A. SMITH & H. SKINNER.

Moquette-Carpet.

No. 203,663. Patented May 14, 1878.

Fig. 1.

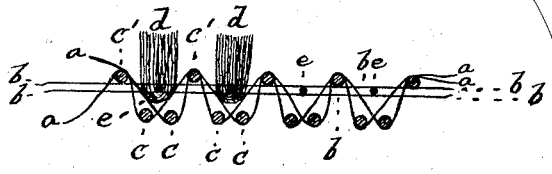
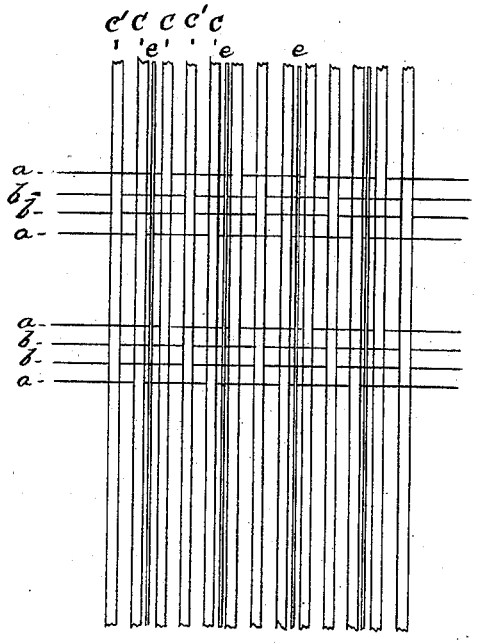


Fig. 2.



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ALEXANDER SMITH AND HALCYON SKINNER, OF YONKERS, NEW YORK; SAID SKINNER ASSIGNOR TO SAID SMITH.

IMPROVEMENT IN MOQUETTE CARPETS.

Specification forming part of Letters Patent No. **203,663**, dated May 14, 1878; application filed December 21, 1877.

To all whom it may concern:

Be it known that we, ALEXANDER SMITH and HALCYON SKINNER, both of Yonkers, in the county of Westchester and State of New York, have made an invention of a new and useful Improvement in Moquette Carpets; and that the following is a full, clear, and exact description and specification of the same.

Moquette carpet is a tufted fabric composed in part of rows of tufts of wool and in part of filling or weft threads of a commoner material, (such as jute or hemp,) the whole combined by warp-threads extending longitudinally through the fabric in such manner that the tufts form the face of the fabric, while the commoner filling appears at its back, and gives substance and body to the fabric.

In one mode of manufacturing this kind of carpet previous to our invention, filling of two different sizes has been used, the finer filling to hold the tufting material and the coarser filling at other parts of the fabric. Moreover, the warp-threads have been arranged in sets of four threads each at short intervals across the fabric, and all four warp-threads of each set have been interwoven with the coarser filling, so as at times to be above the coarser threads and at other times to be beneath the same, to bind the coarse filling-threads together. The practical effect of this arrangement and combination of warp-threads is to tend to draw all the coarser filling-threads to the same level, so that they do not support the tufts. In the other mode of manufacturing said carpet hitherto practiced, coarse filling alone is used, and each shoot of coarse filling holding the row of tufts is underlaid by a corresponding shoot of coarse filling, making a pair with the tufting shoot, while each such pair is separated from the next pair by an intermediate shoot of coarse filling, generally of doubled threads. The effect of this mode of weaving is that the two forks of each loop of tufting material are separated widely by the coarse filling, and the fabric as a whole is coarser than desirable.

In both of the above modes of weaving the filling for each row of tufts consists of three shoots interwoven in three sheds of warp-threads. According to the improvement in the manufacture of moquette carpet which constitutes the subject of this patent, a portion of the warp-threads (and by preference two of each set of four across the width of the fabric) is interwoven with the coaser filling, so as to bind the coarse filling-threads together, while the other warp-threads (by preference the other two of each set of four) are caused to extend above and below the row of fine filling-threads (securing the tufts) in as nearly straight lines as practicable through the fabric between the coarser filling-threads, so that a portion of the coarse filling-threads are above these two warp-threads of the set, and the residue of the coarse filling-threads are beneath them. These approximately-straight warp-threads thus bind the fine filling and the tufting material to the coarse filling, and also divide the threads of coarse filling into two divisions, the members of one of which are above the said approximately-straight warp-threads and between the rows of tufts, while the members of the other division are at the under side of the carpet; and the members of the upper division of coarse filling-threads are held in a raised position between the rows of tufts, so that the tufts are caused to stand more erectly by reason of the interposition of the coarse filling-threads between them. Moreover, the division of the coarse filling, as above described, permits each thread of the upper division to slide partially over the last preceding thread of the lower division, when beaten up by the lay of the loom, and also permits that thread of the lower division of coarse filling which succeeds the thread of the upper division to slide partially beneath the latter, whereby the fabric is rendered more compact and substantial.

In practice we find it expedient to make the approximately-straight or "dividing warp-threads," (as we designate them,) coarser than the other or binding warp-threads; also, to insert the filling by means of a spear or weft-carrier, so that every filling-thread is doubled, and to interweave the coarse and fine filling with the warp-threads in proportion of three shoots of coarse filling and one shoot of fine filling for each row of tufts, each shoot of filling being inserted in a separate shed of warp-threads opened for that purpose.

In order that the invention may be fully un-

derstood, we have represented in the accompanying drawing the relative positions of the threads composing our improved fabric, but have represented the threads as separated by open spaces, so as to avoid confusion, it being understood that in practice the filling is driven up by the lay of the loom, so as to cause the threads to touch each other and make a solid fabric.

Figure 1 of said drawing represents a longitudinal section of the fabric. Fig. 2 represents a top view of the warp-threads and filling.

In the said drawings, the lines *a a b b* represent a set of four warp-threads, two of which, *a a*, are binder-threads, being interwoven with the coarser filling-threads *c c c'*, so as to pass over and under the latter, while the other two warp-threads, *b b*, are dividing warp-threads, extended as nearly straight as practicable through the fabric between the coarse filling-threads *c c c'*. The fine filling which holds the tufts *d* of the tufting-material is represented at *e*, only two tufts being shown in the drawing. These fine filling-threads cross the fabric between the dividing warp-threads *b b*, and are secured by them to the coarse filling. It will be noticed that the dividing warp-threads *b b* divide the coarser filling into two divisions, and that the threads *c'* of the upper division intervene between the rows of tufts *d d*. The presence of this upper division of coarse filling-threads between the rows of tufts tends to cause the latter to stand more erect, when the whole fabric is driven up closely by the operation of the loom.

It will also be noticed that the interweaving of the filling and warp threads is effected by opening four successive and distinct sheds of warp-threads for every row of tufting material, one shed being opened for the passage of the shoot of fine filling securing the row of tufts, a second shed being opened for the first shoot *c* of the under portion of coarse filling, a third shed being opened for the shoot *c'* of coarse filling above the binder warp-threads, and a fourth shed being opened for the second shoot *c* of the under portion of coarse filling. This interweaving of the filling in four separate sheds of the warp-threads holds the coarse filling firmly in its place, with the portion *c c* that is beneath the dividing warp-threads twice as great in bulk as the portion *c'* that is above the divider warp-threads. It also disposes the two under shoots *c c* of coarse filling to form a species of socket or hollow bed for the row of tufts.

The fabric thus described may be woven in a hand-loom, having the treadles moved in proper order to open the shed of warp-threads for the insertion of the filling; but we prefer to weave the fabric in a power-loom, using for that purpose the loom described in our patent dated January 16, A. D. 1877, and modifying the treadle mechanism so as to move the leaves of heddles in the required order to enable the filling-threads to be inserted between the warp-threads, as above described.

In the drawings the filling is represented as composed of single threads for the purpose of rendering the representation more clear; but in practice we prefer to double the filling-threads.

The warp-threads may be increased in number, provided a portion of them be interwoven with all the coarse filling-threads so as to bind them together, while another portion of the warp-threads is caused to extend between the coarse filling-threads so as to divide the latter into an upper and a lower group or division.

If desired, the arrangement of the warp-threads may be modified, without changing the combination and arrangement substantially, by causing the central pair of warp-threads of a set of four to divide the coarse filling for a short space—say half an inch of the length of the fabric—and by then causing the outer pair to effect the division of the coarse filling-threads for a short space, while the inner pair connects the upper and lower divisions of coarse filling for the same space, all the warp-threads being thus used in some parts of the fabric as dividing warp-threads, and in other parts as binder warp-threads.

We claim as our invention—

The improved moquette carpet, substantially as before set forth, composed of rows of tufting material, fine filling, coarse filling, binder warp-threads, and dividing warp-threads, combined and arranged as before set forth, with the fine filling inserted between the divider warp-threads, and also with the coarse filling divided into two portions, one of which is above the divider warp-threads and the other of which is beneath the same.

Witness our hands this 6th day of November, A. D. 1877.

ALEXANDER SMITH.
HALCYON SKINNER.

Witnesses:
EBENEZER CURTICE,
ALLEN TAYLOR.