

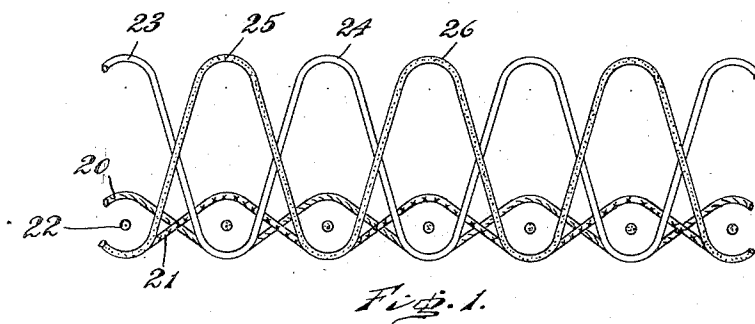
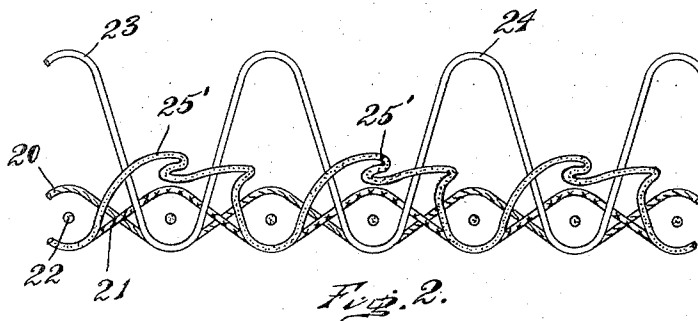
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F. W. MOSTERTZ
PILE FABRIC AND METHOD

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3 Sheets-Sheet 1



INVENTOR
Ferdinand W. Mostertz
BY
Wm. Steell Jackson and Sons.
ATTORNEYS.

Sept. 25, 1956

F. W. MOSTERTZ

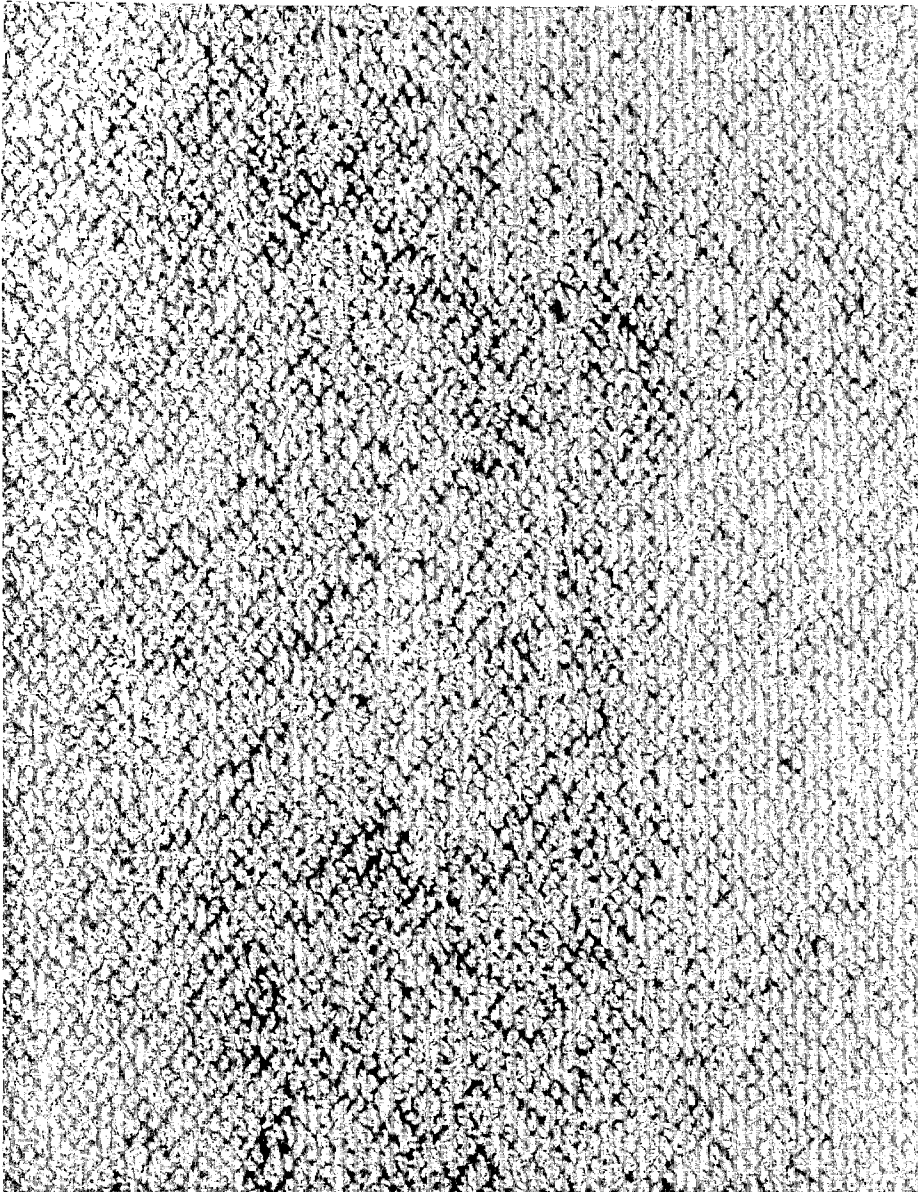
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3 Sheets-Sheet 2

Fig. 3.



INVENTOR
Ferdinand W. Mostertz
BY
Wm. Steel Jackson and Sons.
ATTORNEYS

Sept. 25, 1956

F. W. MOSTERTZ

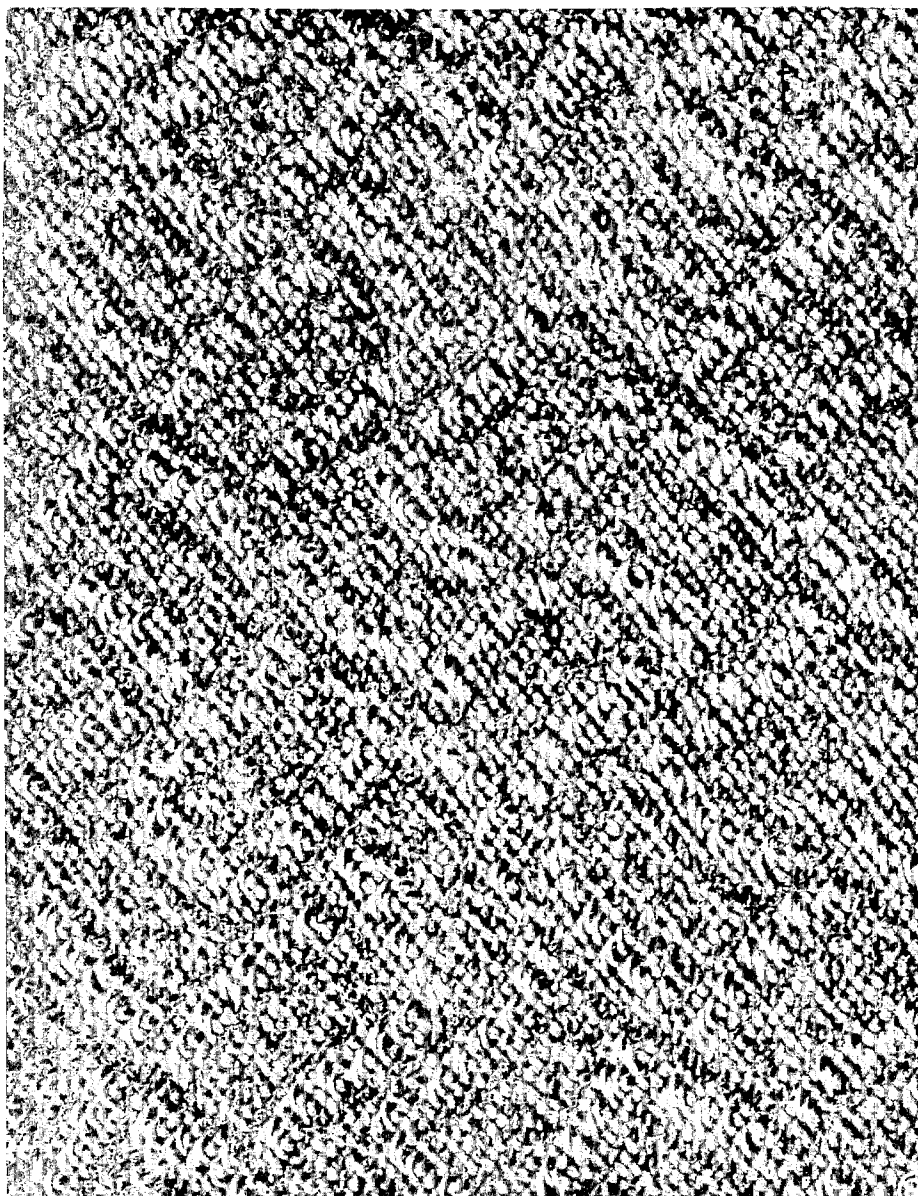
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3 Sheets-Sheet 3

Fig. 4.



INVENTOR
Ferdinand W. Mostertz
BY
Wm. Steel Jackson and Sons
ATTORNEYS.

1

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PILE FABRIC AND METHOD

Ferdinand W. Mostertz, Philadelphia, Pa.

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The present invention relates to frieze pile fabrics, particularly of the character of upholstery fabrics.

A purpose of the invention is to achieve a novel effect by weaving the pile of a loop pile fabric from pile warp ends composed of non-metallic textile fibers and also pile warp ends having metallic fibers so as to produce pile loops of both types, and then to crush the metallic pile loops so that they are permanently deformed and remain permanently at a level below the non-metallic pile and desirably impart a distinctive and attractive effect above the normal ground.

A further purpose is to accomplish the crushing of the metallic pile loops during the finishing of the fabric.

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 may appear, selecting the form shown from the standpoints of convenience in illustration, satisfactory operation and clear demonstration of the principles involved.

Figure 1 is a warpwise conventional weave diagram (cross-section) showing the fabric of the invention prior to crushing.

Figure 2 is a view similar to Figure 1 showing the fabric of the invention after crushing.

Figure 3 is a photograph illustrating the face of the fabric of the invention after crushing.

Figure 4 is a photograph similar to Figure 3 showing the prior art.

In the weaving of frieze or loop pile fabric of the character employed as upholstery fabrics, efforts have been made to increase the interest of the effect when viewing the face of the fabric by employing metallic yarns to make up the ground or part of the ground. While some improvements have been accomplished by this technique, the bulk of the benefit from the metallic yarn has been lost, as it is obscured in most cases by the pile.

I have discovered that a much improved effect can be obtained by putting in metallic yarn so that it will achieve an ultimate position above the ground but below the top of the pile, and also so that it will be crushed or crinkled and by virtue of the angle of bending will produce very interesting light reflecting effects.

The fabric of the invention may be woven in any suitable manner, one desirable technique being by a gage loom using lost wefts.

I illustrate the weave of the invention in Figure 1 where ground pile warp ends 20 are woven oppositely to ground pile warp ends 21 and ground wefts 22 are inserted in the lower shed.

Pile warp ends 23 are composed of a textile fiber or filament yarn, which may suitably be wool, mohair, rayon, nylon, cellulose ester or ether, acrylate, polyvinyl chloride, polyvinylidene chloride or any other suitable natural or synthetic non-metallic textile material.

The pile warp ends 23 are raised at intervals suitably as determined by the jacquard mechanism to the level of the upper shed and lost wefts suitably inserted form un-

2

cut pile loops 24 and these loops are bound beneath the wefts 22 at intervals as shown.

Another set of pile warp ends 25 are used, comprising metallic fibers or filaments. These metallic pile warp ends 25 may be wholly metallic or they may include one or more plies of non-metallic fibers or filaments. The ends 25 suitably consist of continuous strips of rectangular section or round or oval wires of metal of sufficiently fine gage to be capable of weaving in a pile fabric loom, suitable alloys being aluminum base alloys, copper base alloys, iron base alloys, magnesium base alloys, and the like. Suitable examples of alloys which may be used are aluminum alloy 24S, yellow brass, stainless steel of the chromium or chromium-nickel type or the like.

The pile warp ends 25 are raised in the pile, suitably by the jacquard mechanism, at positions at which the pile warp ends 23 are not raised at the same dent, forming pile loops 26. It will of course be evident that the locations at which the pile loops 26 are located will depend upon the pattern.

At this stage the fabric looks very much like a normal frieze pile fabric as shown in Figure 1.

Thus it will be seen that the first lower weft at the left in Figure 1 is inserted with the pile warp ends 23 fully raised, ground warp ends 20 in midposition and pile warp ends 25 and ground warp ends 21 in lower position in the dent shown. The upper or lost weft not shown is then inserted in the upper shed and the lower left weft in the lower shed. At the next weft position in Figure 1 in this particular dent pile warp end 25 is fully raised, ground warp end 21 is in midposition and pile warp end 23 and ground warp end 20 are lowered. An upper or lost weft (not shown) is inserted in the upper shed and a lower weft 22 is inserted in the lower shed.

It will be, of course, evident that at different dent positions the pile warp end 25 may be up and the pile warp end 23 may be down or vice versa.

After weaving, the fabric is crushed. This may be accomplished in connection with dyeing and finishing by crusher rolls, hydraulic treatment, or any other suitable crushing operation, or the crushing may be accomplished as a wholly separate operation. At this point the loops 25 crinkle or deform to produce loops 25' which remain permanently lower than the loops 24. The crushed loops 25' have by virtue of their crushed contours an unusually interesting reflectance which is imparted at the level above the ground level but below the level of the top of the pile. This greatly contributes to the attractiveness of the final fabric.

Figure 3 illustrates the face of the fabric of the invention after weaving and crushing.

Figure 4 illustrates a prior art fabric at a similar stage in which the metallic yarn is present only in the ground of the weave.

It will be evident that the invention is believed to find its widest application in upholstery fabrics, but is applicable to pile fabrics generally wherever the subject matter may be employed.

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. A pile fabric having a backing, pile loops of non-metallic textile material rising above the backing, and pile loops comprising metallic yarn interspersed among the pile loops comprising non-metallic textile material, the pile loops of metallic yarn being in crushed condi-

3

tion at a level beneath the level of the tops of the pile loops of non-metallic textile material and above the backing.

2. The method of making a pile fabric, which comprises interweaving together ground warp ends, pile warp ends of non-metallic fiber and pile warp metallic ends with wefts, raising the pile warp ends of non-metallic fiber successively in pile loops, raising the metallic pile warp ends successively in pile loops interspersed among the pile loops of non-metallic fiber, and crushing the

4

metallic pile loops so that they remain in a crinkled form beneath the pile loops of non-metallic fiber.

3. The method of claim 2, which comprises crushing the loops of metallic yarn during the finishing of the fabric.

References Cited in the file of this patent

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