

No. 879,258.

PATENTED FEB. 18, 1908.

H. W. HAKES.
HEDDLE FOR LOOMS.
APPLICATION FILED APR. 20, 1907.

Fig. 1.

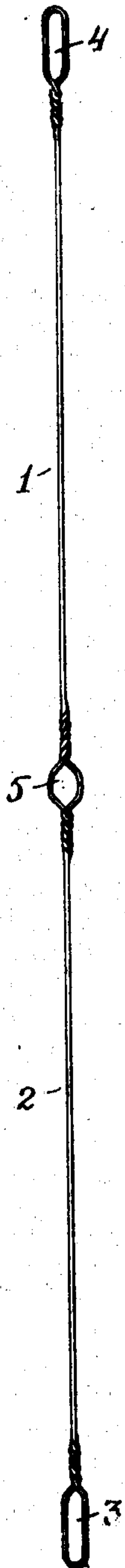


Fig. 2.

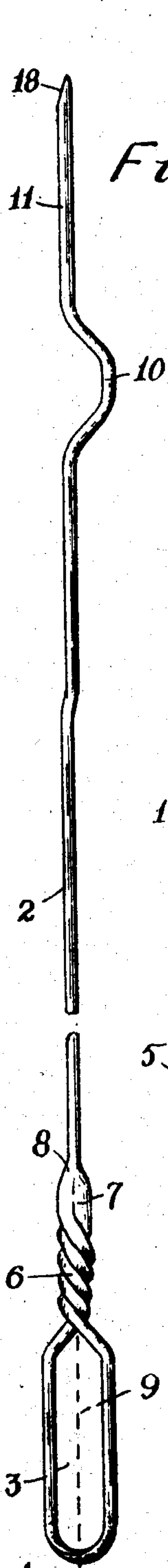


Fig. 3.

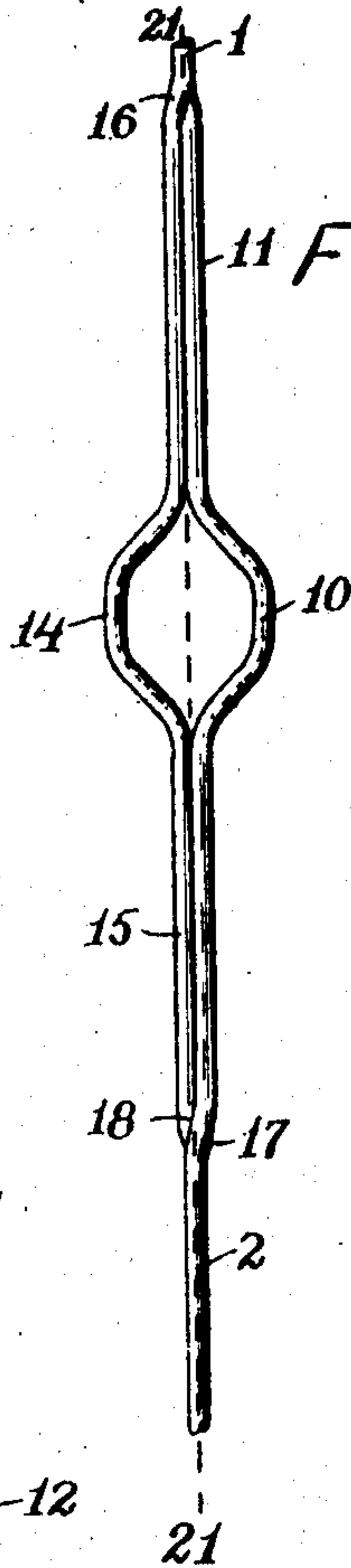
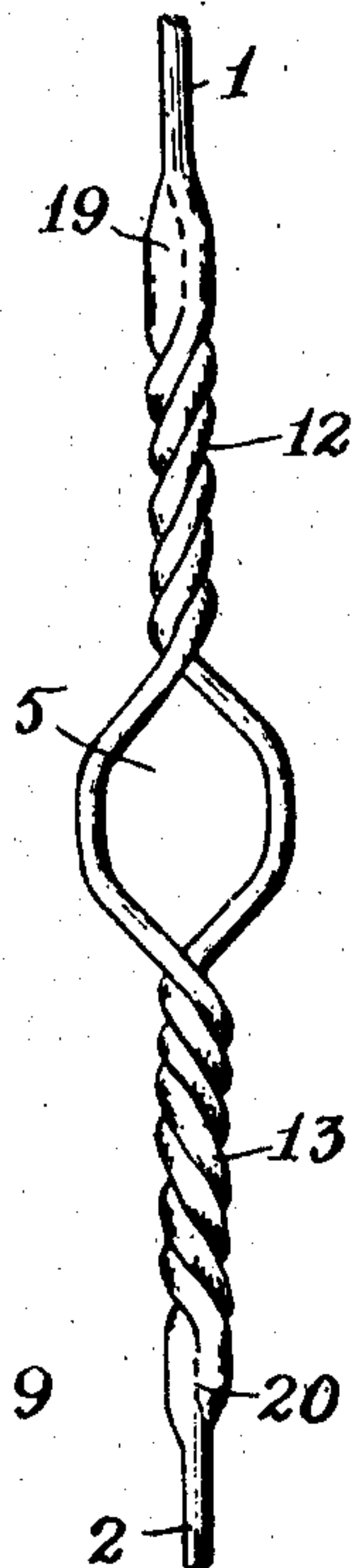


Fig. 4.



Witnesses

Roy D. Tblman.

Quelops Comberbach

Inventor

Hudson W. Hakes.

By Rufus B. Fowler

Attorney

UNITED STATES PATENT OFFICE.

HUDSON W. HAKES, OF MILLBURY, MASSACHUSETTS.

HEDDLE FOR LOOMS.

No. 879,258.

Specification of Letters Patent.

Patented Feb. 18, 1908.

Application filed April 29, 1907. Serial No. 370,801.

To all whom it may concern:

Be it known that I, HUDSON W. HAKES, a citizen of the United States, residing at Millbury, in the county of Worcester and Commonwealth of Massachusetts, have invented a new and useful Improvement in a Heddle for Looms, of which the following is a specification, accompanied by drawings forming a part of the same, in which—

10 Figure 1 is a side elevation of my improved heddle. Fig. 2 is a side elevation, on an enlarged scale, of one of the component wires forming one half of a heddle constructed in accordance with my invention and also showing the completed loop at one end of the heddle to receive the heald-shaft or lingoe. Fig. 3 is a central section, on an enlarged scale, showing a mail or eyelet, formed by the component wires of the heddle prior to their being twisted together, and Fig. 4 represents the same portion of the heddle when the component wires of the heddle have been twisted together above and below the eyelet.

Similar reference letters and figures refer to similar parts in the different views.

The object of my present invention is to provide a heddle having the body portion composed of a single wire and having a mail or eye formed of wire of the same size as the body portion of the heddle, with the center of the eye coinciding with the axial line of the heddle, and it has for its further object to provide an improved method of construction by which the strength and appearance of the heddle is improved, and the liability of damage to the warp threads by the friction of the heddles during the operation of weaving is decreased.

Referring to the accompanying drawings 40 1, 2 denote the body portions of a heddle embodying my improvement, 3, 4, are the loops at the end to receive the heald-shaft or lingoe, and 5 denotes the mail or eye to receive the warp thread. Each of the body portions 1, 2, are formed from a single piece of wire of suitable length to form one half of a completed heddle, and, when suitably shaped to be combined in the formation of a heddle, are duplicates of each other. The wire forming one half of the heddle is shown upon a larger scale in Fig. 2. At one end of the wire it is returned upon itself to form the loop 3. The doubled wires are then twisted at 6, and the tip 7 of the wire is brought closely against the side of the body portion and embedded in solder, in order to form a smooth

joint and prevent the accumulation of lint. Opposite the tip 7 the wire is offset slightly to one side, as shown at 8, Fig. 2, so that the axial line of the wire when extended will pass through the center of the twisted portion 6, also through the center of the loop 3, as indicated by the broken line 9.

The wire 2, near its opposite end, is bent into a bow shape at 10 to form one side of an eye 5, and that portion of the wire between the bow shape bend 10 and the end of the wire forms what I term a tongue 11. The wire 1 is bent to form a duplicate of wire 2 and the bent sections are overlapped to form an eye, as shown in Figs. 3 and 4. I then unite the two wires together by twisting the body portions of the wires and the tongues on opposite sides of the eye, as shown at 12 and 13, Fig. 4.

In Fig. 3 I have shown the wires 1 and 2 overlapped or placed side by side, with the bow shape bend 10 of the wire 2 placed opposite the bow shape bend 14 of the wire 1, and the tongue 11 of the wire 2 placed in contact with the wire 1 and the tongue 15 of the wire 1 in contact with the wire 2. The wires 1 and 2 are obliquely offset at 16 and 17 and the ends of the wires are chamfered at 18, 18, to form a close contact with the oblique offsets 16 and 17. The doubled wires are united by twisting above and below the eye 5, as shown at 12 and 13, Fig. 4, and the chamfered tips of the wires are embedded in solder, as shown at 19 and 20, Fig. 4. Offsetting the body portions of the wires brings the center of the eye 5 coincident with the axial line of the heddle, as indicated by the broken line 21, 21, Fig. 3, and the oblique offsets 16 and 17 also project over and protect the chamfered ends of the wire and form a base for the adhesion of solder in which the ends are embedded, removing all liability of the warp threads becoming engaged by any projecting portions of the heddle.

I do not wish to confine my invention to a heddle having wires twisted together above and below the eye. In Fig. 3 I have shown two wires placed side by side and my invention can be carried into effect by soldering the wires together with the tips or ends of each wire covered by the offset portion of the wire.

I claim,

1. As an article of manufacture, a heddle composed of two pieces of wire with their ends overlapping in the central part of the

heddle, and having said overlapping ends bent to form a yarn eye and twisted together on opposite sides of and adjacent to said eye, with the opposite ends of said wires bent to
5 form loops to receive the heald shafts.

2. As an article of manufacture, a heddle formed of duplicate sections of wire overlapping each other at the center of the heddle, each bent to form one half of an eye and
10 twisted together above and below the eye, and each of said sections having an offset adjacent to said eye soldered to the end of the other section.

3. A heddle composed of two single wires

forming the body of the heddle with their
15 ends overlapping at the central portion of the heddle, with each of the overlapping portions oppositely bent to form an eye, and each of said wires offset at the ends of the overlapping portions to bring the center of the eye
20 substantially in alinement with the axis of the heddle, and means for uniting said overlapping portions.

HUDSON W. HAKES.

Witnesses:

RUFUS B. FOWLER,

PENELOPE COMBERBACH.