The present invention relates to pile carpets produced on Jacquard looms, of the type of Wilton or Brussels.

A purpose of the invention is to achieve high uncut pile loops or sprouts appearing at the face of a carpet in cut pile areas.

A further purpose is to create low floats beneath wires in a relatively low cut pile area which will rise above the cut pile by reason of the combination of resilience due to length and bulkiness, and springiness due to the length of the float which was initially held down under the wires and then released.

A further purpose is to employ a lofty pile yarn so as to obtain adequate bulk when the yarn has to spring up in the pile, desirably using a twist in the ply (suitably two or three ply) of from 1 to 2.5 turns per inch.

Further purposes appear in the specification and in the claims.

In the drawings I have chosen to illustrate one only of the numerous embodiments in which my invention appears, selecting the forms shown from the standpoints of convenience in illustration, satisfactory operation and clear demonstration of the principles involved.

Figure 1 is a warpwise standard weave diagram showing the structure of the invention prior to withdrawing the wires.

Figure 2 is similar to Figure 1 showing the same fabric after the wires have been withdrawn.

In the prior art it has been difficult to introduce high uncut pile loops in cut pile areas due to a resilient or spring effect which pushes up long or thick low floats during weaving.

A residual stress is released when the wires are withdrawn and the fabric comes off the spike roll and is no longer restrained by the wires, so that suitable low floats rise above the cut pile.

The residual stress in the low floats may be introduced by providing very long floats which extend over three or more upper or face wefts in combination with a very low cut pile, or this result can be accomplished by using very heavy face warp ends and permissible low floats which extend over at least two upper wefts.

Especially when using a heavy face warp yarn, it is decidedly preferable to use a lofty yarn having a twist in the ply of 1 to 2.5 turns per inch. The number of plies will most desirably be three or more, although two ply yarn may be employed for this purpose.

In accordance with Figure 1, I there illustrate binder warps 20 and 21, stuffer warps 22 and pile warp ends 23 and 24 which are manipulated by a Jacquard. Upper wefts 25 and lower wefts 26 are provided as well-known in carpet weaving.

Considering the weave of Figure 1, in the first step pile warp ends 23 are raised to the upper position, binder warp ends 20 are raised to the intermediate position, forming an upper shed, and all other warp ends are placed in the lower position, forming a lower shed. A cutting wire of a height not in excess of 0.150 inch is inserted in the upper shed, the wire 27 preferably being in the range from 0.100 to 0.150 inch. In the second step, binder warp 21 is lowered and all other warps are raised half way, forming a lower shed into which a shot of weft 26 is inserted.

On the third step, pile warp 24 is fully raised, pile warp 30 is raised half way, binder warp 21 is raised half way, and all other warps are lowered. Cutting wire 27 similar to the wire mentioned above is inserted in the upper shed and a shot of weft 25 is taken in the lower shed.

In the fourth step, binder warp 20 is lowered, all other warps are raised half way, and a shot of weft 26 is taken in the lower shed.

In the fifth step, pile warp 23 is fully raised, pile warp 30 is raised half way in the low float position, binder warp 20 is raised half way and all other warps are lowered. Wire 27 is inserted in the upper shed and a weft 25 is inserted in the lower shed.

In the sixth step, binder warp 21 is lowered, all other warps are raised half way and a shot of weft 26 is inserted in the lower shed.

In the seventh step, pile warp 24 is fully raised, pile warp 30 is raised half way, binder warp 21 is raised half way and all other warps are lowered. A wire 27 is inserted in the upper shed and a shot of weft 25 is inserted in the lower shed.

In the eighth step, binder warp 20 is lowered and all other warps are raised half way and a shot of weft 26 is taken in the lower shed.

Thus in the form of Figure 1 a long low float over three upper weft shots is provided under the wires wherever the jacquard requires. Due to the length of this float it retains considerable resilience and when the wires are withdrawn to form cut pile 28, as shown in Figure 2, the low float 30 springs up above the height of the pile, since the pile is limited to a height of 0.150 inch.

In case a heavy pile yarn is used, having a weight between 20 and 45 yards per ounce, and preferably of three ply or more, a float of two upper wefts as shown in 30', Figure 1, will retain enough resilience so that it will rise above the low cut pile as shown at 30' in Figure 2.

Thus it will be evident that, by one of these two expedients, either a low float over three upper wefts or longer or a low float over at least two upper wefts and having a weight of 20 to 45 yards per ounce, a spring is retained in the low float so that although it is produced initially under the wire, it will nevertheless rise above the low pile when wires are withdrawn and the pile is cut. Thus a close weave is obtained without the necessity of using non-cutting wires, with the novel effect described.

Especially when reliance is had on the use of a relatively heavy face yarn, it is decidedly desirable to use a yarn having suitable loft. This will be accomplished by employing a two ply or preferably a three or more ply yarn having a twist in the ply of 1 to 2.5 turns per inch. The twist in the single is unimportant for the present purpose.

In view of my invention and disclosure, variations and modifications to meet individual whim or particular need will doubtless become evident to others skilled in the art, to obtain all or part of the benefits of my invention without copying the method and fabric shown, and I, therefore, claim all such insofar as they fall within the reasonable spirit and scope of my claims.

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

1. The method of weaving a pile carpet, using a plu...
rality of pile warp ends, binder warp ends, stuffer warp ends and wefts, which comprises lowering pile warp ends into lower position, raising some other warp ends, inserting a shot of weft above the pile warp ends; raising some of the pile warp ends to upper position, raising some of the pile warp ends to intermediate position, lowering some of the warp ends, inserting a cutting wire between the upper and intermediate pile warp ends, inserting a shot of weft between the lower and intermediate warp ends; continuing the weave and subsequently raising different pile warp ends to the upper position, maintaining the same ends which were previously in the intermediate position again in the intermediate position and lowering the ends previously in the upper position to the lower position, inserting a cutting wire in the upper position and inserting a shot of weft in the lower position; continuing the weave and finally lowering the pile warp ends previously in the intermediate position to the lower position, raising some other warp ends half way and inserting a shot of weft above the pile warp ends formerly in the intermediate position to terminate a low float, the low float extending over at least two wefts in the face of the fabric, the pile warp ends having a weight of between 20 and 45 yards per ounce and the height of the cutting wires being not in excess of 0.150 inch, and withdrawing the cutting wires to cut the pile over the wires and release the low floats to rise above the cut pile.

2. The method of claim 1, in which the pile warp ends are multiple ends having a twist in the ply of 1 to 2.5 turns per inch.

3. The method of weaving a carpet using pile warp ends, binder warp ends, stuffer warp ends and wefts, which comprises successively raising certain pile warp ends in the upper position, raising certain pile warp ends into intermediate position and lowering other warp ends, inserting cutting wires beneath the fully raised pile warp ends and above the intermediate pile warp ends and inserting wefts between the warp ends in the intermediate and the lower positions, maintaining certain pile warp ends in floating position beneath the wires over at least three wefts above the stuffer warp, the wire height not exceeding 0.150 inch, and withdrawing the wires thereby cutting the pile warp ends over the wires and releasing the floats beneath the wires so that they rise above the level of the cut pile warp ends.

4. A carpet having pile warp ends, binder warp ends, stuffer warp ends and wefts interwoven together, the pile warp ends rising in cut pile tufts all of length not exceeding 0.150 inch and uncut low floats extending over at least two upper wefts and having a weight between 20 and 45 yards per ounce, the floats rising in the face of the fabric above the cut pile tufts.

5. A carpet according to claim 4, in which the pile warp ends are multiple and have a twist in the ply of from 1 to 2.5 turns per inch.

6. A carpet having pile warp ends, binder warp ends, stuffer warp ends and wefts interwoven together, the pile warp ends rising in cut pile tufts all of length not exceeding 0.150 inch there being uncut low floats extending over at least three upper wefts and the floats rising above the cut pile in the face of the fabric.

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