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C. H. L. HANSON.

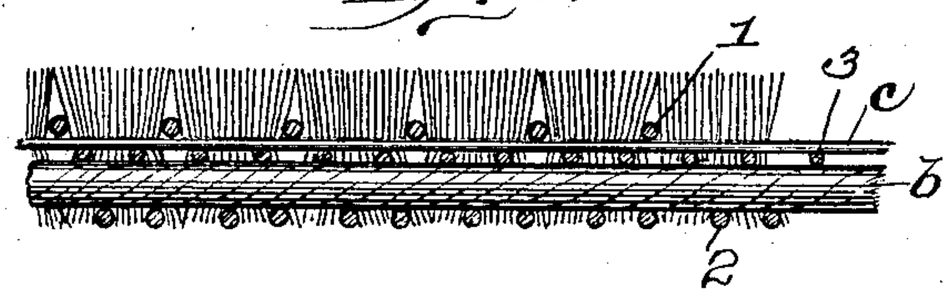
WOVEN FABRIC.

APPLICATION FILED MAY 28, 1903.

SPECIMENS.

Fig. 1.

Fig. 2.



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UNITED STATES PATENT OFFICE.

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WOVEN FABRIC.

SPECIFICATION forming part of Letters Patent No. 753,702, dated March 1, 1904.

Application filed May 28, 1903. Serial No. 159,099. (Specimens.)

To all whom it may concern:

Be it known that I, CHARLES H. L. HANSON, a citizen of the United States, residing in the city of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Woven Fabrics, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to woven fabrics of the class of carpets and rugs, and more particularly to such fabrics which have a pile-surface composed of chenille weft-threads and also to those having a backing formed of the usual spun weft-threads.

The object of my invention is to produce a fabric which shall partake of the nature of a "Smyrna" weave as to pile-surface and of an Axminster or moquette weave as to the backing, producing a Smyrna having somewhat the appearance both as to pile-surface and backing of a so-called "oriental" high-pile carpet or rug, but of a construction which is simple and of great durability, economical to produce, thick, because of high pile and a particular arrangement of chenille and binder wefts, and hence giving the rich and ornamental effect of a fine grade of carpet.

To these ends my invention consists of a woven carpet fabric in which the spun wefts constituting the backing-wefts are arranged in two horizontal planes, one above the other, as in ordinary Axminster or moquette carpets, but disposed in alternate vertical planes, and in which instead of the ordinary pile-tufts of yarn in such fabrics tied either to a warp or weft thread there shall be a pile-face of chenille tied or bound in by a warp-thread and the latter by the wefts of the upper plane of backing-wefts in conjunction with the lower plane of backing-wefts, the chenille being drawn down always in front of each bottom thread in the lower plane of backing-wefts and held in position relative thereto by the backing-wefts of the upper plane, the two usual warps being employed additionally to the first-mentioned warp, one incidental effect being to cause the figure or pattern effect of the pile-surface to show with more or less distinctness on the back of the fabric.

In practice I produce my new fabric on the well-known Smyrna power-loom by adding thereto an additional heddle to the usual two heddles on such looms, the additional heddle throwing in the tying-in warp first above mentioned.

In the accompanying drawings, illustrating my new fabric, Figure 1 is a sectional view of a piece of fabric embodying my invention and taken in the direction of the warp-threads, the said threads and their arrangement being somewhat exaggerated to more clearly disclose the structure. Fig. 2 is a section of a piece of like fabric, taken at right angles to the section of Fig. 1—that is, in the direction of the weft-threads.

In the drawings, *a b* represent the backing weft-threads disposed in two horizontal planes arranged in alternate vertical planes and which may consist of the otherwise usual arrangement and character of threads comprising the backing of an ordinary Axminster or moquette fabric or be of any other desired character. The backing weft-threads *a* in the lower plane of threads and *b* in the upper plane of such threads are bound together by the warp-threads 2 passing over and under said upper and lower weft-threads alternately, as shown. Another warp-thread, 3, the same being a stuffer-warp, is interposed between the upper and lower planes of said wefts. Directly over the backing weft-threads *a* of the lower plane and between the backing weft-threads *b* of the upper plane are disposed the chenille weft-threads *c*, which are tied or bound in by means of a binder-warp 1. This binder-warp 1, it will be noted, does not pass to the back of the fabric—that is, it does not appear on the back thereof—but ties or binds the chenille-weft *c* in place by passing partly around and under the weft-threads *b* in the upper plane of the fabric, while the latter are

in turn tied to the weft-threads *a* in the lower plane of weft-threads by the binder-warp 2. By such disposition of the binder warp-thread 1 in passing over the chenille weft-threads *c* and under the adjacent weft-threads *b* of the upper plane of weft-threads not only are the chenille weft-threads bound or tied in place, but the weft-threads *b* of the upper plane of backing weft-threads are more securely held in that plane and prevented from sinking into the plane of the lower weft backing-threads *a*, though tied securely to the latter, holding the chenille-weft between them by the warp-threads 2, the permanency of this relation of the threads being materially aided by the warp-threads 3, lying between the upper and lower plane of backing-wefts *a* and *b*.

It will be observed that portions of the chenille weft-threads appear on the back of the fabric to one side of the backing weft-threads *a* in the lower plane and partly cover said weft-threads *a*. This intended effect is incidental to the construction and results from binding the chenille weft-threads *c* in the same plane and alternately with each thread in the upper plane of weft-threads *b* by means of the binder-warp 1 passing only under the upper plane of backing weft-threads and over the chenille-threads, thus allowing the binder-warp 2 (which passes over and under the upper and lower wefts *b* and *a* alternately) to pull down or depress the projecting fur or fiber of the chenille-threads in front of each thread in the lower plane of backing-wefts *a*, and hence causing the lower end of the chenille-thread to appear more or less distinctly on the under side or back of the fabric. This result is further affected during the process of weaving by first forming the shed for the chenille-weft and putting in a shot of such thread and thereafter shedding for the next adjacent weft-thread *a* in the lower plane and putting in a shot of such thread, which in the beating up engages the projecting fur or fiber of the chenille-thread and secures it between itself and the next adjacent weft-thread in the upper plane.

From the construction described it will be seen that the fabric gives a Smyrna effect on the pile-surface, while the backing is, save as modified in the particulars described, substantially that of an ordinary Axminster or moquette carpet, the fabric as a whole possessing all the advantages of both a Smyrna and an Axminster without any of the disadvantages of either.

It will be obvious, of course, that the size, character, fiber, and coloring of the various threads may be varied as desired and that the chenille-threads may be any of the usual forms of such threads.

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

1. A woven fabric comprising backing weft-threads arranged in two planes, warp-threads suitably binding said backing weft-threads together and maintaining them in that planular relation, chenille weft-threads disposed between the backing weft-threads of the upper plane of weft-threads, and binder warp-threads binding the chenille weft-threads in said upper plane.

2. A woven fabric comprising backing weft-threads arranged in two planes, binder warp-threads lying between said upper and lower planes of backing-weft, warp-threads suitably binding said backing weft-threads together in horizontal planular and vertically alternate relation, chenille weft-threads disposed between the backing weft-threads of the upper plane of weft-threads, and binder warp-threads binding the chenille weft-threads to the backing weft-threads in the upper plane of weft-threads.

3. A woven fabric comprising backing weft-threads arranged in two planes, warp-threads suitably binding together said upper and lower backing weft-threads, chenille weft-threads disposed between the backing weft-threads of the upper plane of weft-threads and immediately over the weft-threads in the lower plane, portions of said chenille weft-threads projecting to the back of the fabric in front of each weft-thread in the lower plane of weft-threads, and thereby reproducing on the back of the fabric, in more or less distinctness, the face pattern or figure effect, a binder warp-thread lying between said upper and lower planes of binder-weft, and a third binder-warp tying the chenille weft-threads in said upper plane of weft-threads.

4. A woven fabric, comprising a set of weft-threads arranged in a lower plane and a set of weft-threads arranged in an upper plane, the respective upper and lower threads arranged vertically alternate, two series of warp-threads binding the said weft-threads together and maintaining them in their said respective planes, chenille weft-threads disposed between the backing weft-threads in the upper plane of weft-threads, and additional binder warp-threads binding the chenille-threads to and between the weft-threads of the upper plane and to and over and in front of the weft-threads of the lower plane of said threads.

In testimony whereof I have hereunto affixed my signature this 7th day of May, A. D. 1903.

CHARLES H. L. HANSON.

Witnesses:
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