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DEL ROY F. FOWLER

1,860,090

PADDING RUG

Filed Nov. 29, 1930

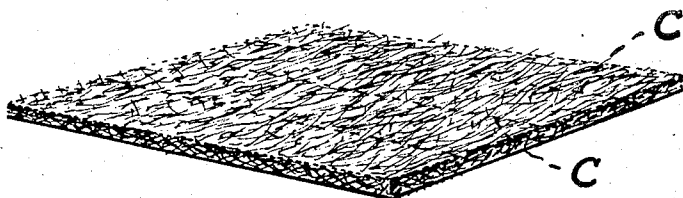


FIG. 1.

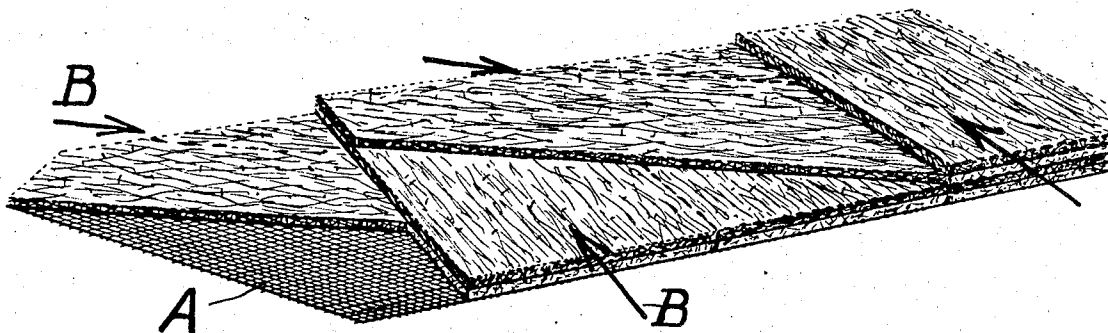


FIG. 2.

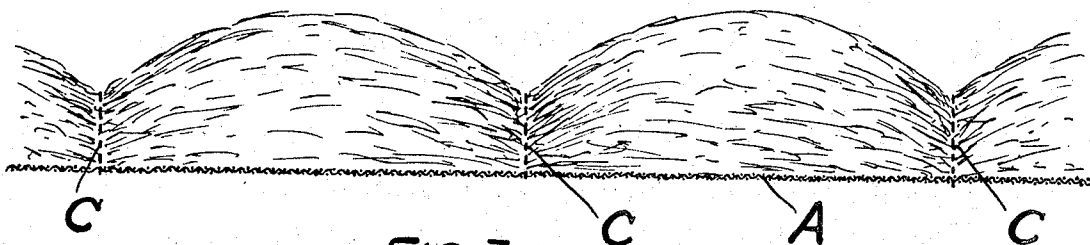


FIG. 3.

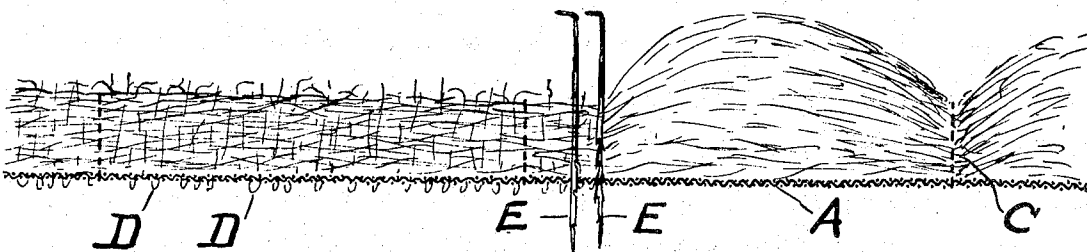


FIG. 4.

WITNESS:

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PADDING RUG

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My invention relates to padding rugs and the method of making the same, the object being to provide a rug-like structure made up essentially of sisal fibres, preferably incorporated with a fabric backing which will be of practically uniform thickness, compact structure and endowed with specially advantageous features as to wearing qualities, facility for cleaning and adaptability for certain special uses.

In my Patent No. 1,565,267, I have described an upholstery pad made up of a fabric backing overlaid by a multiplicity of thin veils of carded sisal fibre so disposed that the fibres in each adjacent veil will cross those of contacting veils at an angle, the sisal structure thus built up being secured to the fabric backing by lines of stitching. My new padding rug in its preferred form is built up in the same manner with a fabric backing and angularly disposed thin veils of sisal fibre secured to the backing by lines of stitching but is further characterized in that the structure is compacted and brought to substantially uniform thickness and consistency and approximately level surface by subjecting the structure formed as above described to a needling process whereby a multiplicity of sisal fibres from the upper layers are carried down through the underlying layers of sisal fibre and the fabric backing, thereby materially compacting and densifying the structure and bringing it to a substantially uniform thickness. The padding rug thus formed is of great firmness and permanency of structure, very resistant to wear and very easily and thoroughly cleaned by a vacuum cleaner. It also has a valuable inherent quality in that it is repellant to insects and to rats and mice. The padding rug is, I have found, especially well adapted for the make-up of the fairway and greens of a miniature golf course and is also of great value as a padding rug underlying a carpet or rug of ordinary construction. It may also be used with advantage in many cases as a floor covering directly exposed to wear and is also of value for other purposes. While, as above stated, I prefer to build up my padding rug upon and in connection with a fabric backing, a serviceable

padding rug can be made without a fabric backing by securing the layers or veils of sisal fibre together by lines of stitching and also by a multiplicity of fibrous ties forced through the sewed pad by needling so as to bring the pad to an approximately even thickness, approximately level surface and a considerable degree of compactness.

My method of manufacturing my new padding rug consists, broadly speaking, in depositing a multiplicity of thin veils of carded sisal fibre upon each other and preferably a fabric backing in such manner that the fibres of successive veils will cross each other at an angle, then when the desired thickness of the pad is thus secured stitching the layers of sisal fibre together and to the fabric backing, when such a backing is used, by lines of stitches and then subjecting the so prepared pad to a needling operation whereby a multiplicity of sisal fibres from the upper layers are carried down through the underlying layers and through the fabric backing when used, with the result of greatly densifying the structure and bringing it to a substantially uniform thickness.

My improved padding rug is, as I have stated, of particular value for use as a fairway and putting green for miniature golf courses. The multiplicity of thin fibre ends projecting from the upper surface of the padding rug causes a golf ball played over its surface to behave very much as it would when played over a fine grass surface. The elastic nature of the padding rug brings about a prompt and complete elimination of heel marks or of temporary depressions formed by the impact of a golf club. The material can be readily shaped to give any desired conformation to the fairway and putting greens and severed edges when abutted against each other produce a surface without indentation and not distinguishable from the body of the padding rug surface.

The ultimate thickness and degree of condensation of the sisal fibre layers will depend in part upon the quantity of sisal fibre used per square foot of surface. Thus where the layers of sisal amount to about six ounces to the square foot of surface, I have found that

the rug can be advantageously condensed to a thickness of from one-half to five-eighths of an inch and for similar densities where the weight of sisal fibre is less the thickness of the finished padding rug should be proportionately less. The described degree of densification I have found to be such as adapts the padding rug for use as a fairway and putting green in miniature golf courses and for use beneath a carpet or rug. For other uses it may be desirable in some cases to make a more dense packing rug and it will be understood that the compacting and densification of the material is controllable, in the first place, by the tension of the thread used in forming the lines of thread stitching and, in the second place, by the extent of the needling to which the body is subjected after the stitch lines have been formed.

The lines of thread stitching in my fabric have a notable value in preventing the tearing apart of the compacted layers of sisal fibre, thus affording a very necessary reinforcement to the sisal fibres pushed down through the padding by needling. The stitch lines have also material usefulness in that they tie the folds of sisal fibre together at intervals and in a state of compression determined in the formation of the stitch lines. This reinforcement of the structure undoubtedly acts to prevent uneven expansion which might be due to slipping of the fibre ties produced by needling. Again, in the process of manufacturing my padding rugs the stitching of the sisal veils together, which can and would be accomplished promptly after the desired thickness of the padding is secured, prevents any slipping of the veils upon each other in subsequent handling including the needling of the pad.

To further explain and illustrate my invention, reference may be had to the drawings forming part of this specification, in which

Figure 1 is a perspective view of my improved padding rug.

Figure 2 is a perspective view illustrating the method of disposing thin veils of carded sisal fibre upon each other to build up the body of the padding rug, the fibre layers being here shown as deposited upon a fabric backing.

Figure 3 is a perspective view illustrating the second operation, which consists of securing the layers of sisal fibre together and, as shown, to a fabric backing by parallel lines of stitches which compact the fibre layers together where the lines of stitching are formed, resulting in the formation of a very uneven surface, and

Figure 4 illustrates the operation of needling as applied to the structure shown in Fig. 3, this needling operation being carried on so as to cause a great multiplicity of sisal fibres to permeate the padding and so as to

bring the entire pad to a substantially even thickness with level surface, the thickness of the pad being substantially that of the thickening produced along the lines of stitching in the second operation of forming the padding rug.

In the drawings, A indicates the fabric backing, which is commonly of coarse woven jute but may consist of any desired woven or felted fabric. B, B, etc. indicate the layers or veils of sisal fibre disposed so that adjacent veils cross each other at an angle. C, C indicates the lines of stitching by which the layers of sisal fibre are secured together and to the fabric backing when used. D, D, etc. indicate the sisal fibres which are pushed down by the needling operation through the mass of the padding so as to compact the padding and bring it to a substantial even thickness and E, E indicate typical needles, such as are commonly used in the operation of needling.

Having now described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A padding rug made up of a multiplicity of thin veils of carded sisal fibre, such veils being so disposed that the fibres of adjacent veils cross each other at an angle, the sisal pad thus formed being secured together by lines of stitches and the composite structure being densified and brought to approximately even thickness by needling, whereby a multiplicity of fibres from the upper layers or veils extend vertically downward through the underlying layers.

2. The method of making padding rugs which consists in depositing upon each other multiple thin veils of carded sisal fibres so disposed that the fibres in each veil cross those of adjacent veils at an angle, then securing the padding thus formed together by rows of stitches and then compacting the structure and bringing it to a substantially even thickness by needling, whereby fibres of the upper veils or layers are forced downward through the underlying layers of sisal fibre.

3. A padding rug made up of fabric backing supporting a padding made up of multiple thin veils of sisal fibres, such veils being so disposed that the fibres of adjacent veils cross each other at an angle, the sisal pad thus formed being secured to the fabric backing by lines of stitches and the composite structure being densified and brought to approximately even thickness by needling, whereby a multiplicity of fibres from the upper layers or veils extend vertically downward through the underlying layers and the fabric backing.

4. The method of making padding rugs which consists in depositing upon a fabric backing multiple thin veils of carded sisal fibres so disposed that the fibres in each veil

cross those of adjacent veils at an angle, then securing the padding thus formed to the fabric backing by rows of stitches and then compacting the structure and bringing it to a substantially even thickness by needling, whereby fibres of the upper veils or layers are forced downward through the underlying layers of sisal fibre into and through the fabric backing.

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