No. 749,725. PATENTED JAN. 19, 1904.

W. FEHR.

METHOD OF PRODUCING HEDDLES.

APPLICATION FILED OCT. 22, 1903.

NO MODEL.

Fig. 1.

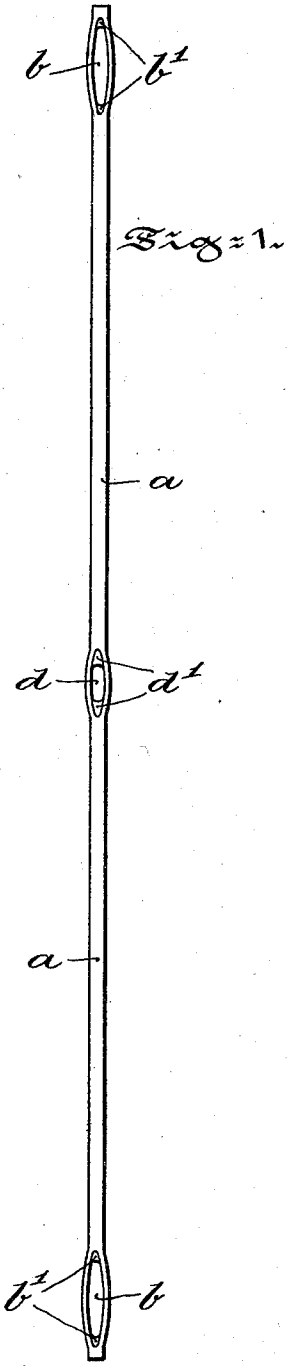


Fig. 2.

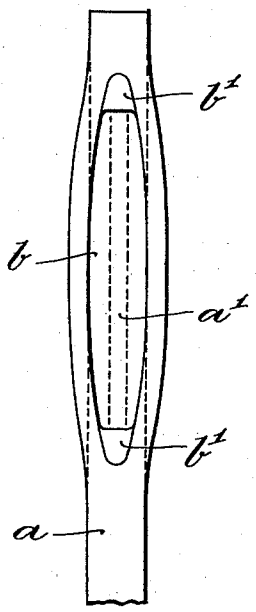


Fig. 3.

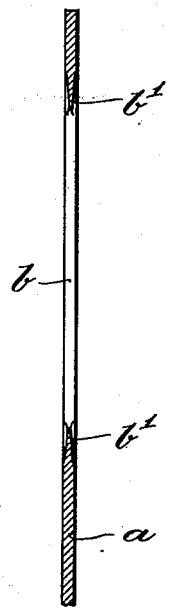


Fig. 4.

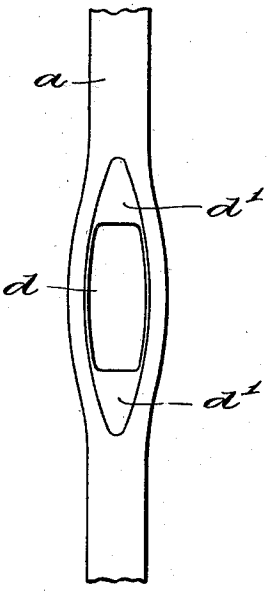
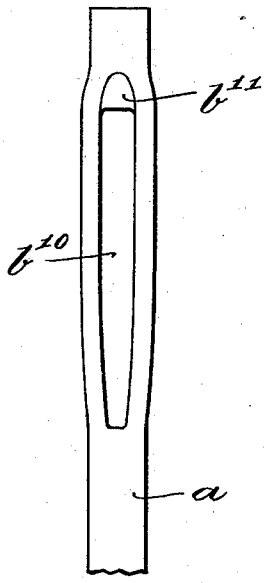


Fig. 5.



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No. 749,725. Patented January 19, 1904.

UNITED STATES PATENT OFFICE.

WILLIAM FEHR, OF PHILADELPHIA, PENNSYLVANIA.

METHOD OF PRODUCING HEDDLES.

SPECIFICATION forming part of Letters Patent No. 749,725, dated January 19, 1904.

Application filed October 22, 1903. Serial No. 178,011. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM FEHR, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in the Method of Producing Heddles, of which the following is a specification.

My invention has relation to a heddle formed of thin flat metal, preferably steel; and in such connection it relates to the method of forming the central eye or aperture and the mortises or slots in the extremities of the heddle.

In heddles of the present type the band or strip of metal is provided at either end with a slot or mortise to permit the heddles to slide back and forth on the cross-rods of the heddle-frame, and it is also provided centrally with a slot or eye through which the warp-thread is passed when the heddle and its frame are in operative position in the loom. The formation of the end and central slots in thin, flat, and narrow strips of metal—steel, for instance—renders the heddle weak and liable to break at these points. Many ways of forming these slots have been devised, but the disadvantage of weakness has not heretofore been successfully avoided.

The principal objects of my present invention are, first, to provide a heddle consisting of a thin flat narrow strip of metal having end mortises and a central eye formed by slitting the strip at these points and then expanding the metal by a swaging or similar operation to form an opening in the swaged portion of the metal, the bearing surface or surfaces of the opening being thereby protected or reinforced by a fin or fins formed by the swaging down of the metal adjacent to said bearing-surface, and, second, to provide a method of forming the slotted end and central eye portion of a heddle by slitting the strip of metal comprising the heddle at points where the slots are to be formed and in swaging the metal surrounding these slits, so that the metal is expanded in a plane parallel with the face of the strip, and the slits are formed into slots reinforced by a fin or fins of swaged metal at their bearing surface or surfaces.

The nature and scope of my present invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, in which—

Figure 1 is a front elevational view of a heddle embodying main features of my invention. Fig. 2 is an enlarged front elevational view of the upper slot or mortise of the heddle. Fig. 3 is a vertical sectional view of Fig. 2. Fig. 4 is an enlarged front elevational view of the intermediate slot or eye of the heddle; and Fig. 5 is a view corresponding to Fig. 2, but illustrating a modified form of end slot or mortise for the heddle.

Referring to the drawings, a represents a thin flat strip or narrow band of metal, preferably steel, and having at either extremity a mortise or slot b and intermediate of the extremities the slot or eye d of the heddle.

In the form of end mortise b illustrated in Figs. 1 to 3, inclusive, the opening or slot constituting the mortise is formed in the following preferred manner: The band a is slitted, as indicated in dotted lines at a' in Fig. 2, and thereafter the metal surrounding the slit a' is then subjected to a swaging or similar operation to not only flatten the metal, but also to expand the slit a' into a slot or opening b, which constitutes the mortise. When finally the mortise b is formed, it has an upper and a lower bearing-surface b', provided with a thin fin of swaging metal, so as to reinforce the ends of the completed mortise b, and thus to prevent breakage of the heddle at the mortised extremital portions thereof.

In Fig. 5 a modified form of end mortise b^{10} is illustrated, in which the reinforcing-fin b^{11} is formed only adjacent to the upper bearing-surface of the mortise during the swaging or similar operation. The intermediate eye d of the heddle is preferably formed by first slitting the metal a at the point where the eye is to be formed and in thereafter subjecting the metal surrounding the slit to a swaging or similar operation to not only flatten the metal, but also to expand the slit into a substantially rectangular opening or eye d, the perimeter of which is surrounded by an elliptical frame

d', of swaged metal, forming a reinforcing-fin for all bearing-surfaces of the eye-opening.

It should be understood that instead of first forming the slits for the end mortises or intermediate eye in the metal and thereafter swaging the metal surrounding the slits to form the slots or eye the metal may first be expanded by the swaging or similar operation and thereafter the slots and eye cut into the swaged portions of the band without departing from the spirit of my present invention.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The method of producing heddles, which consists in forming in a thin, flat narrow strip of metal a mortise or slot by slitting the metal and swaging the metal adjacent to the slit so as to expand the slit into a mortise or slot having a fin of swaged metal, substantially as and for the purposes described.

2. The method of producing heddles, which consists in forming in a thin, flat narrow strip of metal an eye or opening by slitting the metal and in then swaging the metal surrounding the slit to thereby expand the slit into an eye or opening surrounded by reinforced bearing-surfaces formed by a thin fin of swaged metal, substantially as and for the purposes described.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

WILLIAM FEHR.

Witnesses:
J. WALTER DOUGLASS,
THOMAS M. SMITH.