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UPHOLSTERY BATT

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Fig. 1

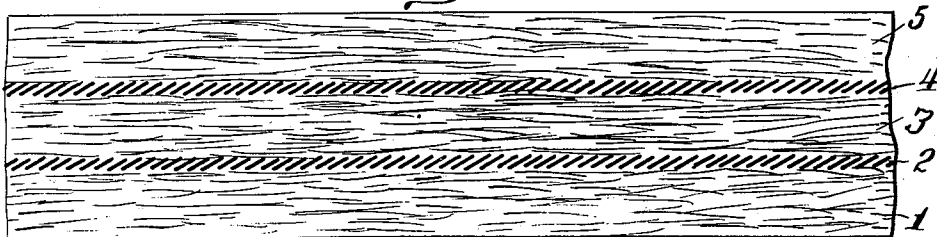


Fig. 2

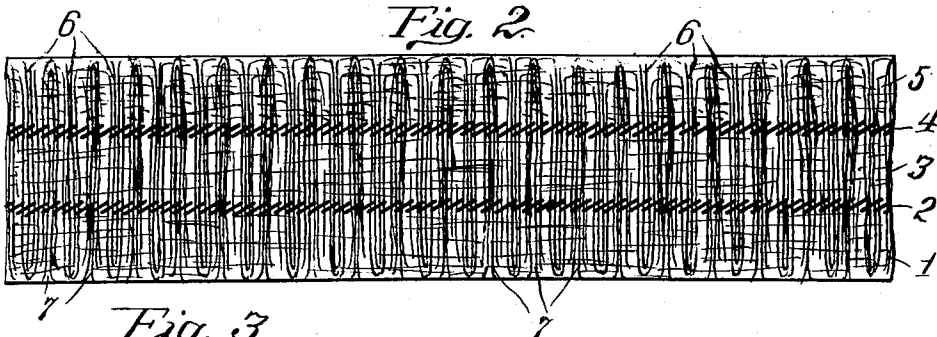
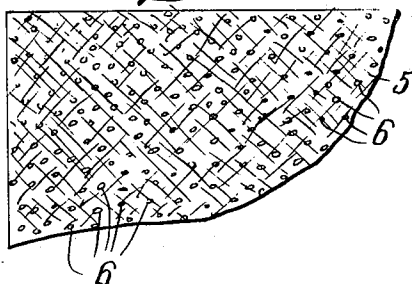


Fig. 3



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UPHOLSTERY BATT

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2 Claims. (Cl. 154—54)

This invention has for its object to provide a fibre batt for upholstery, which possesses certain novel and advantageous characteristics, and is of such nature and composition that it will retain its intended resiliency substantially permanently.

Another object of the invention is to provide an upholstery batt of the character indicated, which can be easily and cheaply produced by means of equipment of a very simple nature and consists mainly of conventional machines common to every upholstery batt manufacturing establishment.

An exemplary embodiment of the invention is illustrated in the accompanying drawing wherein Fig. 1 shows in cross-section, a batt constructed in accordance with the invention as it leaves the batt forming equipment such as the conventional camel-back lappers and the conventional batt compressing rolls commonly employed in conjunction with the said lappers.

Fig. 2 is a view similar to Fig. 1 showing the finished batt constructed in accordance with the invention.

Fig. 3 is a fragmentary plan view of a fibre batt constructed in accordance with the invention.

In the manufacture of upholstery batts embodying the present invention, relatively long fibre material, such as sisal, jute, hemp, hair, coconut fibre and the like is used. Any one or a mixture of such fibres may be used.

The said fibres are disposed, for example, upon a traveling conveyor belt by means of the conventional camel-back lappers to provide an initial layer 1 of a desired depth which is then sprayed on its top surface with a suitable liquid adhesive substance of a slow-drying nature, and which is also of a permanently flexible (as opposed to brittle) nature when dry and set.

Preferably a liquefied latex compound substance is employed to spray the said top surface of the pad because said compound is of a slow-drying nature and is both permanently flexible and resilient when dry. Liquid latex per se or admixed with a suitable drier is adapted to the purpose but the invention comprehends the use of any substance or compound which possesses the characteristics of being permanently resilient when dry or set and which may require heating to set it.

This adhesive compound is sprayed upon the surface of the said layer of fibre may be effected by a conventional paint spraying apparatus and owing to the very loosely compiled layer, the cementitious compound will penetrate the same to a very appreciable depth in such manner as to produce a spongy batt portion 2, wherein the fibres are more or less coated with said compound in a progressively decreasing degree as to lower strata of the fibres than the superficial strata of the same.

Upon this batt portion 2 and immediately following the spraying operation, a second layer 3 of the fibre is disposed by the same or equivalent means and the surface of said second layer is sprayed with the said compound to form a second spongy batt portion 4, and upon this portion, a third layer of the fibre is disposed.

This building up of the batt may be continued ad infinitum depending upon the ultimate depth of batt desired.

Thus a single spongy batt portion impregnated with the compound may be interposed between layers 1 and 3 of loose and unsprayed fibres, or, if desired, the batt may be composed of a plurality of layers of loose and uncoated fibres alternated with a corresponding number of coated and impregnated portions or layers such as the layer 2.

As soon as the batt has been built up as above described to the desired depth upon the conveyor belt of the camel-back lappers and while the cementitious compound is still in what is known as a very "tacky" condition, the batt is compressed as by passing it between compressor rolls.

Except for the spraying of the superficial parts of one or several layers of the fibres, the whole method up to this point may follow the teachings of the patent to Del Ray F. Fowler, No. 1,108,354, dated Aug. 25, 1914 as regards suitable equipment and method of forming batts of fibre.

Immediately following compression of the batt, the latter is subjected to the action of barbed reciprocating needles which pass back and forth through the batt in a well-known manner from one or both top and bottom surfaces thereof, to and even slightly through the batt thereby causing uncoated fibres thereof to be pushed and pulled through the impregnated layers of the latter and causing said last mentioned fibres to be coated at least in part with the still tacky compound, and extend in a generally vertical direction through the batt or in a general direction perpendicular to the strata of the fibres as they are deposited upon the conveyor belt of the camelback lappers.

The compound picked up by these vertically disposed fibres causes the compound to be distributed rather lightly through the batt and distributed in part over the horizontal fibres thereof and causes bonding between the latter and the vertical fibres to such an extent as to preclude separation of the batt into a series of thin layers as in the case, for example, of laminated paper. It is obvious, of course, that the batts delivered from camelback lappers are laminated structures which are converted to more or less homogeneous structures by the above described method of manufacturing the batts of this invention.

The ultimate condition of batts made in accordance with this invention, will be determini-

able by the primary thickness of the layers of the loose fibres, the volume of the adhesive compound sprayed upon the successive layers, and the number of penetrations of the barbed needles through the compressed or partially compressed batt per square inch of the surface of the latter.

The permanency of the full degree of resiliency of batts constructed in accordance with the present invention will depend largely upon the amount and degree of resiliency of the adhesive compound employed, and the number of barbed needle penetrations per square inch of batt surface.

While the above description of means for, and method of manufacturing the batts are suitable to the purpose, they are to be considered as being merely exemplary without limitation of the appended claims.

Upholstery batts are commonly specified on the basis of weight per square foot or square yard and in the case of batts of this invention the normal weight per unit of area may be increased by ten to fifty per cent depending upon the amount of the adhesive compound added to the batt.

The distribution of said compound through the batt may be varied by increasing the number and decreasing the density of the spongy impregnated strata of the fibres as may be best adapted to the production of the desired result with the greatest degree of economy commensurate therewith and with due regard to the treatment of the batt with the barbed needles aforesaid, which not only serve to bond the normal layers or veils or strata of the component fibres as laid by the camel-back lappers or equivalent equipment, but also provide upstanding fibres which will not mat under load as do the fibres laid down by the lappers as aforesaid, especially if said upstanding fibres are coated to an appreciable degree with the adhesive compound.

Long fibre as used herein and as commonly included in the specific types mentioned, is comprised of a mixture of such fibres usually varying in length from a minimum of one-half inch more or less, and a maximum of eight inches, more or less, but may be defined as being of an average length equal to at least or approximately one-half the depth of the completed batt, the use of coarse fibre being preferred to the use of such fine fibre as cotton, kapok and the like of which, however, a percentage may be admixed with coarser type above mentioned.

The coarse fibres constituting preferably the bulk of the batt is normally wavy or somewhat curled as for example, in the shape of long pitch helices and fractions thereof.

In the accompanying drawing the vertical or transversely extending fibres are indicated by the reference numeral 6.

It will be appreciated, of course, that the surfaces of the batt will be devoid of holes or perforations and that Fig. 2 illustrates the maximum degree to which the transverse fibres extend through the batt.

Instead of compressing the batt before the barbed needles are projected into or through the same, this operation may be performed at least in part before the batt is compressed or when it is only partially compressed.

Obviously the above described method may also be varied by forming simultaneously a multiplicity of separate fibre batts, impregnating one or more of said batts with said compound over both

of its faces, and then disposing said batt over an uncoated batt, and disposing over the impregnated batt another uncoated batt, then compressing the three batts, and passing the barbed needles or other devices through or partially through the resulting laminated structure to cause some of the component fibres of the three batts to extend transversely of the other fibres thereof, so that said transverse fibres may become at least partially coated with the compound and become bonded with other fibres of the two outer batts.

While barbed needles are referred to specifically hereinabove, it will be understood that the method of this invention is not limited to any specific type of devices or means for causing some of the fibres to extend transversely to others thereof throughout the entire depth of the alternate batt.

The vertically disposed latex coated fibres act not only to bond the other fibres to prevent matting of the latter, but due to the greater resiliency imparted to said vertically disposed fibres by the latex coating thereof, said last-named fibres constitute what may be termed inner expansion tufts, which promote self-restoration of the batt to its original height upon being relieved of load.

The word "compound" as used in the appended claims is to be construed to cover any substance or mixture or composition of substances adapted to produce the desired results.

I claim as my invention:

1. An upholstery batt comprising a lower layer of fibres disposed in superimposed thin veils in laminated relation to each other, a similar upper layer, an intermediate similarly constructed layer of appreciable depth the component fibres of which are coated with an adhesive material which, when set, remains permanently resilient, and a series of relatively closely grouped substantially vertically disposed fibres coated with said adhesive material and extending from substantially a face of said layer through the latter and into and substantially through the first-named layer of uncoated fibres disposed over the opposite face of said intermediate layer, said vertical fibres being bonded by said adhesive coating with fibres of the several veils through which they pass and constituting permanently resilient spring-like components of the batt for maintaining the initial resiliency thereof.

2. A partially compressed upholstery batt of uniform depth over its entire area comprising a lower layer of fibres disposed in superimposed thin veils in laminated relation to each other, a similar upper layer, an intermediate similarly constructed layer of appreciable depth, the component fibres of which are coated with an adhesive material which, when set, remains permanently resilient, and a series of relatively closely grouped substantially vertically disposed fibres coated with said adhesive material and extending from substantially a face of said layer through the latter and into and substantially through the first-named layer of uncoated fibres disposed over the opposite face of said intermediate layer, said vertical fibres being bonded by said adhesive coating with fibres of the several veils through which they pass and constituting permanently resilient spring-like components of the batt for maintaining the initial resiliency thereof.

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