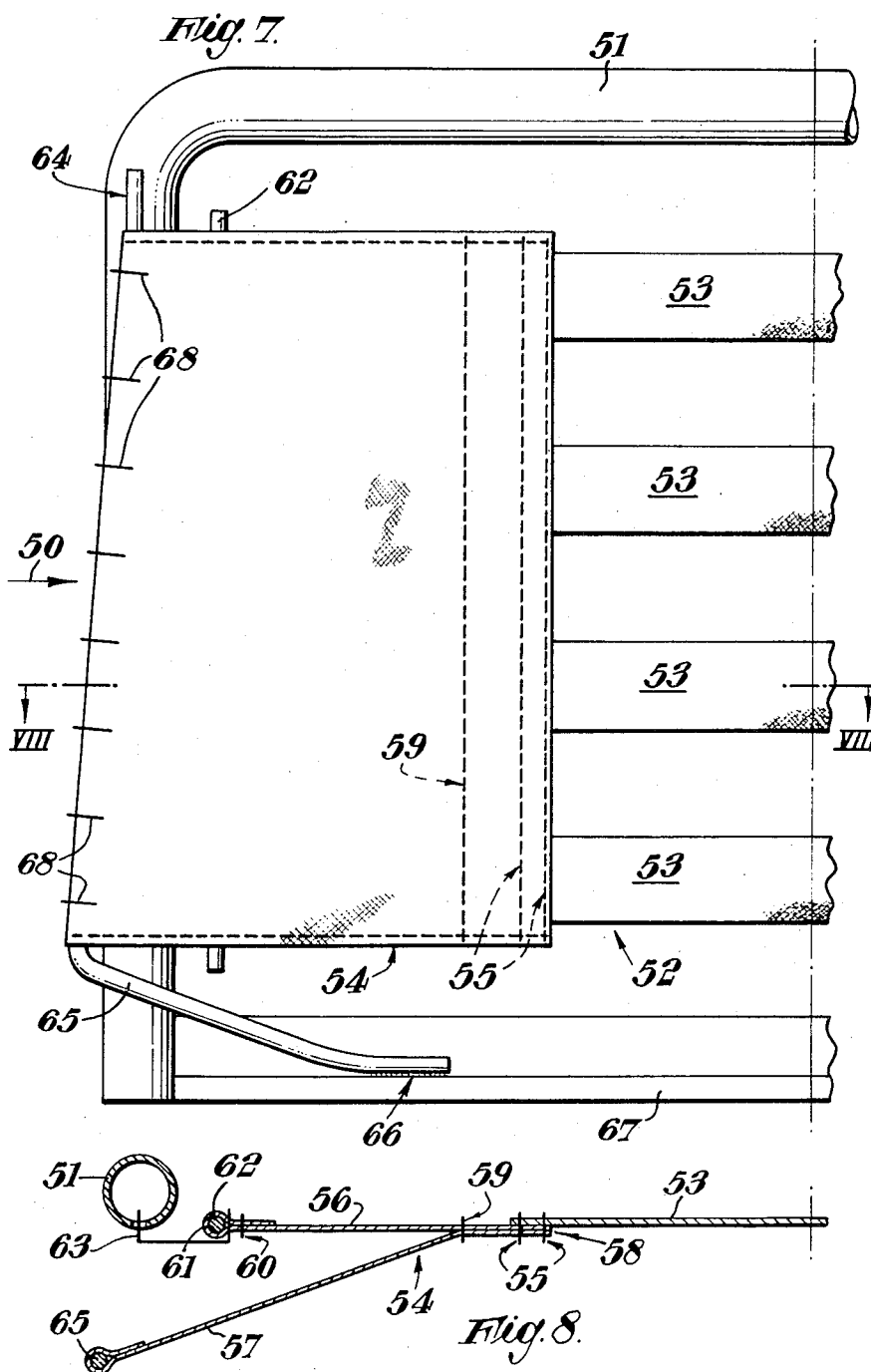
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UPHOLSTERY SUPPORTS AND THE MANUFACTURE THEREOF AND STRUCTURES INCORPORATING SUCH UPHOLSTERY SUPPORTS

This invention relates to upholstery supports and the manufacture thereof and to structures incorporating such upholstery supports.

The term "upholstery supports", as employed herein, includes not only resilient supports (used for example in the industry which makes passenger-carrying road vehicles) mounted under tension or without tension upon the seat or cushion and back-rest or squab frames for the elastic or springy support of an overlay of a foamed elastomeric or synthetic resin material which is thereafter protected by a wear-resisting cover of leather, vinyl material or the like but also resilient supports (used for example in the industry which makes household and other furniture like armchairs, settees, beds and so on) mounted under tension upon the furniture frames for the elastic or springy support of either loose cushions for the seats and backrests or fixed upholstery or mattresses.

Further, the term "resilient strip material" as employed herein is used to describe strips which are cut to the requisite length from greater lengths and are, say, 2 inches wide in their unstretched condition or which are moulded to size (for example, of the order of 8 inches long and 2 inches wide), said strips having the properties or advantages when used and being made from such materials and/or by such methods as are disclosed for example in U.K. Pat. Specifications No. 661,487, No. 707,433, No. 814,538, No. 853,445, No. 882,305 No. 909,702, No. 918,743 or as are described with reference to FIGS. 5 and 6 of the drawings of U.K. Pat. Specification No. 1,090,773.

According to a first aspect, the present invention consists in an upholstery support (as defined above) which is to be mounted upon a supporting frame and which comprises at least two flexible elements to which there are firmly secured at first locations thereon the ends of strips of resilient strip material (as defined above) and which are formed at second locations thereon which are remote from said first locations to provide pockets, the arrangement being such that said strips extend from one of said flexible elements to the other or another flexible element and also such as to permit the accommodation in said pockets of support rods which are adapted to be attached to said supporting frame.

In a preferred embodiment thereof, each of said support rods is straight or curved to conform with or to differ from the configuration of said supporting frame, hooked attachment arms which are formed separately both from said supporting frame and from said upholstery support constituting the means by which each support rod is attached to a part of said supporting frame. In an alternative embodiment thereof, each of said support rods is bent at intervals to form loops or eyes which are adapted to be engaged by hooked attachment arms which are formed separately both from said supporting frame and from said upholstery support and which constitute the means by which each support rod is attached to a part of said supporting frame. At least in said alternative embodiment, it may be desirable to provide holes in said flexible elements and com-

municating with said pockets, said loops or eyes being intended to project or extend out of the respective pockets through said holes. Further, in said preferred and alternative embodiments, that part of each hooked attachment arm which engages the support rod concerned may be clenched thereonto, whereby said arm and said rod will be rendered inseparable to a degree necessary to prevent accidental separation thereof.

Each of said straight or curved support rods may be formed with loops, eyes or other locating means at or in the vicinity of each end thereof for engagement by said attachment arms, said flexible elements being devoid of holes therein which communicate with said pockets.

If the shape of the area bounded by the parts of said supporting frame is such that any part of any support rod is further away from that part of said frame to which said support rod is attached than is another part of the same support rod, the attachment arms will be of the requisite different lengths to facilitate said attachment.

Again, in a preferred embodiment, said flexible elements are only two in number and are intended to extend (when said upholstery support has been mounted upon said supporting frame) in parallel or non-parallel directions from the front towards the back or from the top towards the bottom of said supporting frame, whereby at least some of said strips extend across said frame towards the sides thereof. Said strips are preferably parallel to one another.

Again, in an alternative embodiment, there may be three or more of said flexible elements so conjoined to one another as to form a continuous annular member to the constituent flexible elements of which are secured the ends of said strips, said strips or some of said strips being parallel or non-parallel to one another and/or crossing one another and/or extending in non-parallel directions without crossing one another. In this connection, the layout or relative dispositions of the constituent lengths of webbing of the resilient upholstery foundation unit disclosed in U.K. Pat. Specification No. 789,320 may be followed.

In a further alternative embodiment, each of said two flexible elements is bifurcated to provide two branches, one of said branches being formed at said second location to provide at least one pocket adapted to accommodate at least one support rod, and the other of said branches being intended to be attached to a first part of said supporting frame which is different or remote from a second part of said supporting frame to which said support rod or rods is or are to be attached, whereby said upholstery support is provided with forwardly extending wings in the case of a back rest or squab or upwardly extending wings in the case of a seat or cushion.

The possibility is not precluded of employing two or more separate rods in the pocket or pockets formed at said second locations. Thus, in the seat cushion of a car bucket seat, said upholstery support may be mounted upon the side frame members through the intermediary of hooked attachment arms, each upholstery support having at least two spaced flexible elements with said strips of said resilient strip material extending between and firmly secured to said flexible elements, each flexible element being formed to provide either at least two distinct pockets each adapted to accommodate a support rod having at its ends loops, eyes or other locating

means for engagement by attachment arms or a single pocket which communicates with at least one hole formed in said flexible element and which is adapted to accommodate at least two support rods each of which has at its ends loops, eyes or other locating means for engagement by attachment arms, the loops, eyes or other locating means at those ends of the support rods which are adjacent one another projecting or extending out of said single pocket through said hole or holes. Likewise, for the support of a mattress in a bed construction or for the support of loose seat cushions or fixed upholstery in a two-seat or multi-seat settee construction, an upholstery support (as defined above) comprising a continuous annular member of rectangular configuration in plan and constituted by four conjoined flexible elements with a plurality of said strips of said resilient strip material each or the majority of which extends from one flexible element to another and is firmly secured by its ends to said flexible elements may be mounted upon the bed or settee frame through the intermediary of attachment arms engaging appropriately formed ends (and possibly also intermediate portions) of two or more support rods which are accommodated in a pocket or pockets formed in each of said flexible elements.

The flexible elements referred to above are preferably made of calico. However, other materials could be used instead of calico provided that they have sufficient tensile strength or resistance to rupture or tearing under the influence of the forces resulting from the loads which the upholstery supports may be required to carry.

The ends of the strips of said resilient strip material are preferably firmly secured to said flexible elements by stitching with thread or the like.

The present invention will now be more particularly described with reference to the accompanying drawings, in which:

FIG. 1 illustrates one embodiment of an upholstery support constructed in accordance with the present invention and mounted upon a vehicle squab frame (namely, the frame of the seat portion as distinct from that of the back-rest portion);

FIG. 2 illustrates on an enlarged scale a section taken on the line II — II in FIG. 1;

FIG. 3 is a detail view of one manner in which the upholstery support of FIGS. 1 and 2 can be mounted upon a tubular supporting frame;

FIG. 4 illustrates a section on the line IV — IV in FIG. 3;

FIG. 5 is a detail view of the upholstery support of FIGS. 1 and 2 which has been provided with a number of hooked attachment arms which have been so connected thereto as for all practicable purposes to be considered inseparable therefrom;

FIG. 6 illustrates a section on the line VI — VI in FIG. 5;

FIG. 7 illustrates in front elevation one half of an alternative embodiment of an upholstery support constructed in accordance with the present invention and mounted upon a vehicle squab frame (namely, the frame of the back-rest portion as distinct from that of the seat portion);

FIG. 8 illustrates a section on the line VIII — VIII in FIG. 7; and

FIG. 9 illustrates in side elevation the structure of FIGS. 7 and 8.

Referring now to FIGS. 1 and 2, there are illustrated therein the side rails 10 of a vehicle squab frame upon which is mounted an upholstery support 11. Said upholstery support 11 consists of two flexible elements 12 of calico to which are firmly secured at first locations 13 thereon the ends of strips 14 of resilient strip material (as defined above) and which are formed at second locations 15 thereon which are remote from said first locations to provide pockets 16, the arrangement being such that said strips 14 extend from one of said flexible elements 12 to the other and also such as to permit the accommodation in said pockets 16 of support rods 17 which are adapted to be attached to said side rails 10, whereby said strips are placed under tension. The support rods 17 are straight and hooked attachment arms 18 (FIG. 2) constitute the means by which each support rod is attached to a part of the adjacent side rail 10. Obviously, either holes would need to be provided in the flexible elements 12 and communicating with the pockets 16 in order to facilitate engagement of said support rods 17 by said loose and separately formed attachment arms 18, one such hole 19 having been drawn in FIG. 1 by way of example or the appropriate end of each of said hooked attachment arms 18 can be sharpened in order to facilitate the simple piercing (without tearing) of the calico of the flexible element 12 concerned in order to facilitate said engagement. It will be seen from FIG. 2 that the forming at second locations 15 is by folding a marginal portion of each flexible element 12 back and stitching the superposed portions thereof to one another by thread. Likewise, the securing of each end of each strip 14 to the respective flexible element 12 is effected by folding another marginal portion of said element back, laying the end of the strip 14 thereon and stitching the three superposed layers of material to one another.

It has also been found to be prudent to connect the runs of stitching at said locations 13 and 15 to one another by further runs of stitching indicated by the reference numeral 20.

FIGS. 3 and 4 illustrate the manner in which the upholstery support 11 of FIG. 1 (namely, the assembly consisting of the flexible elements 12, the strips 14, and the support rods 17 accommodated within the pockets 16 and appropriately spaced holes 19 communicating with said pockets) can be utilized with hook means which form an integral part of a tubular supporting frame. In the motor vehicle trade, one commonly finds a continuous metal strip 30 welded to the underside of a frame tube 31, said strip 30 functioning as a lug or anchor plate to which a number of spring clips (not illustrated) which are attached to the margins of an outer vinyl cover can be attached. Said strip 30 can be formed into a number of spaced hook means 32 with which the spaced exposed portions of the support rods 17 can easily be engaged in order to mount the upholstery support with the strips 14 thereof under tension. It will, however, be appreciated that individual hook means could be welded to the supporting frame or that interconnected hook means could be welded thereto, each alternative being obtainable without utilizing the strip 30 which has been described above as being commonly used for the purpose referred to above.

FIGS. 5 and 6 are detail views similar to those of FIGS. 3 and 4 illustrating the manner in which a number of hooked attachment arms 18 and the associated support 17 can be rendered inseparable to the degree necessary to prevent accidental separation thereof, namely, by clenching the part 40 (FIG. 6) of each arm onto the support rod 18 before the calico flexible element 12 is formed at said second location 15 to provide said pocket 16. The formation or provision of said pocket 16 may be somewhat difficult since the task of stitching the two thicknesses of calico together at 15 (FIG. 5) is likely to be hampered by the proximity of the rod 17 and the clenched parts 40 but this inconvenience may well be compensated for by the convenience of the substantially inseparable rod 17 and hooked attachment arms 18. It will be noted that the calico is provided with slits 41 (FIG. 5) which are necessary to enable the arms 18 to be poked through the calico material which is thereafter folded back on itself to provide two superimposed thicknesses thereof which are stitched together at 15.

Obviously, the hooked attachment arms 18 could be attached to the support rod 17 concerned in other manners, for example by welding.

Referring now to FIGS. 7, 8 and 9, there is illustrated part of a tubular supporting frame 51 of a back-rest or squab upon which is mounted an upholstery support 52 which consists of strips 53 of resilient strip material (as herein defined). A flexible element 54 of calico is firmly secured at first locations 55 thereon to corresponding ends of the strips 53, said element 54 being one of two such elements of which the other one has been omitted since FIGS. 7 and 8 illustrate only one half of said back-rest or squab and said element 54 being bifurcated (see FIG. 8) to provide two branches 56, 57. Said branches could be provided by folding a piece of calico about a fold line which would be located approximately at the position indicated by the reference numeral 58, said branches being then joined to one another and to the ends of said strips 53 by stitching at 55 and also joined to one another by stitching at 59. Alternatively, said two branches could be provided by separate pieces of calico which are stitched as stated above at 55 and 59. The branch 56 is formed at a second location 60 thereon to provide a pocket 61 which accommodates a support rod 62 which is attached to said supporting frame 51 by hooked attachment arms 63.

Fixed to said frame 51 at 64 is one end of a shaped ancillary frame member 65 of which the other end is fixed at 66 to a cross frame member 67. The free end of the branch 57 is attached to said frame member 65 for example by hog rings or spring clips 68.

The arrangement described above with reference to FIGS. 7, 8 and 9 results in the upholstery support 52 being provided with forwardly extending wings which, particularly with bucket type seats, provide support for the body against movement of the torso laterally of the back-rest or squab. This sculptured effect is sometimes described as "wrap around" and is equally applicable to (even if not widely used in) the seat or cushion for a similar kind of support as can readily be imagined if one were to regard the top of FIG. 9 as the rearmost portion of the seat or cushion supporting frame and the bottom of FIG. 9 as approximation of the foremost portion of said seat or cushion supporting frame.

Employment of such upholstery support 11, particularly in the motor trade, means a great saving in terms of operative's time since a plurality of strips 14 of said resilient strip material do not have to be handled individually. Furthermore, the flexible elements 12 are made of a material (e.g. calico) which is cheap by comparison with said resilient strip material.

It follows from what has been described above the one can make an upholstery support which is such as to provide a complete unit comprising a seat or cushion portion and a back-rest portion or to provide only a back-rest portion or only a seat or cushion portion. The constituent portions of the complete unit referred to above may both be made in accordance with FIGS. 1 and 2 or in accordance with FIGS. 1 and 2 as modified by FIGS. 3 and 4 or by FIGS. 5 and 6. Alternatively, said constituent portions of the complete unit referred to above may be made in accordance with FIGS. 7, 8 and 9 insofar as the back-rest portion is concerned and in accordance with any of the respective pairs of FIGS. 1 and 2, 3 and 4, and 5 and 6 insofar as the seat or cushion portion is concerned. Other combinations are, of course, possible.

WHAT WE CLAIM IS:

1. An upholstery support adapted to be handled as a unitary structure and to be mounted upon a rigid supporting frame; said support comprising at least two planar flexible elements in laterally spaced substantially coplanar relation whereby each element has a first side edge facing the other element and a second side edge facing away from the other element, parallel strips of resilient strip material extending laterally between said flexible elements and spaced in a direction perpendicular to the length of the strips and having the ends thereof fixed to said first side edges of said flexible elements, said second side edges of said flexible elements being formed to provide pocket means extending along the respective edges, each said pocket means being adapted to receive a rigid support rod, and each support rod being adapted for connection to said supporting frame.

2. An upholstery support as claimed in claim 1, including rigid support rods in said pocket means, and hooked attachment arms connected to said support rods and extending outwardly therefrom and establishing a hooked connection between the support rods and the respective adjacent portions of said supporting frame, said arms forming the sole support of said support rods engaged thereby on said supporting frame.

3. An upholstery support as claimed in claim 2, including holes formed in said flexible elements and exposing said support rods, said hooked attachment arms engaging said support rods through said holes.

4. An upholstery support as claimed in claim 2, in which that end of each hooked attachment arm engaging a support rod is clenched about the respective said support rod.

5. An upholstery support as claimed in claim 1, wherein each of said flexible elements is bifurcated to provide two branches, the branches of each flexible element diverging in a direction away from the other element, said resilient strips being attached to said flexible elements at the juncture of the said branches of each thereof, one of the said branches of each element being formed at the free edge thereof to provide said pocket means to accommodate said rigid support rod

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and the free edge of the other of the said branches of each element being adapted to be attached to a respective first lateral part of a supporting frame, said support rod being adapted to be attached to a respective second lateral part of said supporting frame spaced from the adjacent said first part in a direction perpendicular to the plane of said resilient strips.

6. In an article of furniture intended to support at least one human being in either sitting or recumbent posture, a rigid supporting frame and an upholstery support attached to said frame, said upholstery support including two laterally spaced substantially coplanar flexible elements, each having a first edge on the side nearest the other element and a second edge on the side remote from the other element, a plurality of strips of resilient strip material arranged in parallel spaced relation, each of said strips having end portions, one end portion of each strip being firmly secured to said first edge of one of said flexible elements and the other end of each strip being firmly secured to said first edge of the other of said flexible elements, pockets formed along the said second edges of said flexible elements, support rods and hooked attachment arms, the support rods being disposed in said pockets and said arms being connected to said support rods and to said frame respectively and supporting the upholstery support on said frame.

7. In an article of furniture intended to support at least one human being in either sitting or recumbent posture, a supporting frame and an upholstery support attached to said frame, said upholstery support including two laterally spaced flexible elements, a number of

strips of resilient strip material, said frame having symmetrical halves and each of said halves having at least first and second frame portions adjacent respective ones of said flexible elements, the said first and second frame portions of each said half being spaced from one another in the fore and aft direction of said article of furniture, each of said flexible elements being bifurcated to provide two legs and having a connection region extending along the juncture of said legs, pockets formed in the free ends of said legs, the pocket on one leg of each flexible element having a respective said first frame portion disposed therein, a rigid support rod disposed in the pocket on the other leg of each flexible element, hooked attachment arms connecting each support rod to the respective second frame portion, said flexible elements being disposed with the said connection regions in opposed relation, said strips extending laterally between said connection regions and being disposed in parallel spaced relation, and each said strip having the opposite ends thereof connected to the said opposed connection regions of said flexible elements.

8. An article of furniture according to claim 7 in which said second frame portions are generally vertical and each first frame portion is connected at the upper end thereof to the respective first frame portion and diverges therefrom in the downward direction, the lower end portion of each said first frame portion being formed backwardly, the rearmost end of the backwardly formed portion being connected to said supporting frame.

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