(No Model.)

H. SKINNER.

TUFTED FABRIC.

No. 257,395. Patented May 2, 1882.

Fig. 2.

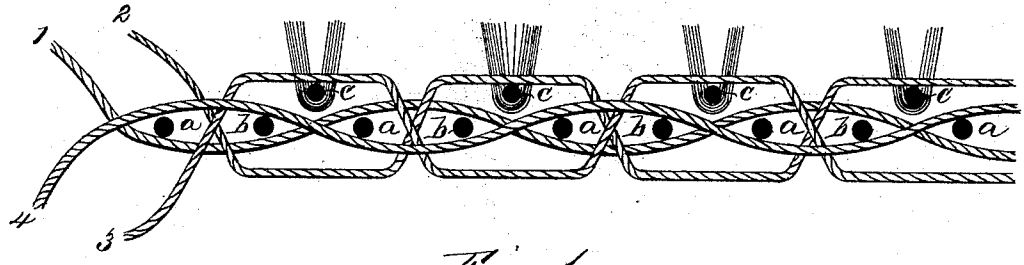


Fig. 1.

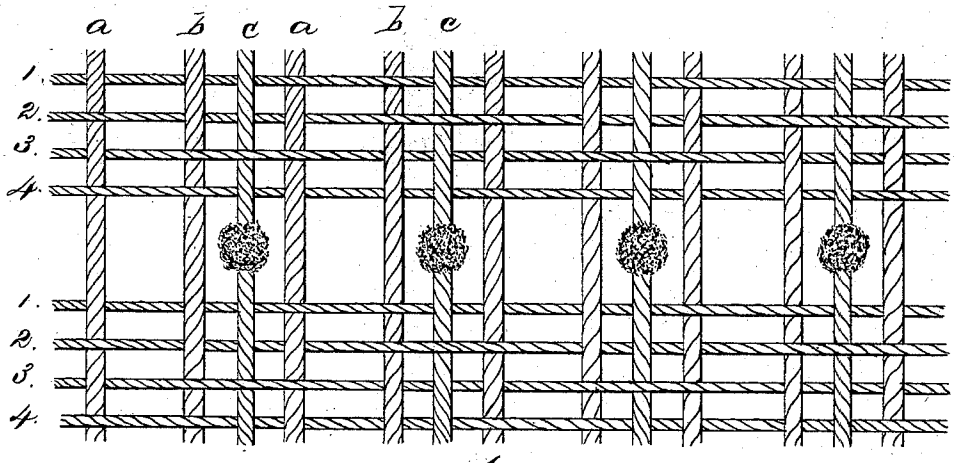
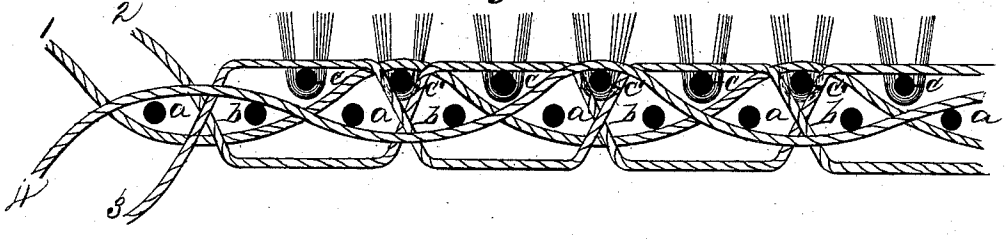


Fig. 3.



WITNESSES:

Gerard W. Barnitz

W. L. Bennett.

INVENTOR:

Halcyon Skinner

by C. L. Kennick

ATTORNEY.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

HALCYON SKINNER, OF YONKERS, NEW YORK.

TUFTED FABRIC.

SPECIFICATION forming part of Letters Patent No. 257,395, dated May 2, 1882.

Application filed July 9, 1881. (No model.)

To all whom it may concern:

Be it known that I, HALCYON SKINNER, of Yonkers, in the county of Westchester and State of New York, have made an invention of a new and useful Tufted Fabric, parts of which constitute a fabric without tufts; and I do hereby declare that the following, taken in connection with the accompanying drawings, is a full, clear, and exact description and specification of the same.

This invention relates mainly to tufted or pile fabrics—such as Moquette carpets—in which what may be termed the "web" of the fabric is of some low-priced material—such as jute or hemp—and does not show at the upper surface, while that surface is formed of tufts of generally a higher-priced material—such as wool—which are secured by some of the threads of the web.

The objects of the invention are to facilitate weaving and improve the fabric; and the most important part of the invention consists of a tufted fabric having the warp-threads, filling, (or weft-threads,) and tufts of tufting material combined in a particular manner.

In order that the invention may be fully understood, I have represented in the accompanying drawings and will proceed to describe the fabric in the best form in which I have embodied my invention at this date.

Figure 1 of said drawings represents a plan of the threads of the web, and Fig. 2 represents a section of the same, the threads in both cases being separated widely, so that their arrangement may be seen, while in the actual fabric the threads are by preference in close contact.

In the fabric thus represented the warp-threads are divided into sets of four each, designated respectively 1 2 3 4, while the weft or filling threads are three in number, and are designated respectively *a b c*, the web being made up of repetitions of the three lines or shoots of the weft-threads or filling, in combination with the warp-threads. In weaving the fabric in the loom the warp-threads are distributed to four leaves of heddles, by the movements of which the sheds are formed for the insertion of the filling. These warp-threads may for convenience be considered in pairs, one pair being formed by the threads 1 and 4, while the other pair is formed by the threads 2 and 3.

The filling-threads may for convenience be called "back" filling and "tufting" or "upper" filling, the former comprising filling-threads *a* and *b*, while the tufting or upper filling is formed of the third filling-thread, *c*. In weaving carpets it is expedient to double each filling-thread; but as the two threads of such double filling are always in conjunction, are not separated by warp-threads, and are introduced into the web at one operation, they may be considered as a single thread.

The several threads above mentioned are combined with each other as follows: Warp-threads 1 and 4 pass alternately over and under the back filling, *a* and *b*, thus binding them together in pairs, the change of these warp-threads from the upper to the under side of the back filling being effected at the part of the fabric corresponding with the third filling or tufting-filling, *c*. On the other hand, warp-threads 2 and 3 pass alternately under and over each shoot of the tufting-filling *c*, and at the same time under and over the back-filling threads, *b a*, next on each side of the tufting-filling *c*. When the back-filling threads *a b* are introduced into the sheds each is driven up after its insertion without the application of tufting material upon it; but when a tufted fabric is to be produced the tufting material is introduced between the warp-threads before the tufting-filling is passed through the shed. Then the shoot of tufting-filling is inserted, and afterward the tufting material is turned upward, so as to form tufts, which are secured upon the tufting-filling *c*.

From the foregoing description and the drawings it appears that the warp-threads 2 3 bind the tufting-filling and the tufts upon it to the backing, and on the other hand, as the said warp-threads 2 and 3 are not crossed or transposed after the upper or tufting filling is introduced until the next shoot of back filling, *a*, has been introduced, there is nothing to prevent the said back filling *a* from being driven firmly as close to the next preceding shoot of back filling, *b*, as the warp-threads will permit, and without any obstruction from the upper or tufting filling, *c*. Hence the back-filling threads *a b* form with the warp-threads a prac-

tically continuous or solid web at the under side of the fabric, while the tufting-filling threads *c* and the tufting material lay upon such continuous web, instead of intervening between the back-filling threads and separating them materially.

The fabric above described may be modified by doubling the number of shoots of tufting-fillings and rows of tufting material. In such case the shoots of filling are introduced as represented at *c c'* in section in Fig. 3, one, *c*, of these shoots being bound down to the backing beneath by the warp-threads 2 and 3 and the next shoot, *c'*, by the warp-threads 1 and 4 in alternate succession. When the fabric is to be tufted each of these shoots *c c'* secures a row of tufts of the tufting material.

Several important advantages are incident to the fabric having its members combined as above described. Thus, Moquette carpets as usually made require four shoots of filling to be inserted in the web for each row of tufts, whereas a fabric of the above-described construction requires at most only three, thereby saving during weaving the time required to introduce one shoot of each four. Again, all the warp-threads can be wound upon one warp-beam, and there may be an equal tension upon all the warp-threads, thereby obviating the necessity of employing two or more warp-beams and distinct tension devices. The tufting material is supported upon the backing, and consequently is held at a greater distance from the surface of the back of the fabric than it would be if partially intervening between the back filling-threads.

With the above advantages the fabric embodies the secure binding of the tufting-filling and of the tufting material to the back filling, and to the web formed by such back filling and the warp-threads.

If the fabric is to be double-faced, additional tufting-filling is to be introduced at the under side of the fabric, in which case the solid web formed by the back-filling threads *a b* and the warp-threads 1 and 4 will intervene between the two faces of tufted material and the tufting-filling.

The improvement is not confined to Moquette carpets, as a fabric having substantially the same combination of threads may be used for other purposes, and the tufts, instead of being cut, may consist of a series of loops connected with each other in the direction of the lengths of the warp-threads.

I claim as my invention—

1. The new fabric consisting substantially of warp-threads and filling-threads combined as above set forth—that is to say, with the shoots of two back-filling threads and the warp-threads forming a practically continuous backing, upon and to which the upper-filling thread is bound by some of the warp-threads.

2. The new tufted fabric consisting substantially of warp-threads, filling-threads, and tufting material combined as above set forth—that is to say, with the shoots of two back-filling threads and the warp-threads forming a practically continuous web, upon and to which the tufting-filling and the tufts are bound by some of the warp-threads.

Witness my hand this 13th day of June, A. D. 1881.

HALCYON SKINNER.

Witnesses:
JOHN A. DOWE,
WILLIAM P. KIELY.