G. CROSSLAND.

PILE FABRIC.

APPLICATION FILED OCT. 12, 1914.

1,142,149. Patented June 8, 1915.

Fig. 1.

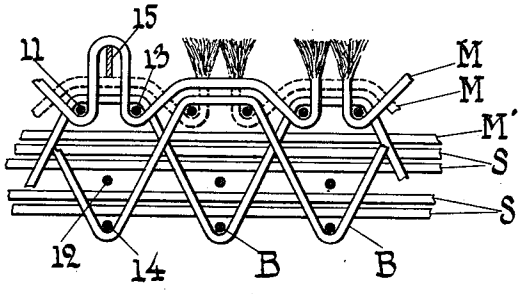


Fig. 2.

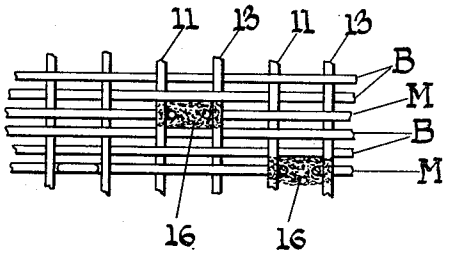
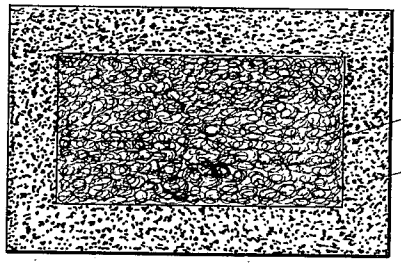


Fig. 3.



Witnesses:-
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UNITED STATES PATENT OFFICE.

GEORGE CROSSLAND, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO CROMPTON & KNOWLES LOOM WORKS, OF WORCESTER, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

PILE FABRIC.

1,142,149. Specification of Letters Patent. Patented June 8, 1915.

Application filed October 12, 1914. Serial No. 866,259.

To all whom it may concern:

Be it known that I, GEORGE CROSSLAND, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Pile Fabric, of which the following is a specification.

This invention relates to a pile fabric and particularly to a new arrangement of the elements of such a fabric by which a firm and substantial back may be woven simultaneously with a plush face or other similar upper surface, the invention being particularly applicable to the production of plush or mohair rugs. Such rugs have previously been made by weaving the mohair plush in the usual way and by thereafter sewing and binding the plush to a coarse jute or fiber back. This method of manufacture results in a clumsy and unsatisfactory article in which the edges are of unnecessary thickness and in which the plush is entirely unsecured to the backing except by the binding at the edges

Accordingly it is the principal object of my invention to provide a fabric particularly adapted for use in rugs and other similar articles and in which the plush pile face and the coarse backing are woven simultaneously and constitute a single fabric throughout.

With this object in view my invention comprises certain arrangements and combinations of parts to be hereinafter described and more particularly pointed out in the appended claims.

A preferred form of my invention is shown in the drawings in which—

Figure 1 is a sectional elevation of a portion of fabric embodying my invention. Fig. 2 is a partial plan view of the same; and Fig. 3 is a diagrammatic plan view of a rug, for the production of which my fabric is particularly adapted.

Referring to Fig. 1 it will be seen that the fabric comprises pile warp threads M which may be of mohair or other long staple wool, binder warps B and two portions of stuffer warp S. There may also be included in the structure an additional pile warp M′ for a purpose to be described.

As shown in the drawing, there are eight warp threads in each dent of the reed, these warp threads comprising four stuffer warps S, two binder warps B, one active pile warp M and one inactive pile warp M′. The number of stuffer warps may be varied as desired, it being merely essential that the stuffer warp be separable into an upper and a lower portion.

The filling in my improved fabric is disposed in three planes, the fabric being similar in this respect to that shown in my previous Patent No. 1,038,532 dated September 17, 1912. Four filling threads are used within each crossing of the binder warps, two of these filling threads 11 and 13 serving to secure the active pile warps in the face of the fabric, one filling thread 12 separating the stuffer warps into two portions, and the fourth filling thread 14 underlying the lower stuffer warps.

The active pile warps are raised alternately to form loops and in Fig. 1, I have shown a knife 15 positioned within one of the loops of the pile warps. I have also shown two loops of the warp after the knife has been withdrawn and the loops have been severed. Each portion of the active pile warp passes under a filling thread 13, over the next two succeeding filling threads 11 and 13, and under the following filling thread 11. This manner of binding the portions of pile warp is essential to firmly secure mohair and similar long staple wool and is universally used in mohair pile fabrics.

In Fig. 2 I have indicated the manner in which the active pile warps M are alternately brought to the surface, the severed ends of the pile warps being indicated at 16.

It will thus appear that I have provided a plush or pile face embodying all the advantages of the usual plush weave and that at the same time I have woven into the fabric the heavy backing formed in two planes by the stuffer warps S and including the inactive pile warp M′ when the latter is used.

In the production of plush rugs it is often desirable to form different portions of the rug of plush having different characteristics and it is for this purpose that the additional pile warp M′ is provided. In Fig. 3 I have shown a rug in which the center is formed from curled or otherwise manipulated mohair warp, while the border and ends are formed of straight or untreated warp. For the weaving of this type of rug I provide in each dent of the reed an active pile thread M having certain characteristics and an in-

active pile thread M' having different characteristics. While either one of these threads is being used to form the pile the other thread forms the upper portion of the backing as shown in Fig. 1, thus adding to the weight and thickness of the fabric and providing for the production of successive portions of the rug with different surface characteristics. To change the character of the surface it is merely necessary to bring the other set of pile warps into use through the medium of a jacquard or similar selective mechanism.

The disposition of the filling threads in my improved fabric is such that I am enabled to use a double shuttle loom. I dispose the warp threads in upper and lower sheds, simultaneously inserting the filling 11 in the upper shed and the filling 12 in the lower shed, and on the following pick simultaneously inserting the filling threads 13 and 14. I am thus enabled to insert a row of pile tufts 16 in my improved fabric for each three picks of the loom, two filling threads being inserted on each of two successive picks and the third pick being an idle pick during which the knife 15 is inserted. The rate of production of my improved fabric is therefore the same as that of the simple fabric without the backing, in which also three picks are required for the production of each row of pile tufts.

Having thus described my invention it will be evident that changes and modifications can be made therein by those skilled in the art without departing from the spirit and scope thereof as set forth in the claims and I do not wish to be otherwise limited to the details herein disclosed, but

What I do claim is:—

1. A pile fabric having three planes of filling separated by two planes of warp, said fabric comprising filling threads, pile warps, binder warps, and stuffer warps, the pile warps passing under one filling thread, over two filling threads, and under an additional filling thread, four picks of filling being inserted within each crossing of the binder warps, two picks underlying alternate binder warps and alternate pile warps, one pick underlying a portion of the stuffer warps, and the remaining pick underlying the remaining portion of the stuffer warps and overlying alternate binder warps.

2. A pile fabric having three planes of filling separated by two planes of warp, said fabric comprising filling threads, pile warps, binder warps, and stuffer warps, the active pile warps forming pile tufts alternately and being retained upon the face of the fabric by the filling threads only, certain of the stuffer warps and the inactive pile warps forming the upper warp plane and the remaining stuffer warps forming the lower warp plane.

3. A pile fabric having three planes of filling separated by two planes of warp, said fabric comprising filling threads, two sets of pile warps, binder warps having different characteristics, and stuffer warps, the active pile warps having certain characteristics and forming pile tufts alternately, the inactive pile warps having different characteristics and coöperating with a portion of the stuffer warps to form the upper warp plane and the remaining stuffer warps forming the lower warp plane.

4. A pile fabric having three planes of filling separated by two planes of warp, said fabric comprising filling threads, pile warps, binder warps, and stuffer warps, the active pile warps passing under one filling thread, over two filling threads, and under an additional filling thread, four picks of filling being inserted within each crossing of the binder warps, two picks thereof underlying alternate binder warps and alternate active pile warps, one pick underlying the inactive pile warps and a portion of the stuffer warps, and the remaining pick overlying alternate binder warps only.

5. A pile fabric having three planes of filling separated by two planes of warp, said fabric comprising filling threads, pile warps, binder warps, and stuffer warps, the active pile warps passing under one filling thread, over two filling threads, and under an additional filling thread, four picks of filling being inserted within each crossing of the binder warps, and being so disposed that they may be inserted in pairs simultaneously, whereby one row of pile tufts may be inserted in the fabric for every three picks of the loom.

6. A pile fabric having a plush face woven with eight warp threads in each reed dent, said threads comprising an active pile warp having certain characteristics, an inactive pile warp having different characteristics, four stuffer warps and two binder warps, said stuffer warps and inactive pile warps being disposed in two planes separating three planes of filling threads.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

GEORGE CROSSLAND.

Witnesses:

CHAS. T. HAWLEY,

C. FORREST WESSON.

It is hereby certified that in Letters Patent No. 1,142,149, granted June 8, 1915, upon the application of George Crossland, of Worcester, Massachusetts, for an improvement in "Pile Fabrics," errors appear in the printed specification requiring correction as follows: Page 2, line 69, strike out the words "binder warps"; same page, line 70, before the word "and" insert the words *binder warps;* and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 29th day of June, A. D., 1915.

[SEAL.] J. T. NEWTON,

Acting Commissioner of Patents.