J. M. FLAGG.

Heddle for Looms.

No. 196,522. Patented Oct. 30, 1877.

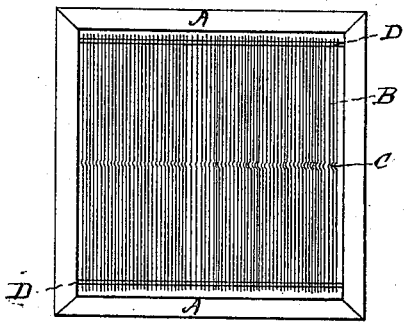

Fig. 1.

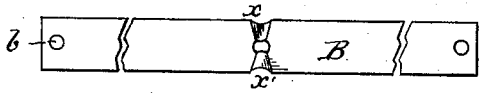

Fig. 2.

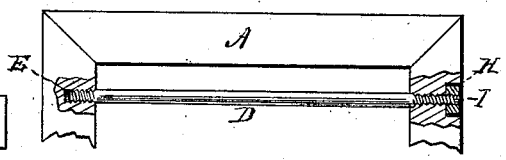

Fig. 3.

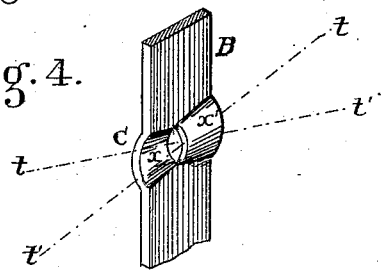

Fig. 4.

Witnesses;
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UNITED STATES PATENT OFFICE.

J. MELLEDGE FLAGG, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN HEDDLES FOR LOOMS.

Specification forming part of Letters Patent No. **196,522**, dated October 30, 1877; application filed December 20, 1875.

To all whom it may concern:

Be it known that I, J. MELLEDGE FLAGG, of Providence, in the county of Providence and State of Rhode Island, have invented an Improved Harness for Looms, of which the following is a specification:

My invention relates to an improvement in harness for looms, in which the frame and the heddles are composed of metal.

The invention consists in the peculiar construction of the heddles at the portion where the hole is made for the passage through of the yarn, whereby the yarn is relieved from the injurious effects of the friction incident to its contact with an ordinary hole made in the heddle during the reciprocating movement of the harness.

Referring to the drawings, Figure 1 is an elevation of a harness embodying my invention. Fig. 2 is an enlarged view of the flat side of one of the heddles, showing the construction of the central hole. Fig. 3 is a view of a part of the frame, showing the rod on which the heddles are hung and the device for tightening the same. Fig. 4 is a perspective elevation of a heddle.

A represents the frame, which may be cast in iron or brass. D D represent metal rods, provided at one end with a screw-thread, E, which screws into the frame at one side, as shown in Fig. 1. The opposite end of the rod D is provided with a nick or slot, I, as in ordinary screw-heads for the reception of a screw-driver. This end of the rod is also screw-threaded, and on it is placed a nut, H, which is sunk into the frame on the outer side, and has a nick or slot on its outer end, by means of which it may be turned with a screw-driver. By this means the rods D can be tightened up when necessary.

In some cases it may be found advisable to have only the upper ends of the heddles secured to the frame by the rods, while the lower ends may be loose, but held in place by grooves formed in the frame.

B represents the heddles. In Fig. 2 is shown a heddle somewhat enlarged. They are made of thin metal bars, having a hole, *b*, in each end, or in only one end when the upper end is secured to the rod D. The central hole may be round or oval, cut with a die, and reamed before spreading the edges, to prevent injury to the yarn. The edges or sides of the bar are then bent or curved in opposite directions, as shown at *c c'*, Fig. 2, so that the yarn will pass through the hole and between the two curved portions in a straight line in the direction of the width of the heddle. The indented curved portions *x x'* on each side of the hole widen from the sides of the hole to the sides of the heddle, as shown in Fig. 2.

A harness constructed as above described possesses the advantage of great durability. The yarns are not liable to rub and become chafed, so that better cloth is produced. The peculiar form of the eyelets in the heddles admits of the harnesses being arranged nearer the reed, and the limit of motion of the two harnesses is much reduced, thereby saving time and gaining speed.

The main advantage, however, results from the widening of the indentations *x x'* from the hole to the edges of the strip, thereby allowing room for the thread to assume different angles *t t'*, or to "play" without friction in the usual operations of the loom.

The heddles may be brought very near together, and the yarns pass very freely and easily through the holes in the heddles, whereby the warps are rendered less liable to break.

The number of heddles may be readily increased or diminished to make wider or narrower cloth, as desired, thus dispensing with the necessity of procuring new harnesses, as are now usually required, when a change in the width of cloth is made.

I am aware that heddles have been indented on both sides of the yarn-holes, such indentations having uniform width, and I make no claim, broadly, to an indented heddle; but

What I claim as my invention, and desire to secure by Letters Patent, is—

The within-described heddle, consisting of a metallic strip or bar, B, having a yarn-hole and indentations *x x'* on opposite sides thereof, which widen from the hole toward the edges of the said strip or bar, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

J. MELLEDGE FLAGG.

Witnesses:

JOHN C. PURKIS,

THOS. A. MILLETT.