

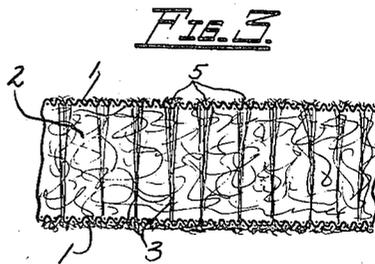
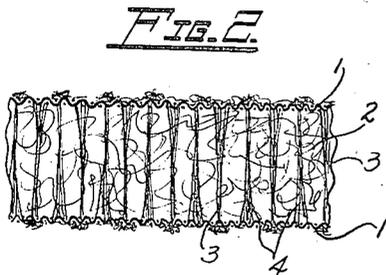
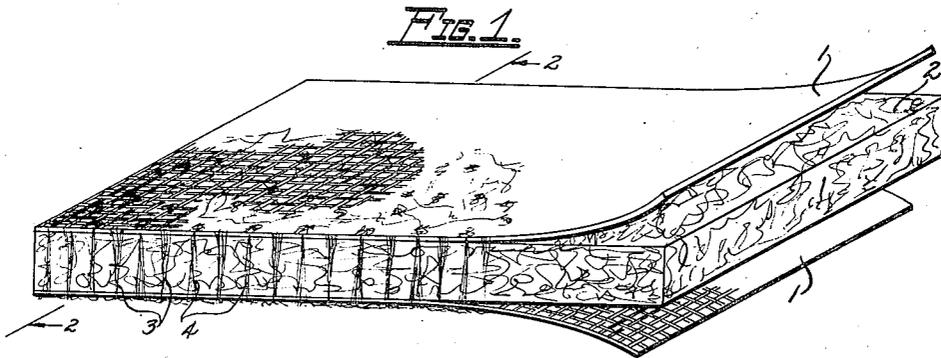
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FIBROUS FABRIC AND METHOD OF MAKING THE SAME

Filed Sept. 10, 1928



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# UNITED STATES PATENT OFFICE.

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FIBROUS FABRIC AND METHOD OF MAKING THE SAME.

Application filed September 10, 1928. Serial No. 304,966.

This invention relates to a fibrous fabric and method of making the same and more particularly to an elastic and soft fabric for use as a backing or cushion in upholstery for furniture or automobiles, for floor coverings, or wherever low-priced flexible cushioning fabric is required.

It has been proposed to make carpet cushions of a plurality of layers of animal hair felted to a stay and stiffened by adhesive material such as sizing or glue. The use of adhesive material stiffens the fabric and renders it unsuitable for use in upholstery because of the lack of flexibility and also detracts from its cushioning properties. An object of the present invention, therefore, is to produce an inexpensive cushioning fabric without the use of adhesive so that it will be very flexible and resilient but which has the requisite tensile strength.

It has also been proposed to produce a soft pliable fabric by needling several layers of fibrous material to each other with or without the interposition of a stay of burlap or the like. Such a fabric is disclosed in applicant's Patent No. 970,950, September 20, 1910. The present device is an improvement on that of the earlier patent in that the fibrous material is needled to two stays, the stays being on the outside of the fibrous material to protect the same. It is believed that the applicant is the first to needle fibrous material directly to outside stays and it is an object of the present invention to produce a fibrous fabric having one layer of fibrous material secured between two layers of woven material without the use of adhesive. This results in a fabric which is rugged, has the requisite tensile strength and is easy to manufacture.

In applicant's co-pending application Serial No. 149,891, filed November 22, 1926, there is a disclosure of the step of needling a layer of fibrous material to a stay. In addition to the step disclosed in the prior application, the present invention relates to a process for needling the fibrous material to two stays. The result is a fibrous fabric having high tensile strength and low cost and which is more resilient and rugged than fabrics disclosed by the prior art. The process of manufacture may be accomplished by a needling machine such as described in the patent to Wagner No. 1,326,236 granted December 30, 1919.

Other objects and advantages will be apparent to those skilled in the art to which this invention appertains.

In the accompanying drawings, like characters designate the same parts in the several figures.

Figure 1 is a perspective view of an embodiment of the invention in which a stay is placed on both sides of a layer of fibrous material which is needled to both stays;

Figure 2 is a cross sectional view of the fabric of Figure 1; and

Figure 3 is a cross sectional view of a modification in which the fabric is needled in one direction only.

Referring to Figures 1 and 2 an arrangement is shown in which stays 1 of burlap or other woven fabric are placed on either side of one or more layers of fibrous material 2 which consists of loosely matted animal hair or vegetable fibers. By a needling process in which barbed needles pass through the assembled layers from both sides, the fibers of the material are bound or tied together and the material is secured to the stays, certain of the fibers or strands of the material being looped and forced through the stay. This binding and securing of the fibers is accomplished by the use of barbed needles, with the barbs pointing toward the point of the needle. Such barbed needles are passed through the fibrous material and stays. Thus some of the fibers are punched or looped through the interstices of the stay and secure the fibers to each other and to the stay. This arrangement of the fibers is shown diagrammatically at 3. In the process of making a fabric of this type, the needling on the two sides may be done simultaneously or successively. If desired, the punching or looping of the strands or fibers through both stays may be done by needles from one side only, the needles having barbs pointing in both directions. In this modification it will be apparent that approximately an equal amount of fibrous material is punched or thrust through both stays.

It has been discovered, however, that for some purposes, needling in one direction only is sufficient. Such a fabric, made by needling from one side only, using needles having barbs pointing in only one direction, is shown in Figure 3. In this modification, a fabric similar to that of Figures 1 and 2 is shown.

but in which more material has been looped through one of the stays than the other. By using needles having barbs pointing in only one direction, the fibers of the cushioning material are looped through the lower stay of the figure in the same manner as that disclosed in Figures 1 and 2.

The upper stay is not secured as firmly as the lower one by this process, but the needles which pass through both stays and the fibrous material carry a few fibers as shown at 5 through the upper stay on the return stroke and thus secure the fibrous material thereto sufficiently for ordinary purposes.

The fabrics manufactured in accordance with the processes noted above possess a high degree of resiliency and softness and may be bent or flexed many times without causing

the fibrous material to be loosened from the stays.

It is to be understood that the above modifications are to be taken only by way of illustration and that various changes may be made without departing from the scope of the invention as set forth in the annexed claim.

I claim:

As an article of manufacture, a soft flexible cushion comprising two stays and an intermediate layer of loosely matted fibers, fibers of the intermediate layer passing through both stays and thereby uniting them to the intermediate layer.

In witness whereof, I hereto affix my signature.

GUSTAVE C. RASCH.