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2,977,664

COATED THREE DIMENSIONAL FABRIC AND METHOD OF MAKING SAME

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FIG. 1.

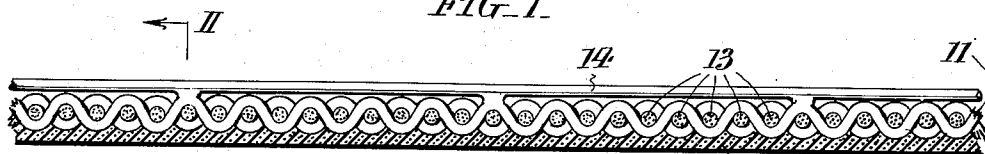


FIG. 2.

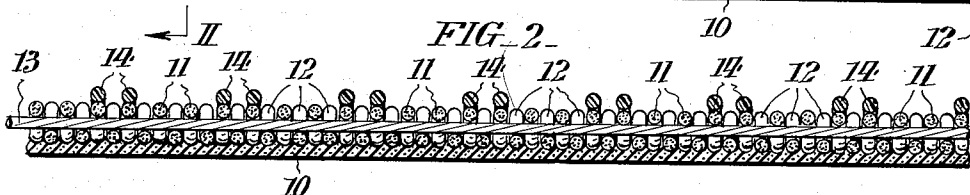


FIG. 3.

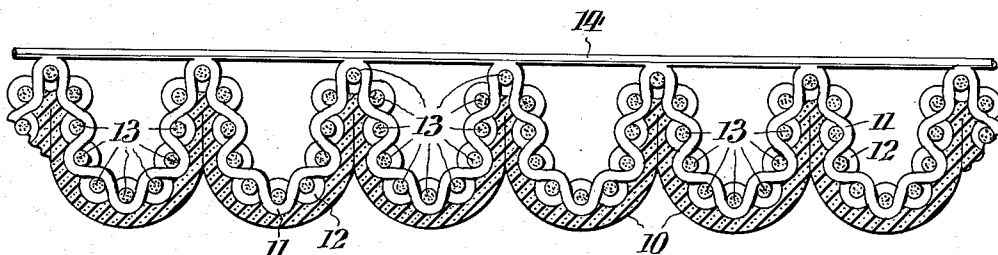


FIG. 4.

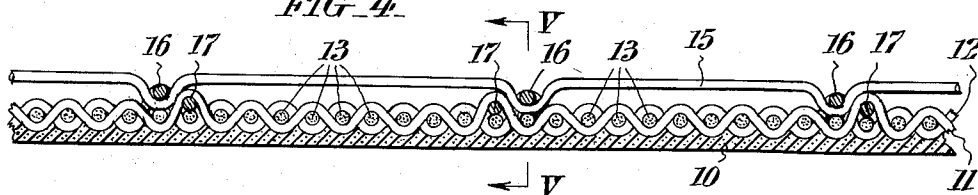
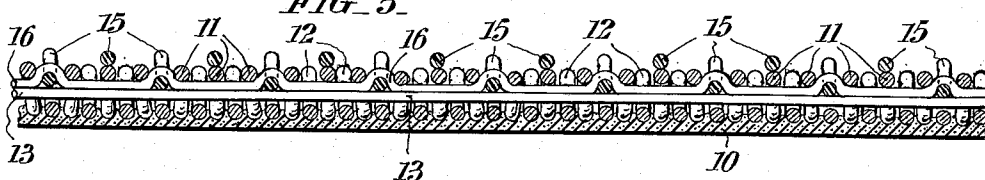


FIG. 5.



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2,977,664

COATED THREE DIMENSIONAL FABRIC AND METHOD OF MAKING SAME

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6 Claims. (Cl. 28—74)

This invention relates to a three dimensional textile fabric having a plurality of puffs formed in the body thereof and having a resilient coating material applied to the surface of the puffs and to a method for making such a fabric. It has long been an object in the field of textile fabrics and particularly upholstery and carpet fabrics to produce fabrics having stability combined with substantial resiliency. Foam rubber has been developed and used in the upholstery field as a cushion material but its application is limited by the fact that it is a uniformly spongy material having little stability.

It is an object of this invention to provide a textile material having the stability of woven textile fabrics yet being substantially resilient. It is also an object of this invention to provide a simple and inexpensive method of making such fabrics.

Other objects and advantages will be apparent from the following description and the drawings of which:

Fig. 1 is a partial side view in cross-section showing one embodiment of the invention; and

Fig. 2 is a partial view in cross-section along the lines II—II of Fig. 1; and

Fig. 3 is a partial view in cross-section of the fabric of Figs. 1 and 2 after shrinking treatment;

Fig. 4 is a partial view in cross-section of another embodiment of the invention; and

Fig. 5 is a partial view in cross-section along the lines V—V of Fig. 4.

Fig. 1 shows a specific example of a fabric made according to the invention. A base fabric is formed of warp yarns 11 and 12 and weft yarns 13. Highly shrinkable yarns or filaments 14 are attached to the fabric formed of yarns 11, 12 and 13 at spaced intervals as shown in the drawing. A high shrinking material such as polyethylene may be fused to the fabric as shown. The other side of the fabric is coated with a foam material such as foam or sponge rubber, foam vinyl, foam polyurethane or the like. The coating 10 may be also made of materials other than foam, such as vinyl, polyethylene, rubber or the like.

After the fabric has been coated it is subjected to a treatment determined to shrink the highly shrinkable yarns or filaments 14. Since the yarns 14 are attached to the fabric at spaced intervals the shrinking treatment will produce an effect as shown in Fig. 3. It will be appreciated, of course, that many other patterns and forms may be obtained by varying the manner in which the shrinkable yarns 14 are attached to the fabric. The resulting material is characterized by high puffs having substantial body by virtue of the textile fabric and having a satisfactory surface formed of the sponge or other flexible material. Such a fabric has all of the basic beneficial characteristics of sponge rubber or the like but also has substantial body and fabric stability.

A modified form of the invention is shown in Fig. 4

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in which the highly shrinkable yarn or filament 15 is interwoven with the base fabric. The shrinkable yarns 15 are tied into the fabric by yarns 16 and 17. In this case also the fabric is coated with the coating material 10 and the fabric is then shrunk to the form shown in Fig. 3.

The most important single feature of the invention is that the base is coated prior to shrinking. By this means each of the puffs formed in the finished fabric is a separate entity completely surrounded by the coating material. This provides a lateral flexibility which is highly important in the finished product. If the coating material were to be coated on the fabric after shrinking, it would form a solid bond between the puffs thus preventing any lateral flexibility. It will also be noted that by coating the base fabric prior to shrinking the outer surface of the coating material 10 is placed under a slight tension after the shrinking operation. This further adds to the stability of the fabric without reducing the resiliency in any substantial amount.

It will be apparent that many minor variations may be made in the embodiment of the invention described above without departing from the spirit of the invention as defined by the following claims.

Having thus described my invention, I claim:

1. A method of making a textile fabric comprising the steps of forming a woven base fabric having high shrinking yarns disposed in one direction on one side of said woven fabric, applying a coating of a resilient material to completely cover the side of said woven fabric opposite said high shrinking yarns and then forming puffs in the woven base fabric and said resilient coating material by shrinking the high shrinking yarns disposed on the side of said woven base fabric opposite said resilient coating material.

2. A textile fabric comprising a woven material, highly shrinkable yarns attached to said woven material at predetermined intervals on one face thereof, said highly shrinkable yarns being shrunk to form substantially rigid permanent puffs of said material, and a layer of a resilient material permanently affixed to and in substantially full surface contact with the surface of said woven material opposite said highly shrinkable yarns prior to shrinking forming a puffed surface of said resilient material after shrinking.

3. The fabric of claim 2 wherein said highly shrinkable yarns are interwoven with said woven material.

4. The fabric of claim 2 wherein said highly shrinkable yarns are fused to said woven material.

5. The fabric of claim 2 wherein the resilient material is a foam material.

6. A textile fabric comprising a woven material, highly shrinkable yarns fused to said woven material at predetermined intervals on one face thereof, said highly shrinkable yarns being shrunk to form substantially rigid permanent puffs of said material, and a layer of a resilient material affixed to the surface of said woven material opposite said highly shrinkable yarns prior to shrinking forming a puffed surface of said resilient material after shrinking.

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