I. E. PALMER.

WOVEN FABRIC.

APPLICATION FILED FEB. 17, 1908.

900,036. Patented Sept. 29, 1908.

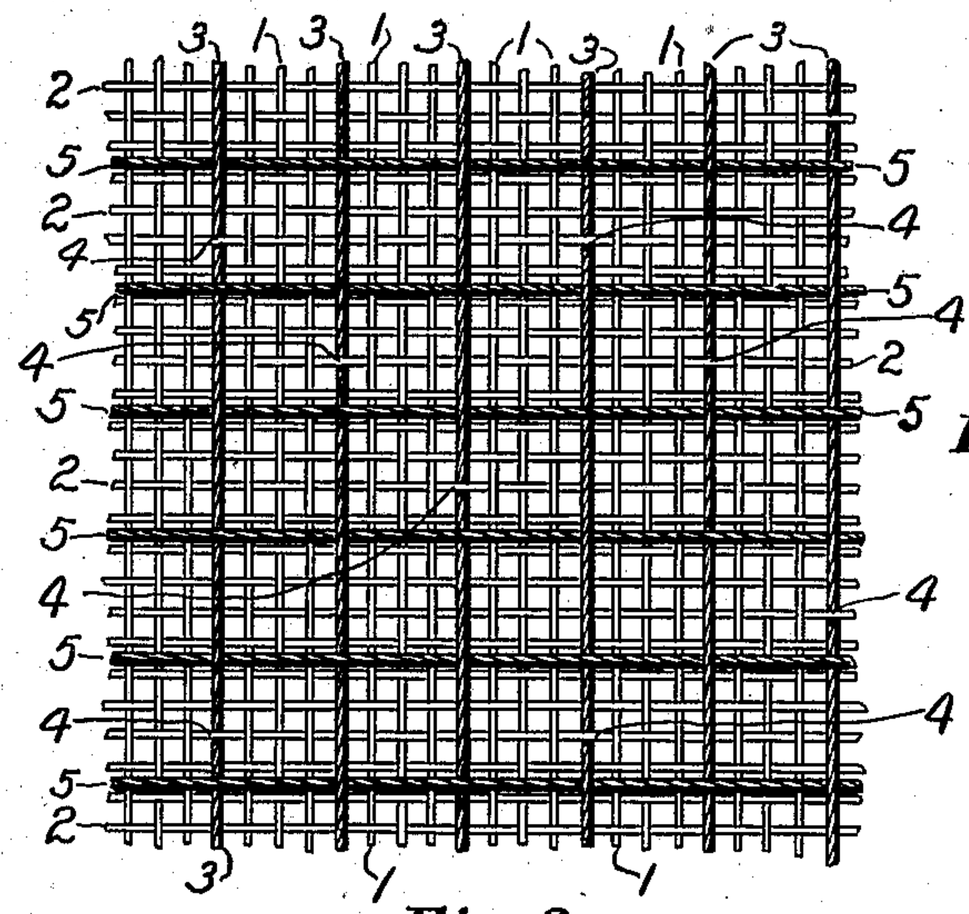


Fig. 1.

Fig. 2

SECTION THROUGH WARP.

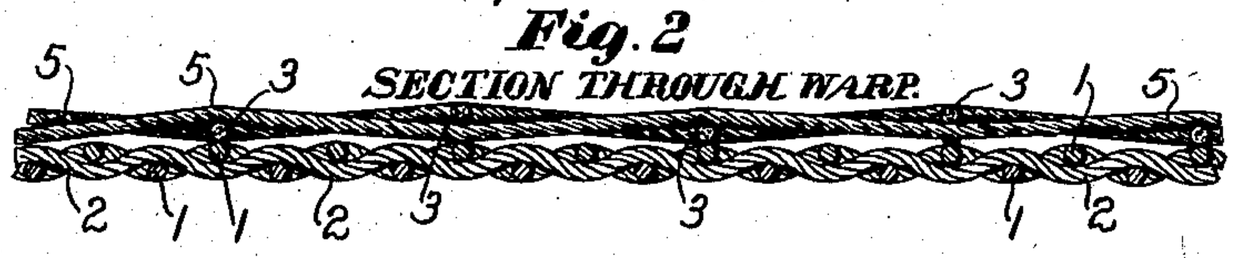


Fig. 3.

SECTION THROUGH WEFT.

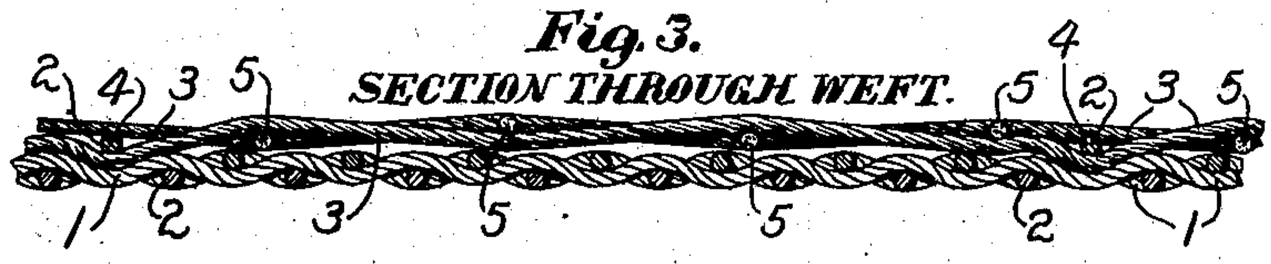


Fig. 4.

SECTION THROUGH WEFT.

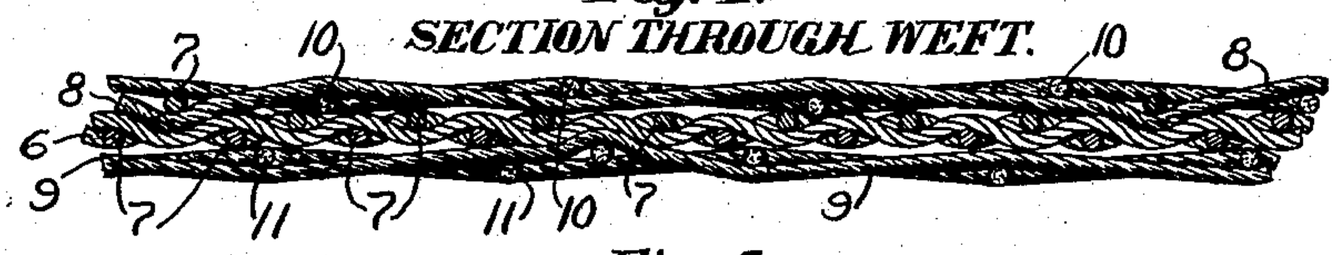
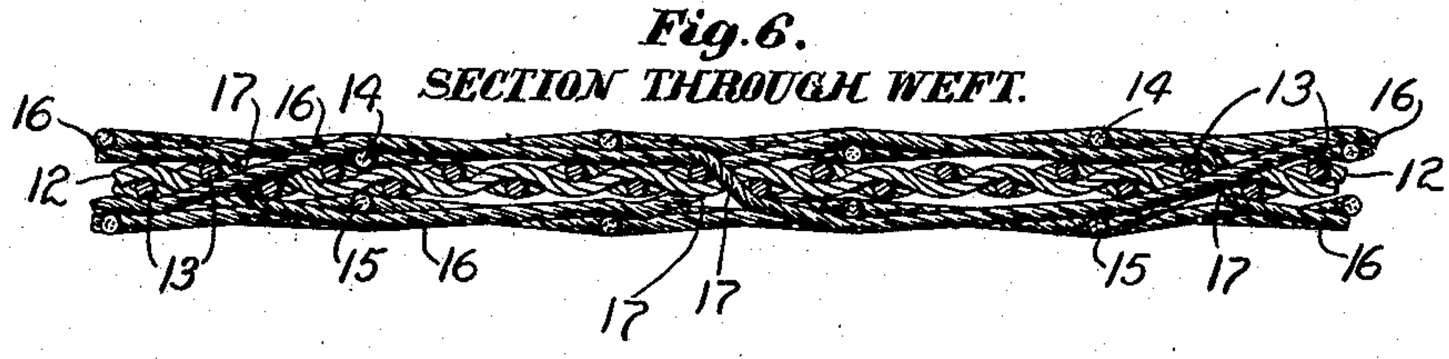


Fig. 5.

SECTION THROUGH WARP.

Fig. 6.

SECTION THROUGH WEFT.



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UNITED STATES PATENT OFFICE.

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WOVEN FABRIC.

No. 900,036. Specification of Letters Patent. Patented Sept. 29, 1908.

Application filed February 17, 1908. Serial No. 416,202.

To all whom it may concern:

Be it known that I, ISAAC E. PALMER, a citizen of the United States, residing at Middletown, in the county of Middlesex and State of Connecticut, have invented an Improvement in Woven Fabrics, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to a woven fabric especially intended for use as a lining or for buckram and which may be employed for dress goods and also to the process of making such fabric.

In order that the principles of the invention may be understood, I have in the accompanying drawings disclosed certain types of fabrics embodying my invention.

In said drawings—Figure 1 is a plan view of one face of a fabric embodying my invention; Fig. 2 is a section upon an enlarged scale of the fabric shown in Fig. 1, taken through the warp threads; Fig. 3 is a section upon an enlarged scale of the fabric shown in Fig. 1 taken through the weft threads or at right angles to Fig. 2; Fig. 4 is a section of a modified form of fabric embodying my invention taken through the weft threads and wherein both faces are provided with supplemental threads; Fig. 5 is a section of the fabric illustrated in Fig. 4 but taken through the warp threads; and Fig. 6 is a section taken through the weft threads and illustrating a modification of the fabric shown in Figs. 4 and 5.

In carrying out my invention, I form a woven fabric in a manner to be hereinafter more fully described and provide one or both faces thereof with ridges which preferably intersect to form the bounding walls of superficial pockets and apply a suitable sizing or cementitious matter to the fabric, it being incorporated into the body fabric between or upon the body warp and weft threads and superficially applied to or within the pockets in such manner as to provide suitable stiffening for the fabric to suit it for the purpose for which it is intended, the sizing being protected by the ridge like supplemental threads. Heretofore in the formation of fabrics of this general character, suitable for linings and for buckram, it has been customary so far as I am aware to form a closely woven fabric and separately to form an open mesh woven fabric, the two fabrics being then cemented together by sizing. Not only is this process slow and expensive, but it is impossible to produce an elastically sized fabric in this manner for the reason that the amount of sizing or cement necessary to fasten the two fabrics together inevitably results in stiffening the same unduly. In accordance with my invention, I may produce either an elastically or a stiffly sized fabric, the former being more particularly applicable for dress goods and the latter for buckram, by suitably manipulating the fabric during the drying operation following the sizing application or applications.

Referring more specifically to the drawing and first to Figs. 1, 2 and 3 thereof, the body portion of the fabric is formed of warp and weft threads 1 and 2 respectively, interwoven in any suitable manner. Such threads may be of any suitable material and character. The warp and weft threads may be of the same size or either may be of a larger size than the other. Either set of threads may be composed of twisted threads constituting warps or wefts of enlarged cross section.

In the form of the invention shown in Figs. 1, 2 and 3, I provide upon one surface of the body fabric floating supplemental warp threads 3 bound to the body fabric at any desired intervals by the body wefts, as indicated at 4. Upon this face of the fabric, I also provide supplemental floating weft threads 5 bound into the fabric only by the floating supplemental warp threads 3. In Fig. 1, I have represented the warp threads 3 as passing alternately over and under the weft threads 5. It will be apparent, however, that any suitable arrangement may be provided permitting the tying down of the weft threads by the warps, and conversely the tying down of the warp threads 3 by the weft threads 5. The supplemental weft threads 5 may be thrown into the fabric in any suitable manner; for example, I may employ in weaving the fabric a dobby loom with or without boxes. If boxes be employed, the supplemental wefts may if desired be of larger diameter than the body wefts or may contrast therewith in any desired respect, it being, however, apparent that if desired the same character of weft may be employed for both body and supplemental threads. If a dobby loom without

boxes be employed, I can if desired throw into the same shed side by side several weft threads to produce in effect a single ridge like formation. The binding in of the supplemental warp and weft threads may be such that in effect either the supplemental warps or the supplemental wefts are floated, and in either event the floated threads may be of the same size as the body threads or contrast therewith in any manner.

It will be apparent that the fabric herein disclosed is, in this form of my invention, provided upon one face with supplemental threads forming ridge like formations which intersect to constitute the bounding walls of superficial pockets serving to receive the sizing in the subsequent operation and to protect the same. It is apparent that the spacing of the supplemental warp threads and supplemental weft threads may be such as is found desirable.

In Figs. 4 and 5, I have represented cross sections of a modified form of fabric wherein both faces thereof are provided with supplemental floating warp and weft threads. In Figs. 4 and 5, the body warps are indicated at 6, the body wefts are indicated at 7, the supplemental or floating warps upon the upper face being indicated at 8 and the corresponding warps upon the lower face being indicated at 9. The supplemental weft threads upon the upper face are indicated at 10 and those upon the lower face are indicated at 11. It will be apparent from the construction shown in Figs. 2 and 5 that the supplemental floating weft threads are tied in only by the supplemental warp threads.

In Fig. 6, I have represented a modified form of fabric, the section being taken through the weft threads. In said figure, the body warp threads are indicated at 12 and the body weft threads at 13; the supplemental weft threads upon the upper face are indicated at 14 and those upon the lower face at 15. The supplemental warp threads 16, in this form of the invention, are for any desired portion of their length carried upon one face of the fabric and then, as at 17, passed through the body of the fabric to the opposite face, as clearly indicated. In a fabric thus constructed, the warp ridges upon each face will be interrupted periodically. In the form of the invention shown in Figs. 1 to 4 inclusive, the ridges, both of the warp and weft, are substantially uninterrupted throughout their extent.

The fabric embodying my invention being particularly intended for use as lining or for buckram, it is after its formation subjected to a sizing operation. To this end, the fabric is in any suitable manner subjected to several applications of sizing, the fabric being dried after each application. If it be desired to provide a sized elastic fabric, the fabric is suitably vibrated in the plane thereof as it is dried. In this manner, I prevent the cementing or sizing together of the threads of the body fabric. If, however, the fabric be not vibrated as it is dried, then the sizing acts to bind or cement together the threads of the body fabric with the result that the completed fabric is stiff. It is apparent that a minimum amount of sizing may be employed to secure the requisite amount of stiffness or elasticity and that sizing is not needed to secure the floating threads to the body fabric, since they are bound thereto in the weaving of the fabric. Heretofore, so far as I am aware, in the production of fabrics of this character, it has been necessary to supply sufficient sizing to cement the open mesh fabric to the body fabric, thus preventing the formation of an elastically sized fabric. It will be apparent that the sizing is applied to the bases of the superficial pockets and that it is protected from wear by the ridge like formations of the supplemental warps and wefts. It is apparent that in the formation of elastically finished fabrics, it is possible to produce a bulkier fabric than has heretofore been obtainable.

Having thus described one type or embodiment of my invention, I desire it to be understood that although specific terms are employed, they are used in a generic and descriptive sense, and not for purposes of limitation, the scope of the invention being set forth in the following claims.

Claims.

1. A woven fabric composed of body warp and weft threads, spaced floating warp threads and spaced floating weft threads forming intersecting sets, said sets of floating threads being bound at intervals, and the said binding of one of said sets of floating threads being effected by body threads, the spacing of said floating threads being such that the face of the fabric has intersecting protruding ridges forming bounding walls of superficial pockets.

2. A woven fabric composed of body warp and weft threads, spaced floating warp threads bound at intervals by the body weft threads, and spaced floating weft threads passing over and under floating warp threads the fabric thus presenting a face having intersecting ridges forming bounding walls of superficial pockets.

3. A woven fabric composed of body warp and weft threads, floating warp threads bound at intervals by the body weft threads, and floating weft threads passing over and under floating warp threads, but passing above the body warp threads.

4. A woven fabric composed of body warp and weft threads, spaced floating warp threads bound at intervals by the body weft threads, and spaced weft threads passing over and under floating warp threads, but passing above the body warp threads, the

fabric thus presenting a face having intersecting ridges forming bounding walls of superficial pockets.

5. A woven fabric composed of body warp and weft threads, both faces of said fabric having sets of floating supplemental warp and weft threads bound to the body at intervals only, the threads of said sets being spaced so that both faces have intersecting ridges forming bounding walls of superficial pockets.

6. A woven fabric composed of body warp and weft threads, both faces of said fabric having supplemental spaced warp threads and spaced weft threads united to the body of the fabric only at intervals greater than the spacing of the body warp and weft threads.

7. A woven fabric composed of body warp and weft threads, both faces of said fabric having supplemental warp and weft threads, said supplemental warp threads being bound at intervals by the body weft threads, and said supplemental weft threads being bound only by said supplemental warp threads.

8. A woven fabric composed of body warp and weft threads, both faces of said fabric having supplemental warp and weft threads, said warp and weft threads being suitably spaced, said supplemental warp threads being bound at intervals by the body weft threads and the said supplemental weft threads being bound only by the supplemental warp threads, both faces of the fabric being thus provided with intersecting ridges forming bounding walls of superficial pockets.

9. A woven fabric suitable for use as a lining and for other purposes, and comprising body warp and weft threads, one or both faces of the fabric being provided with floating threads bound at intervals to the body of the fabric and presenting ridge like formations, the said fabric being sized to stiffen the same, the sizing being incorporated into the body fabric between the warp and weft threads, and superficially applied to one or both faces of the fabric and protected by the floating threads upon the face or faces provided therewith.

10. A woven fabric suitable for use as a lining and for other purposes, and comprising body warp and weft threads, one face at least of the fabric being provided with supplemental warp and weft threads forming intersecting ridges acting as bounding walls of superficial pockets, the said fabric being sized to stiffen the same, the sizing being incorporated into the body fabric between and upon the warp and weft threads and superficially applied to the ridged face, being retained and protected by the pocketed formation thereon.

11. The process of making fabrics consisting in interweaving body warp and weft threads, binding thereto supplemental ridge-forming threads affording ridge-like formations upon one or both faces thereof, and subjecting said fabric to one or more sizing operations.

12. The process of making fabrics consisting in interweaving body warp and weft threads, binding thereto supplemental ridge-forming intersecting threads affording bounding walls of superficial pockets, and applying sizing to the body fabric within the bounding walls of said pockets.

13. The process of making fabrics consisting in interweaving body warp and weft threads, binding thereto supplemental intersecting ridge-forming threads affording bounding walls of superficial pockets, and elastically sizing said fabric.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

ISAAC E. PALMER.

Witnesses:
CHAS. M. SAUER,
GEO. C. HAINS.