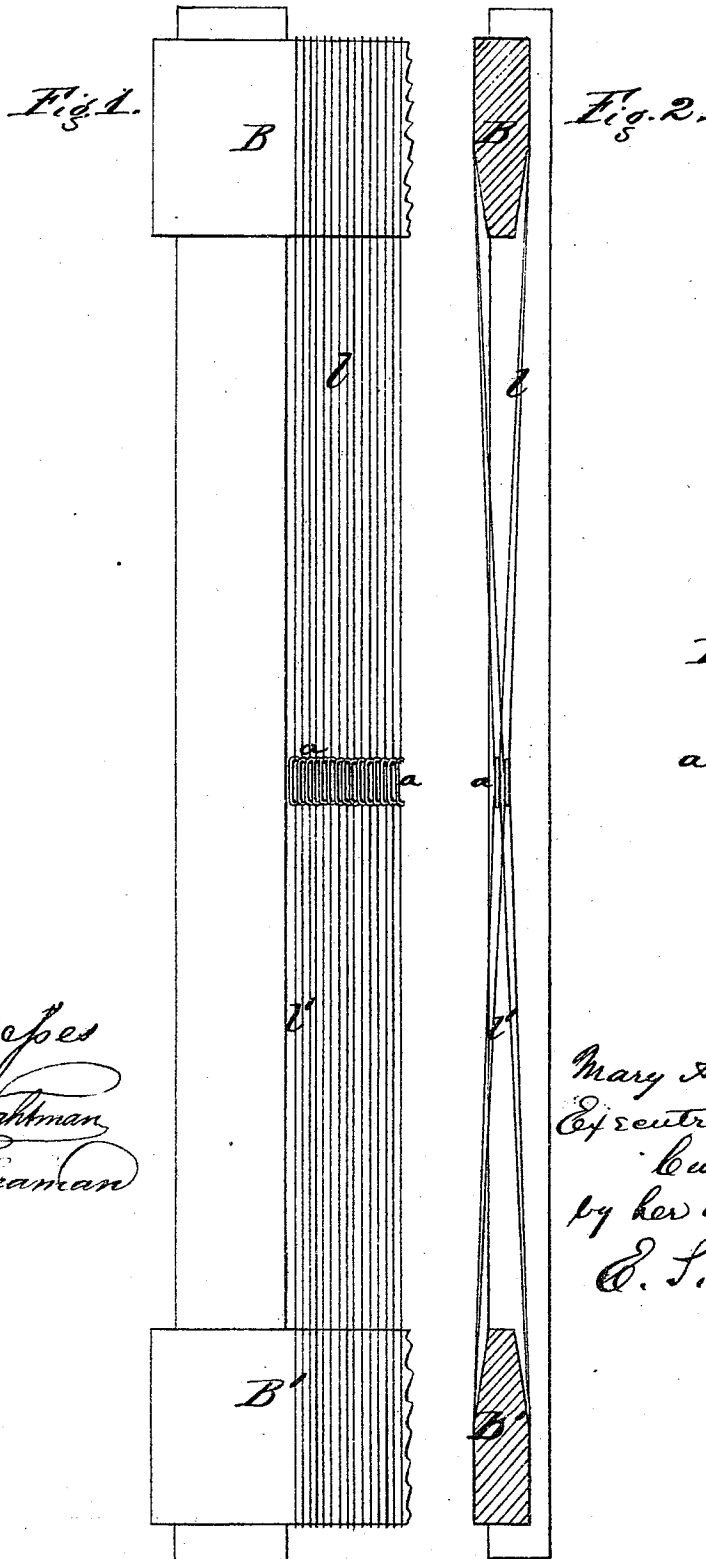


C. WHIPPLE.

Improvement in Loom Heddles.

No. 123,601.

Patented Feb. 13, 1872.



Witnesses
J. S. Wrightman
Louis Seaman

Mary A. Whipple
Examiner of
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UNITED STATES PATENT OFFICE.

MARY ANN WHIPPLE, OF PROVIDENCE, RHODE ISLAND, EXECUTRIX OF
CULLEN WHIPPLE, DECEASED.

IMPROVEMENT IN LOOM-HEDDLES.

Specification forming part of Letters Patent No. 123,601, dated February 13, 1872.

To all whom it may concern:

Be it known that CULLEN WHIPPLE, now deceased, but formerly of the city and county of Providence and State of Rhode Island, did in his lifetime invent a new and useful Metallic Heddle for Looms; and that the following is a full, clear, and exact description and specification of the same.

The invention consists of the combination of two or more metallic heddle-eyes with each other at both ends by means of two distinct continuous connecting metallic wires extended in loops of sufficient length to admit the upper and lower heddle-shafts upon which the heddles are sustained, one of the two wires forming the upper loop and the other of the two forming the lower loop. In practice all the eyes of a leaf of heddles are combined in the above manner, one continuous cord or wire extending in succession through all the upper ends of the metallic eyes with sufficient lengths of wire in the form of loops between each two eyes to form the connections with the upper heddle-shaft, and another continuous wire extending in succession through all the lower ends of the metallic eyes with sufficient length of wire in the form of loops between each two eyes to form the connections with the lower heddle-shaft. The loops of the continuous wires admit the heddle-shafts through them, and the portions of the loops which touch these shafts are made fast by applying a coating of glue, or other suitable material, over them to the shafts so as to prevent accidental slipping.

In order that the invention may be fully understood, views of a portion of a leaf of heddles embodying it are represented in the accompanying drawing.

Figure 1 represents a face view of the portion of the leaf. Fig. 2 represents a cross-section of the same. Fig. 3 represents a view of one of the metallic eyes much enlarged.

The eyes *a a* are constructed of wire bent into a link form. Each eye is connected at its upper end with the upper heddle-shaft B, and with an adjoining eye by the continuous wire *b*, which, being first made fast to the upper heddle-shaft, extends thence through the upper end of the heddle-eye, and thence over the upper heddle-shaft and through the upper end next heddle-eye. The same wire is in this ex-

ample passed through every eye of the leaf in regular succession, and, after leaving the last eye, is made fast to the heddle-shaft, so that the upper ends of each two eyes are combined by means of a loop of wire, which incloses the heddle-shaft. The lower ends of the heddle-eyes are combined in the same manner by loops of a second wire, *b'*, extended alternately through an eye and round the heddle-shaft B'.

The lengths of the loops should be such as to suit the distance between the heddle-shafts in each particular case. After the heddle-shafts are inclosed in the loops of wire, the latter, with the eyes which they hold, are secured in their proper positions, relatively to the shafts and to each other, by applying a coating of glue, or other suitable cement, to the heddle-shafts, and to the portions of the loops which surround them.

These new heddles possess the following advantages, viz.: They may be readily formed by an automatic machine. They have metallic eyes, (or eyes of equivalent hard and smooth material,) which exercise but little friction upon the warp-threads in the loom. They may be formed wholly of metal, small copper wire being used to make the continuous connecting-loops between the eyes. As such loops take up but little space and are very smooth, they do not fray the warp-threads that extend between them. The eyes are held in their proper relative positions without the necessity of piercing the heddle-shafts with holes, or of forming notches in them, or of interchaining the heddles with a connecting cord. The heddles may also be constructed at a low cost.

What I claim as the invention of said CULLEN WHIPPLE, deceased, is—

The combination of the eyes with heddle-shafts by means of wires which extend alternately through the said eyes and around the said shafts, and which are secured from slipping on said shafts by cement, substantially as before set forth.

Witness my hand this 8th day of August, A. D. 1871.

MARY A. WHIPPLE,
Executrix of Cullen Whipple.

Witnesses:

S. J. DELIZE,
PETER F. HUGHES.