(No Model.)

C. FORD.

PILE WIRE FOR LOOMS.

No. 487,417. Patented Dec. 6, 1892.

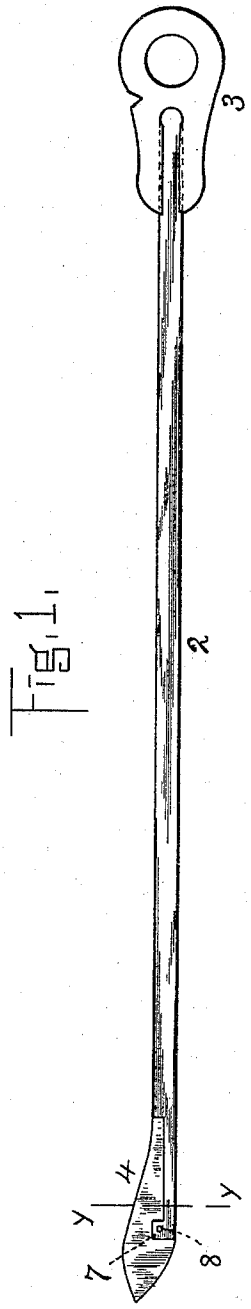

Fig. 1.

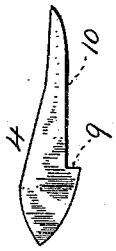

Fig. 3.

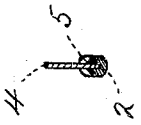

Fig. 4.

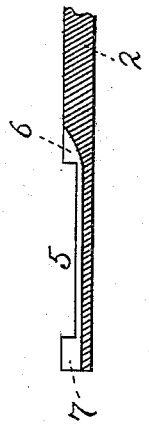

Fig. 2.

Witnesses.
Richard H. Lodge
Francis C. Glanwood

Inventor.
Charles Ford.
by H. L. Lodge Atty.

UNITED STATES PATENT OFFICE.

CHARLES FORD, OF LOWELL, MASSACHUSETTS.

PILE-WIRE FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 487,417, dated December 6, 1892.

Application filed July 6, 1892. Serial No. 439,141. (No model.)

To all whom it may concern:

Be it known that I, CHARLES FORD, a citizen of the United States, residing at Lowell, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Pile-Wires for Looms; and I do hereby 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 drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates to "pile-wires," so called, about which the pile-forming warp-threads are looped in the process of making pile fabric.

My invention consists in an improvement in the manner of constructing or forming that end of the pile-wire which is furnished with a knife or blade.

The object of the invention is not only to enable the knife to be readily attached to or detached from the pile-wire, but permits the knife to be easily sharpened without removing or separating it from the wire.

My improvements further relate to the formation of the knife as adapted to be affixed to a pile-wire containing my invention.

The drawings represent in Figure 1 a side elevation of a pile-wire embodying my invention. Fig. 2 is an enlarged sectional view of that end of the pile-wire to which the knife is fastened, the section being taken longitudinally through the knife-slot. Fig. 3 is a side view of the knife detached from the pile-wire. Fig. 4 is a cross-section at *y y*.

In the accompanying drawings, 2 represents a pile-wire, (shown as a thin piece of steel,) at one end of which is attached a removable plate 3, termed the "head," and, as usual, formed with a circular hole to receive mechanism (not shown) by which the pile-wire is drawn across the fabric in order to sever the loops of the warp-threads by means of a knife 4, removably secured at the opposite extremity, termed the "knife end."

As before premised, the object of my invention is primarily to enable the knife to be removed and a new one substituted, and at the same time to contrive a quick and inexpensive method for so doing; moreover, to change the form of the knife to the new existing circumstances, and thereby secure longer life for said knife, while providing greater facilities for sharpening it without detaching it from the wire. With these objects in view I have made the pile-wire as a straight length of steel, attaching the head at one extremity, while the knife end, in lieu of curving upwardly and over upon the knife or expanding into a blade integral with the wire, as hitherto practiced, is straight. At the same time I have removed a portion of the wire and created an elongated notch or recess 5, (see Fig. 2,) at the same time providing the slit or longitudinal opening 6 in which to fit the knife. In many instances, as before alluded to, the blade was formed as an integral part of the wire, which was flattened out. Hence when the blade was broken or worn out it necessitated an entirely new pile-wire. By removal of the metal of the pile-wire at this point I have exposed the side surfaces of the knife and lowered the top edge of the pile-wire along this recess an amount equal to the depth of the cut. Hence I am enabled to braze or solder the knife to the pile-wire very readily and keep the cutting-edge entirely clear and raised above such solder. The black portions in Fig. 4 indicate solder. The recess 5, as will be seen, does not extend entirely to the end of the pile-wire, but a portion 7 of the latter is left intact to afford a better support at this point of the knife. In some instances a pin 8 may be inserted.

The knife or blade shown in Fig. 3 consists of a flat piece of metal tapering in vertical longitudinal section from its heel to its point, which is adapted to enter the slot in the main body of the pile-wire. The lower part of the heel is formed with a shoulder 9 to abut against the end of the pile-wire and assist in giving a firm positive bearing. The knife is made of the form and shape shown, in order that when the metal composing the same is properly adjusted and fastened, with the straight portion 10 resting in the slot, an oblique cutting-edge shall be presented to the loops of the warp-threads, and so create a shearing stroke as the pile-wire is drawn across the fabric in process.

An important advantage in affixing the

blade or knife to the wire under my method consists in giving said blade a positive central position longitudinally of the pile-wire. By this means the loops are cut correctly at the center, whereas in the old way of forming the blade from the metal of the pile-wire the latter was liable to have a twist or deviation from a straight line, due to unequal contraction or expansion when the blade was formed. Thus the loops will be cut unevenly and lines will show on the face of the fabric.

I do not desire to be limited to the precise form of the knife, nor to the exact form of that part of the pile-wire which is removed in order to create the recess 5, as shown in the drawings, since I consider my invention is embodied in the idea of lowering the upper edge of the pile-wire along that portion which is contiguous to that of the knife, whereby the union or junction of said parts is made at a point somewhat below the normal upper edge of the pile-wire. By such means the life of the knife is prolonged, while it is more easily sharpened without removal. To detach the blade, a hot iron may be passed along over the solder, which is allowed to drop off, and the knife is then easily withdrawn from the slot, a few minutes being sufficient in which to perform this operation.

What I claim is—

1. As a new article of manufacture, a pile-wire longitudinally slit in part at one end to receive a knife and formed with a transverse notch or recess adapted to bring the upper edge of the pile-wire at this portion below the corresponding edge of the body of the pile-wire and create a shoulder upon each side of the knife, substantially as and for the purposes specified.

2. In a pile-wire, the combination, with a metallic bar having a straight knife end with a longitudinal slit therein and a notch extending to within a short distance of the extremity of said wire, but transversely of said slit, of a removable knife adapted to enter said slit and be secured therein and a removable perforated head at the opposite end of said bar, substantially as stated.

3. The combination, with a straight bar, as a pile-wire, of a perforated head at one end and a removable shouldered knife at the opposite end, said bar being provided with a longitudinal slit to receive the knife, and a transverse notch upon the upper part of the pile-wire in order to create ledges laterally of the knife in which to insert solder, substantially as described and set forth.

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

CHARLES FORD.

Witnesses:
A. E. HOWES,
H. C. NUNAN.