Aug. 14, 1934. J. J. KAUFMANN 1,970,175

LOOM HARNESS

Filed Jan. 20, 1932

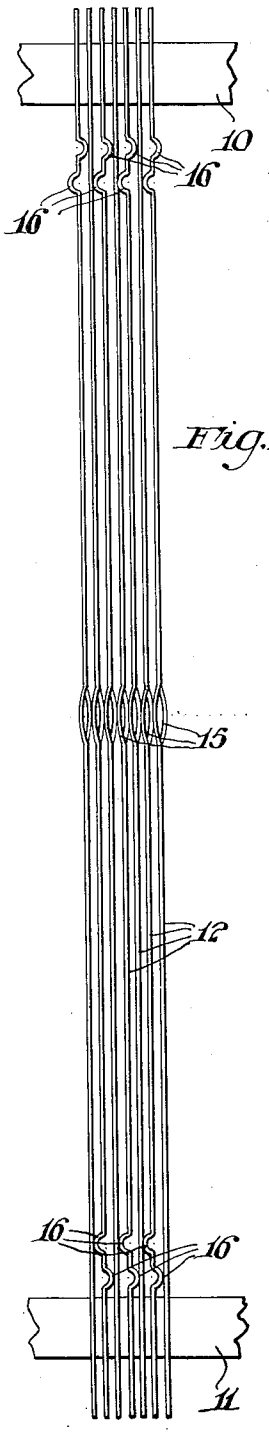


Fig. 1.

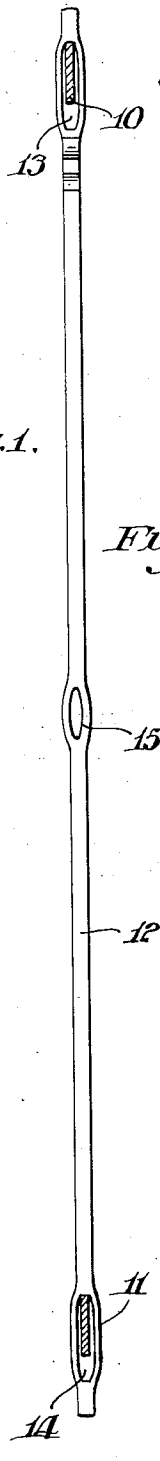


Fig. 2.

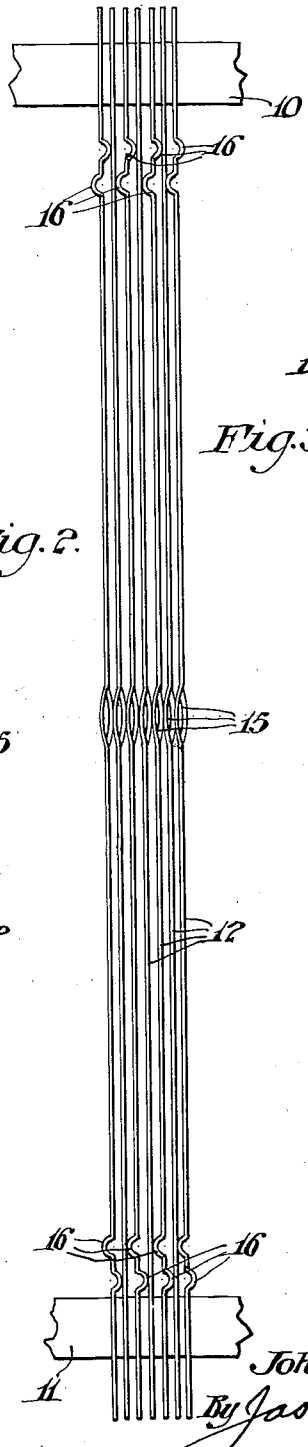


Fig. 3.

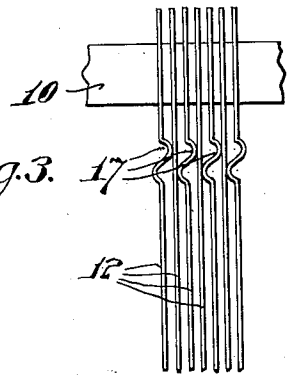


Fig. 4.

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Patented Aug. 14, 1934 1,970,175

UNITED STATES PATENT OFFICE

1,970,175

LOOM HARNESS

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Application January 20, 1932, Serial No. 587,656

3 Claims. (Cl. 139—96)

My invention relates to loom harness, and relates more particularly to the form and arrangement of the heddles thereof.

The principal object of my invention is to provide loom harness in which the individual heddles will be uniformly spaced a slight distance from each other throughout that portion of the length thereof over which the warp ends controlled by adjacent frames travel when the shedding occurs.

It will be found that, in the use of loom harness of the present invention, the warp will be more free in its manipulation to form the successive sheds, and friction of the warp ends passing between the heddles, as well as chafing, will be reduced.

Also crowding of the warp, and consequent entanglement thereof, at various places across the shed, and undue separation thereof at various other places, will be effectively prevented.

Furthermore, the drawing-in or entering of the warp through the eyes of the heddles will be greatly facilitated, whether the same be done by hand or by means of automatic machinery.

Heretofore, various attempts have been made to provide metallic loom harness with means for spacing the heddles uniformly on the supporting rods, for the purpose of securing greater freedom of the warp in the shedding thereof, by shaping the end portions of the heddles into various forms, to provide in some instances a spring-like action, and in the other instances positive offsets; but in such arrangements there was usually a failure to take into account the necessity of allowing a certain amount of vertical play of the heddles on their supporting rods for the purpose of permitting the heddles to be flexed whenever it was necessary for the weaver to tie up a broken end. This vertical play is quite necessary in metallic harness, as is well known to those familiar therewith.

However, in the use of the spacing means heretofore suggested, it was found that whenever certain of the heddles were shifted longitudinally with respect to each other, the offset portions would sometimes become fouled upon each other, and in any event the desired uniform spacing would be lost. With the foregoing in view, my present invention contemplates the provision of means for spacing the heddles which will function properly notwithstanding that the heddles are so mounted upon the supporting rods as to be permitted the requisite freedom and vertical play with respect thereto.

The nature and characteristic features of my invention will be more readily understood from the following description, taken in connection with the accompanying drawing forming part hereof, in which:

Figure 1 is a front elevation of a plurality of heddles embodying the main features of my present invention, the same being shown mounted on fragmentary lengths of supporting rods;

Fig. 2 is a side elevation thereof, the supporting rods being shown in section;

Fig. 3 is a view similar to Fig. 1, showing a modified form; and

Fig. 4 is a view similar to a portion of Fig. 1, illustrating another modified form.

It will, of course, be understood that the description and drawing herein contained are illustrative merely, and that various changes and modifications may be made in the structure disclosed without departing from the spirit of the invention.

Referring to the drawing, in the particular embodiment of my invention therein shown, 10 and 11 are the usual heddle supporting rods, which, as is well known to those skilled in the art, are supported in suitable frames of any preferred construction.

The heddles 12 are made from thin flat strips of metal or wire, having mortises 13 and 14 adjacent their respective ends for mounting the same on the supporting rods 10 and 11. Each of the heddles is also provided with a central warp eye 15. The mortises 13 and 14, and the warp eye 15, are formed in the customary manner.

Referring now more particularly to Figs. 1 and 2 of the drawing, the spacing means there shown comprises the provision at one end of each heddle of a pair of projections 16, one on each side thereof, extending laterally out of the main plane of the body portion of the heddle. These projections extend preferably across the entire width of the heddle, and the same may be readily struck up by means of suitable forming tools without appreciably adding to the cost of the heddles.

The projections are preferably formed in the strip of the heddle between the supporting rods and the central warp eye, and preferably located as close as possible to the mortises for mounting the heddles on the supporting rods.

In Figs. 1 and 2 of the drawing, there is shown an arrangement in which each of the heddles is provided at one end only with the struck up projections 16, but it is to be noted that in this instance the heddles are mounted on the sup-

porting rods with the ends in which the projections are formed disposed alternately at the top and the bottom. By this arrangement, each of the projections bears against a flat portion of an adjoining heddle, thereby insuring the uniform spacing of the heddles.

In the arrangement shown in Fig. 3 of the drawing, each alternate heddle is provided with the projections at both ends thereof, the coacting body portions of the intermediate heddles being straight.

In the arrangement shown in Figs. 1 to 3 of the drawing, the projections extending from the opposite sides of each heddle are shown longitudinally spaced with respect to each other, this form being preferable in that the same may be more easily shaped by the forming tools.

However, if desired, the spacing projections on the opposite sides of the heddles may be formed as shown in Fig. 4 of the drawing, in a continuous sinuous form, as at 17, extending directly from one projection into the other.

It will, of course, be apparent that the spacing projections may be made in various other shapes which will come within the spirit of the invention.

I claim:

1. In a loom harness, supporting rods and a plurality of separate heddles made of thin, flat metal or wire, each of said heddles having a central warp eye and a mortise at each end thereof for mounting the same on the supporting rods, and means at the top and bottom for spacing the heddles, said means comprising the provision on both sides of each alternate heddle of lateral projections engaging the adjacent heddles at straight portions of the main or body strips thereof.

2. In a loom harness, supporting rods, and a plurality of heddles each having a central warp eye and a mortise at each end thereof for mounting the same on the supporting rods, and means near the ends of said heddles for spacing the same, said means comprising equal lateral projections on both sides of alternate heddles, the projections of each heddle provided therewith engaging straight portions of the main or body strips of the adjacent heddles.

3. In a loom harness, supporting rods, and a plurality of heddles each having a central warp eye and a mortise at each end thereof for mounting the same on the supporting rods, and means near the ends of said heddles for spacing the same, said means comprising equal lateral projections on both sides of both ends of alternate heddles, the projections of each heddle provided therewith engaging straight portions of the main or body strips of the adjacent heddles.

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