No. 848,121. PATENTED MAR. 26, 1907.

G. D. MOORE.

MULTIPLY FABRIC.

APPLICATION FILED MAY 23, 1904.

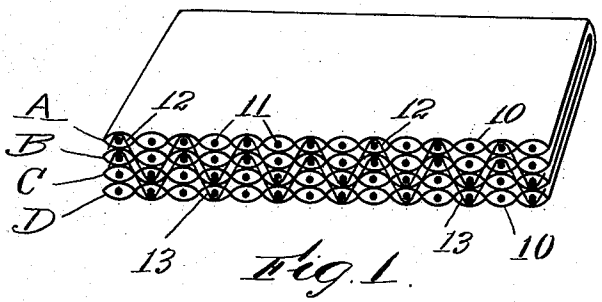

Fig. 1.

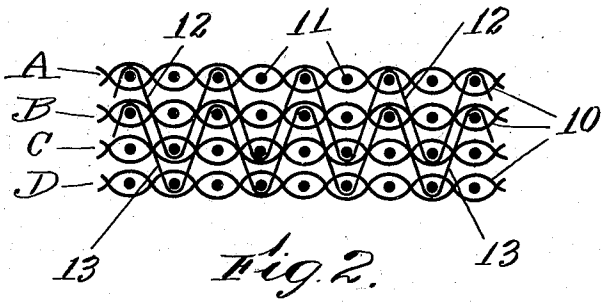

Fig. 2.

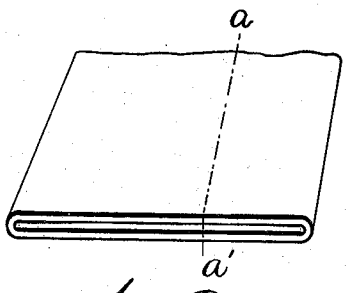

Fig. 3.

WITNESSES:

C. F. Wesson.

A. M. Goddard.

INVENTOR:

G. D. MOORE.

By Att'ys

Southgate & Southgate

UNITED STATES PATENT OFFICE.

GEORGE D. MOORE, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO MULTIPLE WOVEN HOSE & RUBBER CO., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

MULTIPLY FABRIC.

No. 848,121. Specification of Letters Patent. Patented March 26, 1907.

Application filed May 23, 1904. Serial No. 209,245.

To all whom it may concern:

Be it known that I, GEORGE D. MOORE, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Multiply Fabric, of which the following is a specification.

This invention relates to a new fabric designed for use as belting or for similar purposes.

The especial object of this invention is to provide a plicated fabric in which the layers or plies of the fabric are joined so that the inner plies of the fabric will be firmly bound to form a comparatively rigid core, while the outside plies will be less firmly bound, permitting an easy flexure to be made of the fabric as a whole without straining or distorting the fabric when the same is flexed.

To these ends this invention consists of the plicated fabric as an article of manufacture and of the combinations of parts therein, as hereinafter described, and more particularly pointed out in the claims at the end of this specification.

In the accompanying drawing, Figure 1 is a perspective side view of a piece of fabric made according to this invention—for example, such a piece of fabric as would be shown in perspective if cut on the line *a a'* of Fig. 3. Fig. 2 is an enlarged longitudinal sectional view of the fabric, showing the arrangement of threads therein; and Fig. 3 is a diagrammatic view showing the flattened tubular character of the fabric as a whole.

In textile belting, particularly in textile belting of considerable thickness, it is essential that the fabric as a whole should have sufficient strength to resist the heavy tensile strains to which belting for the transmission of power is subjected, while, on the other hand, it is equally important that the fabric as a whole should be pliable and readily bent or flexed without straining or rupturing the outside layers of the fabric.

A fabric for belting woven according to this invention preferably comprises flattened concentric tubes. In the present instance I have illustrated a fabric in which two concentric tubes are employed. The outside tube forms the outside plies or layers of the completed four-ply fabric, and the inner tube forms the inside layers of the completed four-ply fabric. These tubes may be woven simultaneously, and in order that they may be united to form a connected fabric of great tensile strength and at the same time which can be readily bent or flexed I employ binding-threads which extend part way through the thickness of the fabric—that is to say, in the specific construction herein illustrated the binder-warps or binder-threads from the outside ply upon one side of the fabric extend through both of the inner plies, but do not extend through the other outside ply.

In the completed fabric the inner plies are bound by both series of binder-warps, forming a comparatively stiff core of great tensile strength, while the outside plies are less firmly bound, permitting them to have a certain amount of stretch and give, whereby the fabric as a whole may be readily bent or flexed, but will possess great strength.

Referring to the drawings for a detail description of the fabric herein illustrated, as shown in Fig. 1, the fabric comprises four layers A, B, C, and D, and these layers or plies may be formed of two concentric tubes, as shown diagrammatically in Fig. 3. Each of the plies comprises warp-threads 10 and filling-threads 11, woven together in the ordinary way. Extending from the outside ply A through the plies B and C are binding-warps or binding-threads 12, and extending from the ply D through the plies C and B are binding-threads or binding-warps 13. In the completed fabric the inside layers B and C are connected together by both series of binding-warps 12 and 13, while the outside ply A is tied by the single set of binding-warps 12 and the outside ply D is tied by the single set of binding-warps 13. This produces a readily-flexible fabric, but one which has great strength by reason of the comparative rigidity or firmness of its central layers.

I am aware that changes may be made in practicing this invention by those who are skilled in the art. For example, it is not essential that the plies of the fabric should be woven in the form of concentric tubes, nor is it essential that the fabric should contain only four plies, as it is obvious that a greater or less number of plies may be associated to form a fabric according to the principles of this invention. I do not wish, therefore, to

be limited to the special fabric I have herein shown and described; but

What I do claim, and desire to secure by Letters Patent of the United States, is—

1. As an article of manufacture, a plicated fabric for belting having binding-threads extending from the outside ply at each side of the fabric to an inner ply of fabric lying entirely on the further side of the central plane of the fabric, whereby the fabric will have a core consisting of two or more plies secured together by a greater number of sets of binding-threads than are employed to bind the core to either outside ply.

2. As an article of manufacture, a plicated fabric comprising flattened concentric tubes, the outer plies at each side of the fabric having binding-threads extending to an intermediate ply of the fabric located entirely at the opposite side of the central plane of the fabric, whereby the fabric will have a central core consisting of a plurality of plies united together by a plurality of sets of binding-threads.

3. As an article of manufacture, a plicated fabric for belting consisting of two flattened concentric tubes, the outside plies having binding-threads extending through to the intermediate ply at the other side of the central plane of the fabric, whereby the two inner plies will form a comparatively stiff core of great tensile strength, while the outside plies will be less firmly fastened.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GEORGE D. MOORE.

Witnesses:

PHILIP W. SOUTHGATE,

J. ELMER HALL.