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CARPET CONSTRUCTION

Filed Dec. 30, 1957

FIG. 1.

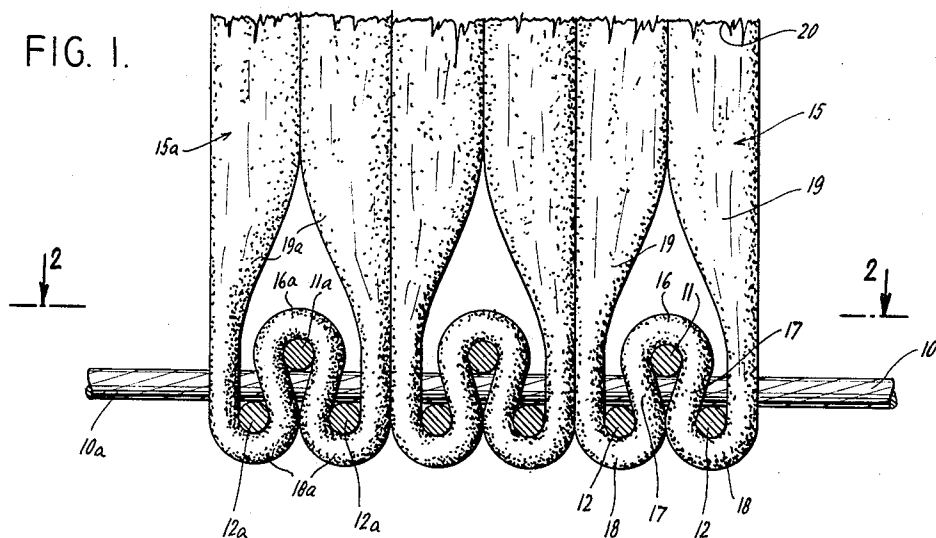


FIG. 2.

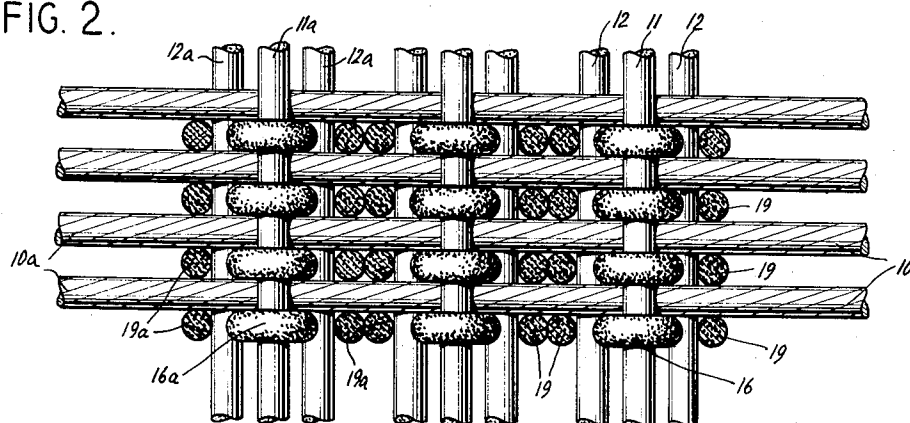
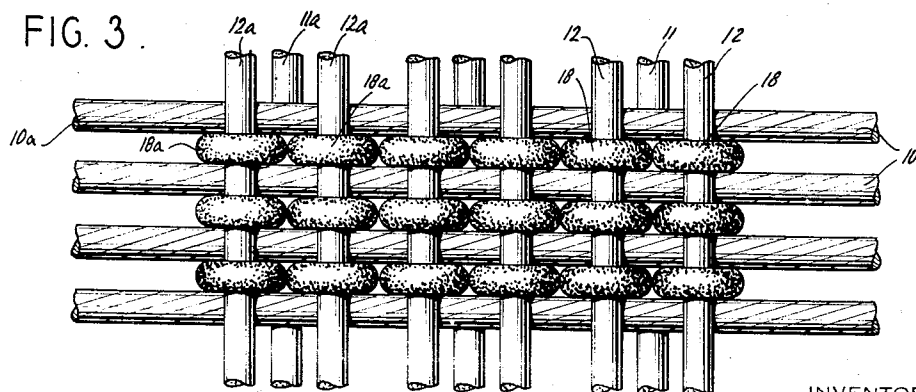


FIG. 3.



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CARPET CONSTRUCTION

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5 Claims. (Cl. 139—403)

This invention relates generally to carpet constructions, and is especially concerned with woven carpets of the pile or pile holding type.

As is well known to those versed in the art, the complexities and costs involved in the manufacture of woven carpets depend in large measure upon the number of yarns or ends being woven together, and also upon the number and complexity of knots employed to hold the carpet in its woven condition.

It is therefore one object of the present invention to greatly simplify carpet manufacture by providing a woven knot for carpets, which is extremely easy to weave, highly effective in use, and which is capable of being woven with as few as five yarns or ends.

It is another object of the present invention to provide a novel carpet construction which requires a considerably reduced number of yarns or ends to be woven, and in which there is required no interlacing between the warps or warp yarns and wefts or weft yarns.

It is a further object of the present invention to provide a pile of pile holding carpet construction, having the advantageous characteristics mentioned hereinbefore, wherein the arrangement of yarns or ends is extremely simple to reduce the cost of manufacture, and which construction is highly durable and long lasting in use, being self-tightening under conditions exercising pull on the pile yarns.

Other objects of the present invention will become apparent upon reading the following specification and referring to the accompanying drawings, which form a material part of this disclosure.

The invention accordingly consists in the features of construction, combinations of elements, and arrangements of parts, which will be exemplified in the construction hereinafter described, and of which the scope will be indicated by the appended claims.

In the drawings:

Figure 1 is a sectional elevational view taken through a carpet construction of the present invention along a plane parallel to the warp and pile yarns;

Figure 2 is a sectional plan view taken substantially along the line 2—2 of Fig. 1; and

Figure 3 is a bottom plan view of the carpet construction of Figs. 1 and 2.

Referring now more particularly to the drawings, it will there be observed that a plurality of longitudinally extending, parallel warp yarns lie in substantially the same plane and are designated 10. Extending transversely across, or over the warp yarns 10, substantially normal thereto, are a plurality of parallel, upper weft yarns 11, lying in a plane substantially parallel to and just over the plane of the warps. In addition, a plurality of lower weft yarns 12 extend in substantial parallelism with each other, normal to and beneath the warp yarns 10 in a plane substantially parallel to that of the warp yarns. In the preferred embodiment, as illustrated, there are twice as many lower weft yarns 12 as there are upper weft yarns 11, which proportion, however, is not necessary.

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In addition, a plurality of pile yarns are generally designated 15, each including a medial or central intermediate region 16 being looped over one of the upper weft yarns 11, and extending downward therefrom on opposite sides of the respective upper weft yarn between an adjacent pair of warps 10, as at 17. Extending from the depending portion 17 of the medial looped portion 16, are spaced intermediate pile portions 18 of each pile yarn 15, which latter portions extend oppositely away from each other, each beneath an adjacent lower weft yarn 12. That is, the depending pile yarn portions 17 extend together between an adjacent pair of lower weft yarns 12; and, the spaced pile yarn regions 18 extend in general parallelism with the warp yarns 10 respectively beneath the adjacent lower weft yarns. From the distal or remote end regions of the spaced intermediate pile yarn portions 18, there extend terminal portions 19, respectively, each upstanding between the same adjacent pair of warp yarns 10 as the yarn region 17, and which project upward beyond the medial region 16 and there terminate in free end portions 20.

The structure thus far described constitutes a single woven knot of the carpet construction; and, the entire carpet construction may be a repetition of such woven knot construction. To facilitate understanding, the five yarns or ends constituting a single knot are designated by the suffix "a" in the drawings. It may therefore be seen that a single woven knot of the present invention may consist of at least one warp yarn 10a, a pair of parallel, lower weft yarns 12a extending normal to the warp yarn, a single upper weft yarn 11a also extending normal to the warp yarn, and at least one pile yarn 15a having its medial region 16a looped over the upper weft yarn and having spaced intermediate regions 18a looped under the lower weft yarns, whence the terminal regions 19a extend upward beyond the medial region.

The simplicity of this woven carpet knot, both in the arrangement of yarns and in its manufacture, is believed to be apparent from the foregoing description. A contributing factor towards this simplicity resides in the fact that there is no interlacing of the warp and weft yarns. That is, the upper weft yarns 11 at all times pass over the warp yarns 10, while the lower weft yarns 12 at all times pass beneath the warp yarns. In practice, the afore-described woven carpet knot is extremely tight, which tightness is achieved by squeezing the upper weft yarns 11 between and above the associated, respective pair of lower weft yarns 12. More particularly, this squeezing action may be achieved by a relatively strong pressure of the lay movement in a suitable, conventional loom, which forces the associated pair of lower wefts to run very close to each other, and squeeze the upper weft between and above the lower wefts. The pile yarns 15 are wound about the weft yarns, in the afore-described manner, and the warp yarns 10 squeeze the pile yarns to prevent their removal or dislodgement from the illustrated position. Further, a pull exercised on any of the pile yarns 15 will serve to more tightly squeeze the associated weft yarns, and therefore more tightly hold the pulled pile yarns.

From the foregoing, it is seen that the present invention provides a pile-type carpet construction, and particularly a woven knot therefor, which fully accomplishes its intended objects, and is well adapted to meet practical conditions of manufacture and use.

Although the present invention has been described in some detail by way of illustration and example for purposes of clarity of understanding, it is understood that certain changes and modifications may be made within the spirit of the invention and scope of the appended claims.

The improved construction may be incorporated in different purpose fabrics, particularly velvets.

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What is claimed is:

1. In a woven carpet, the combination comprising essentially a plurality of parallel warp yarns, a plurality of parallel lower weft yarns extending beneath and transverse of said warp yarns, a plurality of upper weft yarns extending over and transverse of said warp yarns, said upper-weft yarns being one-half the number of said lower-weft yarns, and a plurality of pile yarns each having an intermediate region looped over an upper weft yarn and extending therefrom generally parallel to said warp yarns in opposite directions beneath respective lower weft yarns and then upward beyond said intermediate region terminating in free upper ends, said pile yarns being in alignment with each other along said wefts and warps.

2. A carpet construction according to claim 1, wherein said pile yarns each has its intermediate region looped over a single upper weft yarn.

3. A carpet construction according to claim 1, wherein each said pile yarns extends beneath an adjacent pair of lower weft yarns.

4. A carpet construction according to claim 1, wherein each of said pile yarns depends from its intermediate looped region between an adjacent pair of warp yarns for its extension beneath said lower weft yarns, and extends from beneath said lower weft yarns upward toward said free upper ends between said adjacent pair of warp yarns.

5. In a carpet construction, the combination consisting

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of at least a pair of substantially straight parallel warps, at least a single substantially straight upper weft extending entirely over and generally normal to said warps, at least a pair of substantially straight lower wefts extending in parallelism with each other entirely beneath and generally normal to said warps, and a plurality of pile yarns disposed in alternate relation with said warps and in alignment with each other longitudinally of said wefts, said pile yarns each comprising a medial region extending transversely over said upper weft and depending on opposite sides thereof between said warps and lower wefts, spaced intermediate regions extending from opposite ends of said medial region away from each beneath respective lower wefts, and terminal regions extending from distal portions of said spaced intermediate regions upward between said warps.

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