Oct. 27, 1959 E. RUNGE ET AL 2,910,116

UPHOLSTERY TUFTING

Filed Jan. 7, 1958

Fig. 1

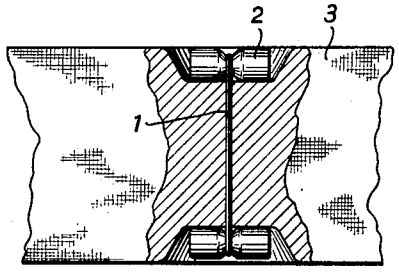


Fig. 2

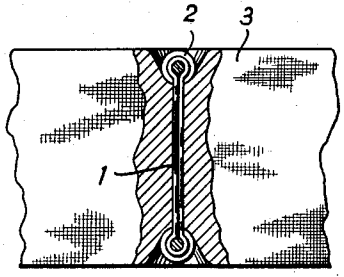


Fig. 3

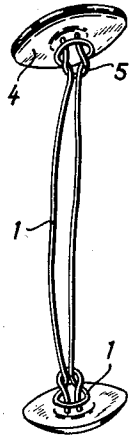


Fig. 4

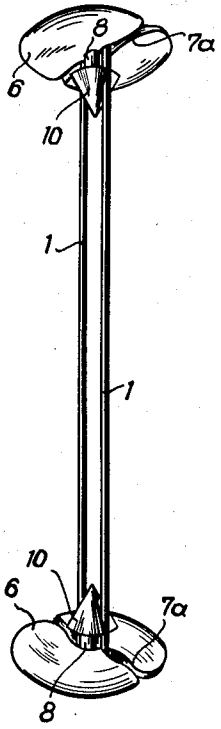


Fig. 5

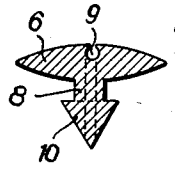
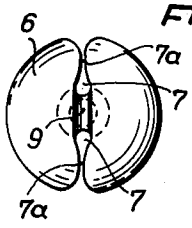


Fig. 6



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UPHOLSTERY TUFTING

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Claims priority, application Germany January 10, 1957

7 Claims. (Cl. 155—185)

The present invention relates to the art of upholstering and to a new method of producing upholstered articles.

In upholstered articles, such as mattresses, couches, chairs, and the like, the tufting required for holding the upholstery together is a constant source of complaints. This is primarily due to the fact that the hemp threads usually used for the tufting cannot withstand the constantly changing stresses thereon and are also not sufficiently wear-resistant, especially if the upholstered article contains spring inserts on which the tufting threads will gradually wear through. Although it might appear obvious to overcome these disadvantages by replacing the hemp thread by the much tougher and friction-resistant synthetic threads, it will be found that the knots in the tufting thread, which so far have always been required in the known methods, will come apart still more than those in hemp threads because of the elasticity of the synthetic material. Consequently, by merely substituting synthetic threads for hemp threads in the conventional method of tufting, the difficulies will be no means be entirely overcome.

It is an object of the present invention to provide a new method of tufting by means of synthetic threads, in which the toughness and wear resistance of such threads is fully utilized but the above-mentioned disadvantage of the previous method that the knots in the synthetic threads might loosen and come apart will be entirely avoided.

According to the present invention, this may be attained by entirely omitting any knots in the thread and by securing the tufting buttons by making the synthetic tufting thread of an endless thread ring, by passing the two halves of such ring through the upholstery so as to form a double thread, and by looping the two closed ends of the thread over the tufting buttons.

The tufting thread used according to the present invention may consist of any known synthetic materials such as polyethylene or polyamide. According to the invention, such thread is preferably made by forming a seamless tube of the respective synthetic material and by then slicing off such tube into rings of a suitable width. Since in such a condition these rings have an expansibility which is undesired for the present purpose, they are preferably subjected to a stretching treatment which will eliminate any further expansion. After such treatment, the rings may be used as endless threads and will then comply with all the requirements to which they may be subjected in the upholstery.

The particular manner of connecting the endless synthetic threads to the tufting buttons depends to a large extent upon the particular shape and design of these buttons, and such design as well as such connecting method may be varied extensively.

Further objects, features, and advantages of the present invention will be apparent from the following detailed description thereof, particularly when read with reference

to the accompanying drawings which illustrate three preferred embodiments of the invention, and in which:

Fig. 1 shows a cross section of a part of a finished upholstered article which is held together by a pair of tufting buttons in the form of short notched rods;

Fig. 2 shows a similar cross section taken at a right angle to Fig. 1;

Fig. 3 shows a pair of shank buttons which are connected by a looped endless thread;

Fig. 4 shows another modification of the tufting buttons which are specially designed according to the invention;

Fig. 5 shows a central cross section through the tufting button according to Fig. 4; while

Fig. 6 shows a plan view of the tufting button according to Figs. 4 and 5.

Referring to the drawings, Figs. 1 and 2 illustrate cross sections through a part of a finished upholstered article which is held together by a pair of tufting buttons which are made in the form of small notched rods 2 and are connected by an endless double thread 1 of a suitable synthetic material, for example, nylon or the like. For this purpose, the upholstery 3 is firmly compressed, the double thread 1 is drawn through the upholstery 3 by means of a suitable needle, and the notched rods 2 are then pushed through the end loops of the thread. When the pressure upon the upholstery is then released, the two end loops of the endless thread will rest firmly in the notches in rods 2.

In the modification as illustrated in Fig. 3, shank buttons 4 are used which are connected to each other by passing the endless thread 1 through the eyes 5 of the buttons and then completely over the buttons so that it will finally be looped over the eyes 5.

Figs. 4 to 6 illustrate another modification of the invention in the form of specially designed tufting buttons which are preferably made of a slightly resilient material, for example, plastic. This tufting button consists of a disk 6 which is provided with opposite, radially extending slots 7, each of which has a constriction at its center 7a. Through these constrictions, the edges of the slots will exert a resilient clamping action upon the thread. The two slots are connected with each other by a groove 9 in the upper surface of disk 6. When the endless tufting thread 1 is looped over this disk 6 and placed into groove 9 and from the outside into slots 7, it must be pulled tightly to slip through the constricted portions 7a into the wider inner ends of the slots. Groove 9 may also be shaped as illustrated in Fig. 5 to exert a clamping and retaining action upon the thread. On the other side of disk 6, opposite to groove 9, the disk carries a short stem 8 which terminates in a conical portion 10, the base diameter of which is larger than the diameter of shaft 8. As indicated in Fig. 4, slots 7 also extend through the outer surface of the conical portion 10 so as to facilitate the application of the double thread to the button and to guide the thread thereon. Since the conical portion 10 terminates in a sharp point, the button may be easily pressed into the fabric which will then engage into the constriction between disk 6 and the conical portion 10 and cling around stem 8. In this manner, the button will be securely anchored in the fabric and remain in such position even though the upholstery is so highly compressed that the double thread 1 will be loose therein. For applying the tufting buttons, the double thread 1 is first looped over plate 6 of one button and pulled into slots 7 and groove 9. Thereafter, the upholstery is firmly compressed and the double thread is drawn through the upholstery by means of a suitable needle. Then, the other button is pushed into the fabric from the other side of the upholstery, and the other end

of the thread is looped over plate 6 of this button. When the pressure upon the upholstery is then released, this other end of the thread will slip into slots 7 and groove 9 and be firmly retained therein.

If plate 6 of each button is merely provided with an ordinary groove 9 without a confining restriction as shown in Fig. 9, it may occur that the thread will be pushed outwardly through slots 7 and out of groove 9 when the upholstery is compressed. In such event it may be advisable to cover the entire outer surface of the button with a cap which may be snapped over the same by means of an inwardly flanged edge portion. Since plate 6 is relatively resilient, partly through slots 7 and partly through the type of material of which it is made, such cover plate may be easily and securely snapped over plate 6 even though this cover plate itself may be relatively rigid and nonresilient.

Although our invention has been illustrated and described with reference to the preferred embodiments thereof, we wish to have it understood that it is in no way limited to the details of such embodiments but is capable of numerous modifications within the scope of the appended claims.

Having thus fully disclosed our invention, what we claim is:

1. A method of tufting upholstered articles, comprising the steps of forming an endless knotless thread of a synthetic material, drawing said thread through the upholstery, and looping the two closed ends of said thread over a pair of tufting buttons.

2. A method as defined in claim 1, wherein said endless thread is formed by producing a tube of said synthetic material, slicing narrow rings off said tube, and stretching said rings so as substantially to reduce their expansibility.

3. A method of tufting upholstered articles comprising the steps of forming an endless knotless thread of a synthetic material, drawing said thread through the upholstery, passing the two closed ends of said thread through the eyes of a pair of shank buttons and then looping them over the buttons so as to rest upon the outside of said eyes.

4. A tufting for upholstered articles comprising an endless knotless thread of a synthetic material, and a pair of retaining means, said thread being adapted to be passed through a piece of upholstery and then to be secured to said retaining means by being looped over said means.

5. A tufting as defined in claim 4, wherein each of said retaining means comprises a button consisting of a disk, a stem centrally secured to one side of said disk and terminating into a portion of a greater diameter than said stem, said portion terminating at its free end into a relatively sharp point, said button having diametrically opposite, radially extending slots therein adapted to receive an end loop of said thread, a part of each of said slots having a width narrower than the thickness of said thread so that the latter may only be passed into said slots under tension and will then be retained within the wider inner end of said slots.

6. A tufting as defined in claim 5, wherein said portion on said stem is of a conical shape, said conical portion also having diametrically opposite slots in line with the slots in said disk.

7. A tufting as defined in claim 5, wherein the outer side of said disk has a groove connecting and in line with said slots for receiving said thread, said groove having a constricted mouth narrower than the thickness of said thread so that, when said thread is pulled under tension through said mouth into said groove, it will thereafter be retained within said groove.

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