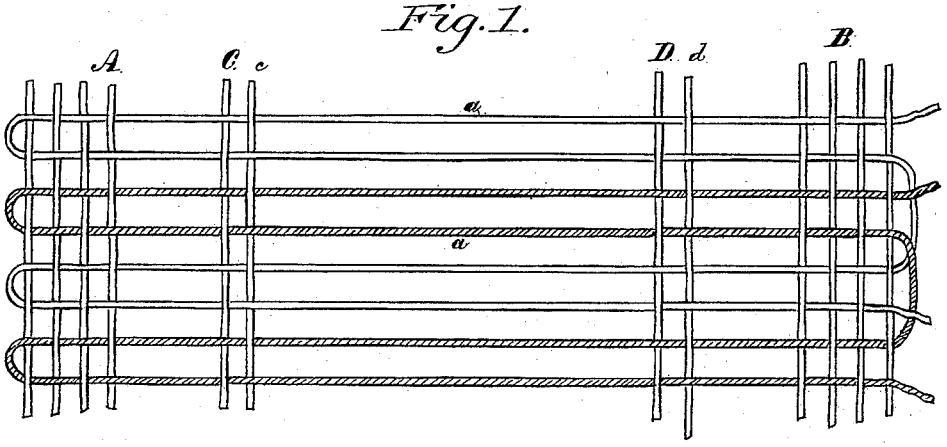
(No Model.) 2 Sheets—Sheet 1.

C. H. LANDENBERGER.

WARP FOR PATTERN MAKING.

No. 383,182. Patented May 22, 1888.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

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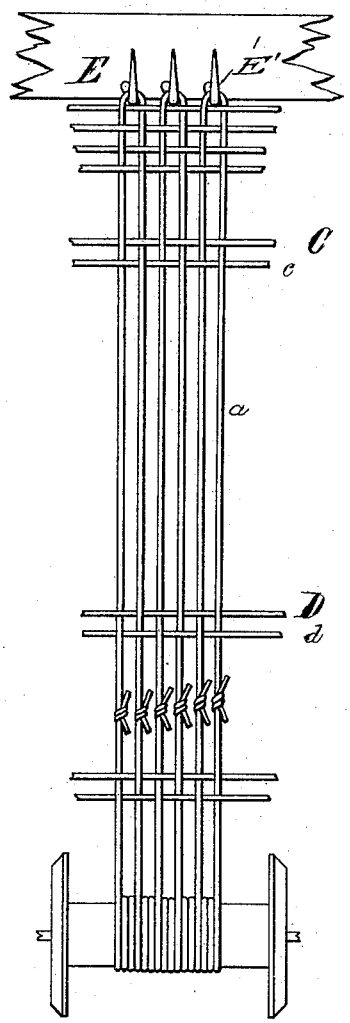
Fig. 2.



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WARP FOR PATTERN-MAKING.

SPECIFICATION forming part of Letters Patent No. 383,182, dated May 22, 1888.

Application filed March 18, 1885. Serial No. 159,286. (No specimens.)

To all whom it may concern:

Be it known that I, CHARLES H. LANDENBERGER, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Warps for Pattern-Making, which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to warps for pattern-making; and it consists in an improved warp, as hereinafter described, of less than five yards in length, having various colors or qualities of yarn therein, the same being formed in an expeditious manner, avoiding the necessity of using a large number of spools of each color or quality and the great loss of time in making short warps on the warping machinery commonly in use, or the changing of colors or qualities in the pattern-loom while weaving patterns by the slow process of substituting and tying in each separate thread.

Referring to the drawings, Figure 1 represents the relative position of the selvage-bands, the lease ends, and the weft-thread in a pattern-warp composed of two different threads embodying my invention. Fig. 2 represents the manner of uniting different warps embodying my invention, so as to have them in continuous lengths on the warp-beam.

In carrying out my invention I discard the usual method of employing warping machinery and use instead any kind of broad weaving-loom having a sufficient number of shuttle-boxes. There being no warp in the loom in the space between selvages, the threads carried by the shuttle from one side of the loom to the other do not serve their ordinary purpose as "weft," but remain stretched from one selvage to the other, as shown in Fig. 1 of the drawings. When cut out of the loom these threads are intended to be used as the warp for making patterns in a pattern-loom in the manner hereinafter to be shown.

A group of warp-threads is drawn through the harness and reed at each side of an empty loom, which I will call for convenience the "warp-loom," forming the selvage-bands A and B. In addition to the groups of warp-threads A and B, forming the selvage-bands, I use for "lease ends" two threads of heavy yarn, C *c* D *d*, drawn through the harness and placed in the reed about eight inches inside of the selvage-band on both sides of the loom, the harness being so arranged as to cause said selvage and lease ends to be operated in a plain "one-and-one" weave.

Each shuttle of the warp-loom carries one of the colors or qualities required in the pattern-warp, and is thrown forward and across the loom in the order determined by the pattern designed to be made. Each thread *a* so thrown across the loom "floats" from one side to the other, only held in place by being interlocked by the selvage-threads, as shown in Fig. 1.

In order that the threads of the pattern-warp shall occupy the correct space designed for them in the subsequent process of weaving it is necessary to actuate the take-up apparatus of the warp-loom accordingly. For instance, if four thousand ends are required in a warp which is afterward to be set in the harness of a loom one hundred to the inch, the take-up apparatus on the pattern-warp loom should be arranged to put in one hundred picks per inch. After the required number of threads have been thrown across the warp-loom the pattern-warp will be completed, and only needs to be cut out of the loom to be ready for the next operation.

In handling the pattern-warp through the succeeding operations the selvage-bands will be found to be of great service, as they keep the warp-threads always in place and the warp at the required width. One of the selvage-bands may now be fastened across a warp-beam and the warp carefully rolled on the beam, as shown in Fig. 2, and another warp of the same kind, in which other colors or qualities may have been used, then fastened in a frame, E, Fig. 2, by means of hooks on the said frame. These warps may now be knotted or twisted, the one to the other, after cutting off the selvage-bands not in use, and the warp-threads taken up in proper order by use of the lease ends, according to the usual manner of twisting in or knotting together warps. In like manner a third or any number of warps may be put on the beam, which is then taken to the pattern-loom, the warp-threads drawn through the appropriate harness, and all the different warps woven out.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. As a new article of manufacture, a warp for pattern-making, having a selvage-band at each end, substantially as and for the purpose set forth.

2. A warp for pattern-making, having selvage-bands and lease-threads, substantially as and for the purpose set forth.

3. A warp composed of continuous threads alternating from one end to the other of its length, and at each end being interlocked with threads crossing the same at right angles and forming a selvage-band at each end, substantially as described.

CHARLES H. LANDENBERGER.

Witnesses:
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