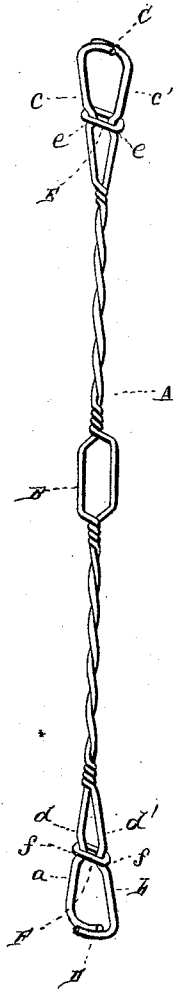


(No Model.)

A. W. FRAIL.
HEDDLE FOR LOOMS.

No. 461,468.

Patented Oct. 20, 1891.



Witnesses

Chas. L. Taylor
Geo. H. Parmelee

Inventor
Arthur W. Frail
by *E. W. Anderson*,
Attorney

UNITED STATES PATENT OFFICE.

ARTHUR WILLIAM FRAIL, OF HOPEDALE, MASSACHUSETTS.

HEDDLE FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 461,468, dated October 20, 1891.

Application filed August 26, 1890. Serial No. 363,144. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR W. FRAIL, a citizen of the United States, and a resident of Hopedale, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Heddles; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to letters of reference marked thereon, which forms a part of this specification.

The drawing is a representation of my device in perspective.

My invention relates to improvements in heddles.

The object of the invention is to provide an article of this character which may be put on or removed from the harness-frame without removing the ends of said frame, as is necessary in the use of the old style of heddles. To the accomplishment of this object, the invention consists in the novel construction hereinafter fully described, specifically claimed, and clearly illustrated in the accompanying drawing.

In the drawing, A represents my improved heddle, which consists of the two wires *a* and *b*, intertwined in such a manner as to leave the central loop B at the central portion. The ends of said wire are left free, forming the spring-arms *c c'* and *d d'*, said arms being turned over at their extreme ends and form-

ing the loops or eyes C and D when the ends of the wires are pressed toward each other. Each of these arms, just below the loops or eyes C and D, is correspondingly bent or depressed, as shown at *e* and *f*, said depressions serving as a seat or lock for the movable collars E and F.

When it is desired to place a heddle on the harness-frame, the links or collars E and F are slipped from the depressions and moved toward the central loop or eye B, permitting the spring-arms to open or move away from each other. The arms can then be placed in position on the bars of the frame and the collars slid back into the depressions, securely locking the heddle in position on the frame.

Having thus described my invention, what I claim as new therein, and that which I desire to secure by Letters Patent, is—

The herein-described heddle, consisting of the intertwined wires forming the central loop B, the ends of said wires being left free and forming spring arms or loops, movable links or collars for locking said arms together, the said wires having depressions near their ends for securing the said collars or links, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses.

ARTHUR WILLIAM FRAIL.

Witnesses:

RICHARD T. GARDONE,
CLARENCE E. METCALF.