(Specimens.)

W. TALBOT.

WOVEN FABRIC.

No. 457,410. Patented Aug. 11, 1891.

Fig. 1.

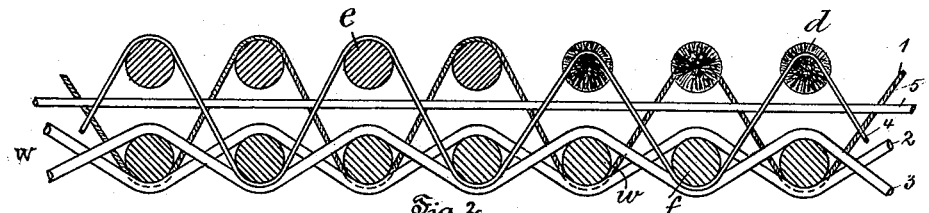


Fig. 2.

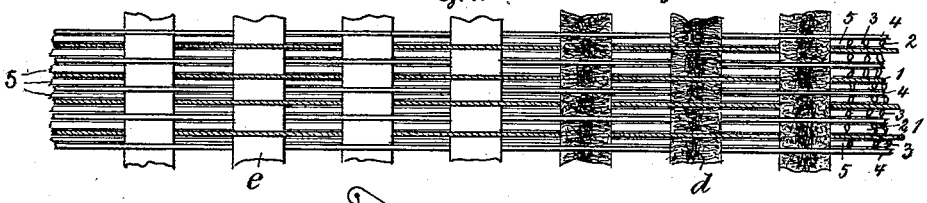


Fig. 3.

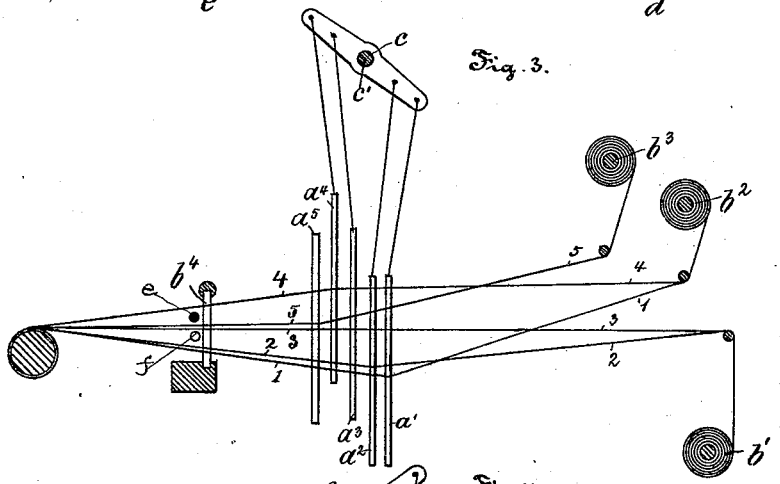
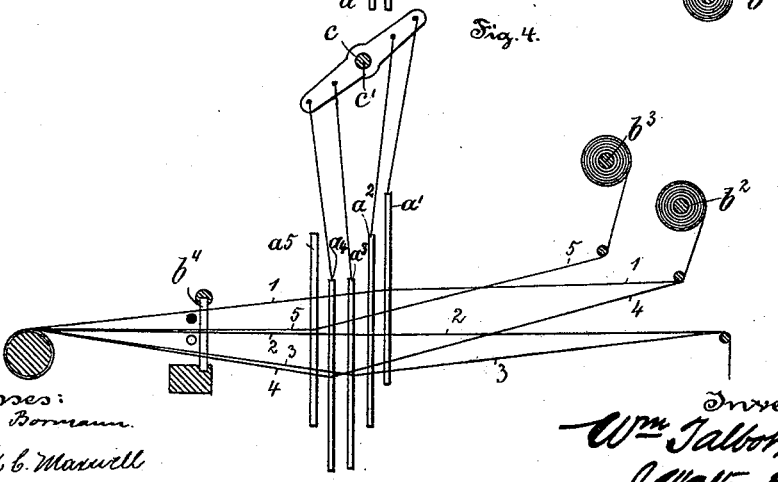


Fig. 4.



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UNITED STATES PATENT OFFICE.

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WOVEN FABRIC.

SPECIFICATION forming part of Letters Patent No. 457,410, dated August 11, 1891.

Application filed November 6, 1890. Serial No. 370,500. (Specimens.)

To all whom it may concern:

Be it known that I, WILLIAM TALBOT, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Improvement in Woven Fabrics, of which the following is a specification.

My invention relates to an inexpensive and attractive woven fabric especially adapted for use as a carpet, yet nevertheless applicable to other somewhat analogous purposes.

The principal object of my present invention is to produce from comparatively inexpensive materials and by an expeditious process of weaving a fabric having plain or figured chenille or yarn face wefts, with binding-warps tying the same, respectively, to the wefts of a ground web of jute or like material and constituting a cheap and acceptable substitute for such costly fabrics as are usually employed for carpets, rugs, and like articles.

My invention consists of a woven fabric having a ground web and plain or figured face wefts, with binding warps tying one or more of said face wefts to each of the wefts appertaining to said ground web and having stuffing warps or floats lying between said face wefts and ground web.

The nature and characteristic features of a woven fabric embodying my present invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, and in which—

Figure 1 is a diagrammatical representation of a section taken in the direction of the warps—that is, a section through the wefts of a fabric embodying my invention—illustrating at the left-hand side thereof the employment of yarn face wefts and at the right-hand side thereof the employment of chenille face wefts, and showing also the warps of said ground web and binding warps passing from face to face of the fabric and tying said ground and face wefts together. Fig. 2 is a similar representation of a top or plan view of Fig. 1, illustrating the binding warps tying the face wefts and ground-web wefts together at every pick, and showing also the stuffing warps or floats lying between said face wefts and ground web in order to conceal the latter from view; and Figs. 3 and 4 represent diagrammatically the respective positions assumed by the harness of the loom in producing the improved woven fabric.

In the drawings the warp of the fabric is divided into three portions, designated hereinafter as the "ground warp," "binding warp," and "extra warp." The ground warp is preferably composed of jute and is wound on a beam b', the binding warp is preferably composed of fine cotton yarn and is wound on a beam b^2, and the extra warp is composed of jute or other suitable inexpensive material and is wound on a beam b^3. The ground warp appertains to the ground web and is divided into two portions or "half-gangs" 2 and 3, as they are frequently called by weavers. The binding warp appertains to the face and ground wefts and is divided into two portions or half-gangs 1 and 4. The extra warp comprises the stuffing warps or floats 5, which are not divided into half-gangs.

b^4 is a reed of the usual construction.

a', a^2, a^3, a^4, and a^5 represent the harness of the loom.

The four divisions or half-gangs of the warp are lead into the four members of the harness in the following order: The divisions 2 and 3 of the ground warp through the harness a^2 and a^3, respectively, and the divisions 1 and 4 of the binding warp through the harness a' and a^4, respectively. The extra warp 5 is led in through the stationary or dead harness a^5. The leaves or members of the harness a' and a^2 are attached to one extremity of a working or oscillating beam c, and the leaves or members of the harness a^3 and a^4 are attached to the other extremity thereof, so that the leaves or members of the harness a^3 and a^4 are lifted when the beam c is turned in one direction, Fig. 3, and the leaves or members of the harness a' and a^2 are lifted when the beam c is turned in the opposite direction, Fig. 4, and the leaves or members of the harness a' and a^4 are lifted higher than the leaves or members of the harness a^2 and a^3, because they are located farther from the center of oscillation c' of the beam c.

The figure effect is not produced in my improved fabric by means of a Jacquard machine, but by the employment of figured

chenille face wefts *d* or printed yarn face wefts *e*, and these face wefts are manipulated after each shot in order to produce the required figure effect by shifting them toward the right or left until they occupy the position required for the formation of the pattern.

f are the wefts, composed, preferably, of jute, and appertain to the ground web.

In Figs. 1 and 2 the ground wefts *f* and ground warps 2 and 3 constitute the ground webs *w*, and the warps 1 and 4 pass from face to face of the fabric at successive picks and are looped around the face wefts *d* and *e* and the ground wefts *f*, so that the face wefts of the fabric are tied or knit at every pick, and the stuffing warps or floats 5 lie between the face and ground wefts and not only prevent what is technically termed "grinning"—that is to say, the result obtained where by reason of gaps on one side of the material the other face or ply thereof is exposed—but add body and smoothness of finish to the finished fabric.

In order that the nature and characteristic features of a fabric embodying my invention may be fully understood, a brief description of a practically-efficient method of manufacturing the same will now be given, although other methods, if preferred, may be employed in the production thereof.

Referring now to Fig. 3 for a detailed explanation of the first step of one complete operation of the loom, the leaves or members of the harness a^3 and a^4 are lifted by the beam *c*, and the half-gangs 3 and 4 constitute the upper members of two sheds, and the half-gangs 1 and 2 constitute the lower part of one of said sheds. The half-gangs 4 and 1 are shifted farther than the half-gangs 3 and 2, because the harness a^4 and a' appertaining to the half-gangs 4 and 1 are shifted farther than the harness a^2 and a^3 appertaining to the half-gangs 2 and 3, as has been explained, so that the two sheds are in effect superposed or located the one above the other. A ground weft *f* is thrown into the lower shed and a face weft *d* or *e* is thrown into the upper shed. These two wefts may be thrown successively; but excellent results have been attained in practice by throwing them into the respective sheds at the same time, and consequently preference is given to the simultaneous introduction of two wefts. The weft *d* or *e* is then manipulated in order to procure the required figure effect by shifting it in one direction or the other to meet the requirements of the pattern. In weaving a plain cloth this manipulation of the weft is of course dispensed with.

Referring now to Fig. 4 for a description of the second step of the operation, the leaves or members of the harness a' and a^2 are raised by the beam *c*, and half-gangs 1 and 3 and 2 and 4 form two superposed sheds. The ground and face wefts are then introduced into said sheds, the former into the upper shed and the latter into the lower shed, as has been described with reference to Fig. 3. By repeating the above-described operation the process of weaving is made continuous.

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

A woven fabric having a ground web comprising back wefts with warps in two divisions, figured chenille or yarn face wefts with binding warps in two divisions, tying one of said face wefts to each of the ground wefts, and stuffing warps or floats lying between said face and back wefts.

In witness whereof I have hereunto set my signature in the presence of two subscribing witnesses.

WILLIAM TALBOT.

Witnesses:
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