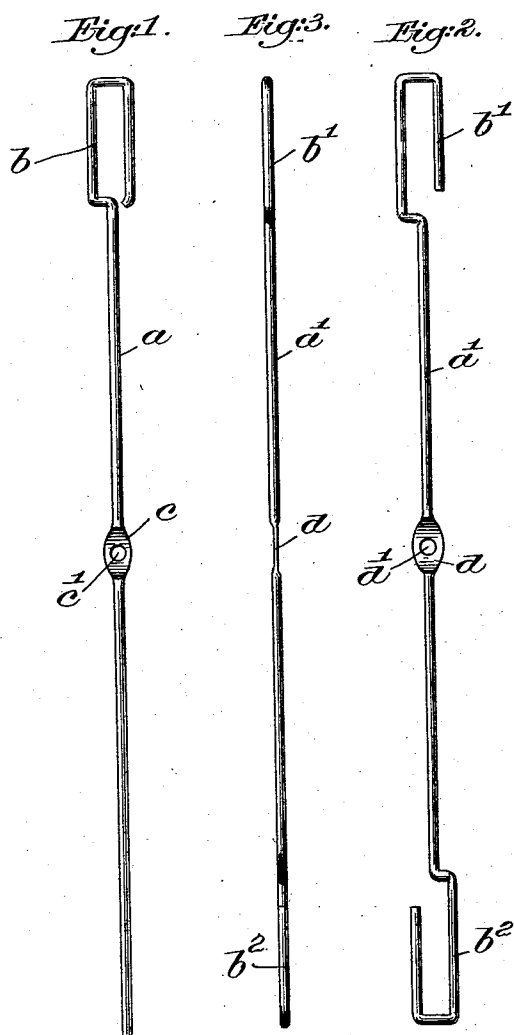


(No Model.)

G. O. DRAPER.  
LOOM HEDDLE.

No. 569,149.

Patented Oct. 6, 1896.



Witnesses

Thomas Drummond.  
Fred S. Greenleaf.

Inventor

George O. Draper.

by Emily Gregory. attys

# UNITED STATES PATENT OFFICE.

GEORGE O. DRAPER, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO THE  
NORTHROP LOOM COMPANY, OF SAME PLACE AND SACO, MAINE.

## LOOM-HEDDLE.

SPECIFICATION forming part of Letters Patent No. 569,149, dated October 6, 1896.

Application filed April 3, 1896. Serial No. 586,035. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE O. DRAPER, of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Loom-Heddles, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object the improvement of that class of heddles employed in looms wherein the heddles used to control the warp in the formation of the shed for the reception of the weft or filling are made instrumental in automatically stopping the loom when a warp-thread breaks or unduly slackens, as, for instance, in United States Letters Patent No. 536,969, dated April 2, 1895, to which reference may be had.

In that patent the heddles were composed of thin sheet-metal strips provided each with a warp-receiving eye and with an elongated eye to be entered by a cross-bar of less depth than the length of the elongated eye, the cross-bar forming part of a harness-frame.

In this invention I have devised a simple and equally effective heddle, but much cheaper in construction, the heddle consisting of a wire bent at or near its end to form a supporting-loop by which to connect it with a heddle-operating bar and having between its ends a flattened portion which is provided with a warp-receiving eye in the plane of the opening in said loop. The loop and the flattened portion of the heddle when in use stand in or parallel to the plane of the warp-thread which passes through the warp-receiving eye.

Figure 1, in side elevation, represents one form of heddle embodying my invention. Fig. 2 is a similar view of another form of heddle, and Fig. 3 is an edge view of the heddle shown in Fig. 2.

In making the heddle I take a piece of wire *a* of suitable shape and size and bend it at or

near one end to form a supporting-loop *b*, through which loop the cross-bar of the heddle or harness-frame is passed. Between its ends the wire is flattened, as at *c*, in suitable manner, as by heating and upsetting and then flattening, and a warp-eye *c'* is punched or drilled therethrough at right angles to the direction of the warp-thread when the heddle is in operative position, the flattened eye portion *c* of the heddle being in the same plane as the supporting-loop *b*, and consequently in or parallel to the plane of the warp-thread passed through the eye.

In Figs. 2 and 3 the heddle *a'* is provided with two supporting-loops *b'* and *b''* at its ends and preferably oppositely turned to better preserve the balance of the heddle, the flattened portion *d* having a warp-eye *d'* made therethrough. Heddles embodying such construction are strong, light, and very cheap to construct, while possessing sufficient rigidity to properly perform their work, the cheapness resulting from the lessened cost of production of round wire as compared with equally well-finished flat stock.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

A loom-heddle composed of a single piece of wire having at its end a supporting-loop by which to connect it with a heddle-operating bar, and having a short, flattened portion between its ends which is provided with a warp-eye, the said eye being in the plane of the opening in the said supporting-loop, substantially as described.

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

GEORGE O. DRAPER.

Witnesses:

C. N. NICHOLS,  
GEO. R. FOSTER.