

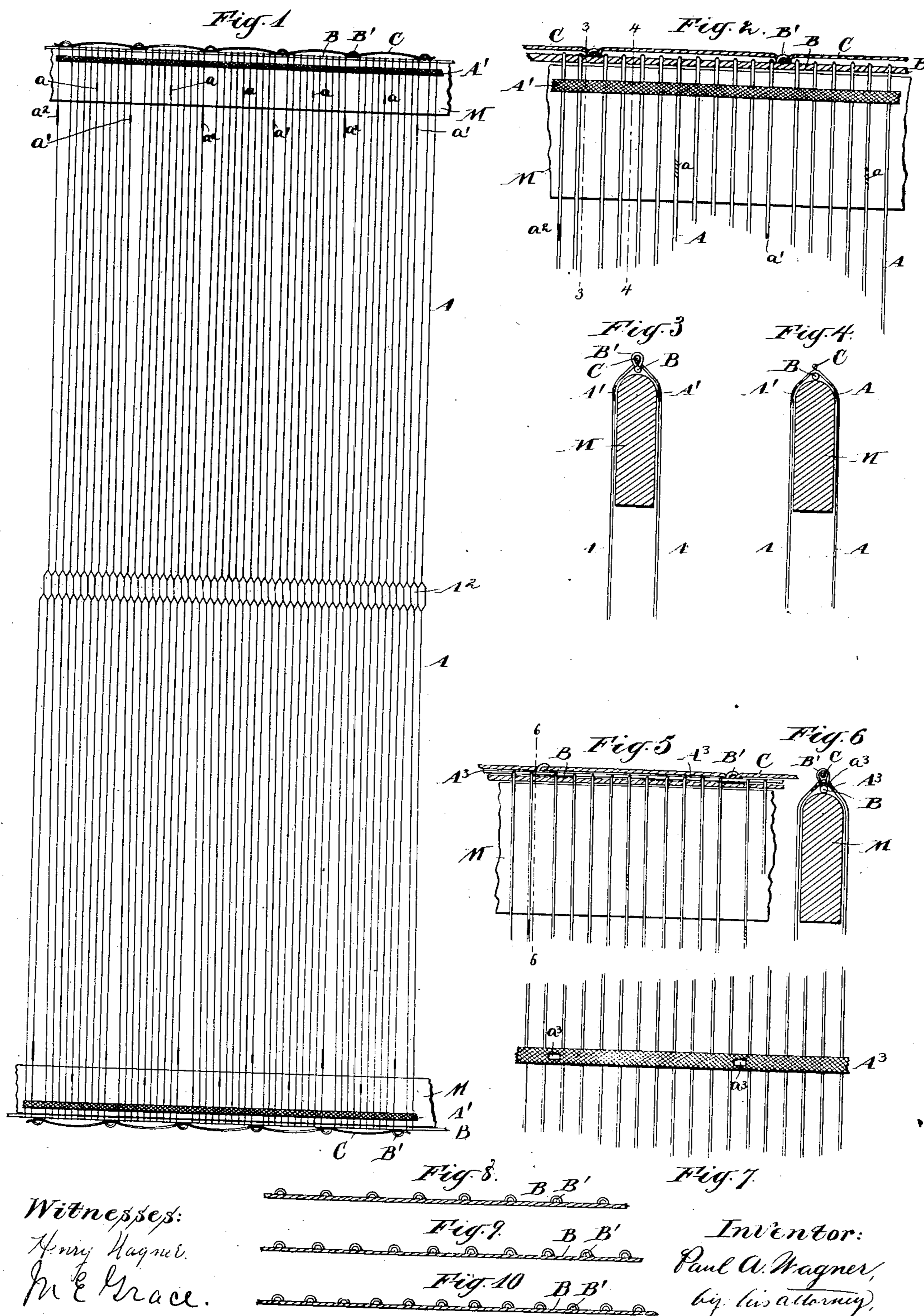
No. 771,342.

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P. A. WAGNER.
LOOM HARNESS.

APPLICATION FILED NOV. 14, 1903.

NO MODEL.



Witnesses:

Henry Wagner.

J. E. Grace.

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UNITED STATES PATENT OFFICE.

PAUL A. WAGNER, OF CARLSTADT, NEW JERSEY.

LOOM-HARNESS.

SPECIFICATION forming part of Letters Patent No. 771,342, dated October 4, 1904.

Application filed November 14, 1903. Serial No. 181,154. (No model.)

To all whom it may concern:

Be it known that I, PAUL A. WAGNER, a citizen of the United States, residing in Carlstadt, in the county of Bergen and State of New Jersey, have invented a certain new and useful Improvement in Loom-Harness, of which the following is a specification.

The invention relates to thread-harness manufactured in continuous widths; and the object of the invention is to provide means for facilitating the arrangement of the heddles on the shafts so that the required number, properly spaced for the kind and quality of fabric to be woven, may be quickly ascertained and positioned.

The accompanying drawings form a part of this specification and show preferred forms of the invention.

Figure 1 is an elevation showing parts of two opposite shafts equipped with the improved harness and seen in the direction of the travel of the warp-threads. Fig. 2 is a similar view showing a portion of one shaft and its harness on a larger scale. Figs. 3 and 4 are vertical transverse sections through the shaft and harness, taken on the lines 3 3 and 4 4, respectively, in Fig. 2. Fig. 5 is an elevation corresponding to Fig. 2, but showing a modified form of harness. Fig. 6 is a corresponding sectional view, the plane of section being indicated by the line 6 6 in the preceding figure. Fig. 7 is a plan view of a portion of the same harness arranged in a plane to show the construction. Fig. 8 shows the portion alone by which the spacing is effected, and Figs. 9 and 10 are views of similar portions adapted to produce correspondingly-different spacing.

Similar letters of reference indicate like parts in all the figures.

The harness is shown as of the knitted or loosely-woven type, adapted to be distended to produce wide spacing of the leashes or heddles or to be contracted or condensed to produce narrow spacing.

In Figs. 1 to 4, inclusive, the heddles A are joined by bands A', loosely woven or knitted in the process of manufacturing the harness or otherwise, and extended widthwise of the harness. The bands or strips A' are

separated sufficiently to lie one on each side of the shaft M, the heddle-threads passing across the narrow space from one strip to the other and thence extending in long loops from each strip to the eyes A², which may be understood to be of any improved type. B is a spacing-cordel comprising a cord provided with loops B' at equal intervals and adapted to be stretched along the top of the upper shaft and along the under face of the lower shaft inclosed by the harness and lying between the bands A' with the loops B' each projecting between a pair of harness-threads. The latter are apportioned equally between each loop and the next, preferably ten threads between adjacent loops, as shown, and are held in place by a binding-cordel C, threaded through the loops B' successively and drawn taut and secured.

Spacing-cordels are provided having their loops differently spaced, as indicated in Figs. 8, 9, and 10, so that any desired spacing may be easily attained by selecting the proper cordel. Thus to arrange the harness with twenty-five heddles per inch the weaver will select spacing-cordels having the inch divided into two and one-half spaces, or five loops in two inches; thirty heddles to the inch will require spacing-cordels having three loops or spaces to the inch; for thirty-five, a cordel with seven loops or spaces in two inches, or three and one-half spaces to the inch, and forty heddles to the inch require cordels having four loops or spaces to the inch. The elasticity of the bands A' permits the harness to be stretched or contracted to conform, and it is only necessary to separate each tenth and eleventh harness-threads to permit a loop B' to project between them and to secure the harness by the binding-cordel C, the desired number of heddles to the inch being insured by selecting the proper spacing-cordel.

To avoid the necessity of counting the harness-threads in making the divisions into tens, the harness-threads are marked in a manner analogous to the usual "bier-marks," but preferably in two or more series, as indicated in the figures at a a' a², to show the number of threads. As illustrated, every fifth thread is colored for a short distance near the bands B',

the markings being arranged in two lateral lines. The fifth thread is marked black at a in the upper line, the tenth is marked blue at a' in the lower line, the fifteenth is marked black at a in the upper line, and the twentieth is marked red at a'' in the lower line. Thus every tenth thread is marked black and the fifths between are marked alternately blue and red, making three series, enabling the weaver to easily cut off as many hundreds, twenties, tens, and fives as he may require to equip the loom and to easily and quickly space off the tens to be placed between each loop B' and its next neighbor on the spacing-cordel B . The coloring or marking of the harness-threads may be effected either by hand or in the process of manufacture.

Figs. 5, 6, and 7 show a modification in the harness. In this form a single band A^3 is knitted or woven, and between the junctions of each tenth thread and the next with the band is produced an opening a^3 , through which a loop B' in the spacing-cordel is received, the series of loops being engaged and the harness held as before by the binding-thread C . In this form the correct spacing is attained by simply selecting the proper spacing-cordel and engaging its loops B' in the series of openings A^3 , the marking being less necessary and serving more especially in counting the heddles in determining the whole number required.

Other modifications may be made without departing from the principle of the invention or sacrificing its advantages. The heddles may be connected by other means than the bands described and shown. In fact, any harness adapted to be drawn together or stretched within the required limits and having provisions for the reception of the spacing-loops will serve successfully. The mark-

ings on the heddles may be omitted or may be varied, as convenience may dictate, and may be in one line or in a greater number of lines than shown.

I claim—

1. In a loom-harness a spacing-cordel having equally-spaced loops adapted to project through the harness, and a binding-cordel adapted to engage said loops and hold said harness in place relatively to said spacing-cordel.

2. In a loom-harness adapted to be distended or contracted in width, a spacing-cordel having loops at equally-spaced intervals, provisions in said harness for permitting said loops to project therethrough, and a binding-cordel engaged in said loops and locking said harness to said spacing-cordel.

3. In a loom-harness, a shaft, a spacing-cordel lying thereon and having loops projecting therefrom at equal intervals, a series of heddles supported by said shaft and lying upon said spacing-cordel with the loops projecting between the heddle-threads, and a binding-cordel received in said loops.

4. In a loom-harness, a spacing-cordel having equally-spaced loops adapted to project through the harness, a binding-cordel adapted to engage said loops and hold said harness in place relatively to said spacing-cordel, and indicative marks upon equally-spaced heddle-threads of said harness, showing the number of heddles between such marks, whereby the counting of the heddles and the arrangement thereof upon the spacing-cordel is facilitated.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

PAUL A. WAGNER.

Witnesses:

ROBT. CONNOR,

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