June 25, 1935. C. R. SCHREINER 2,006,151

PILE WIRE FOR LOOMS

Filed June 20, 1934

Fig. 1.

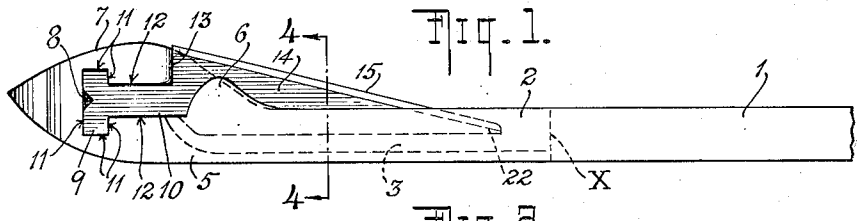


Fig. 2.

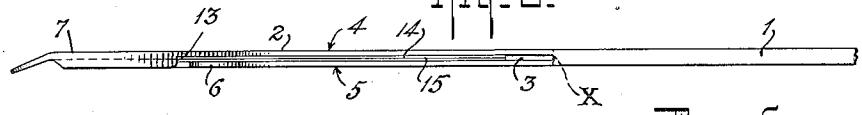


Fig. 4.

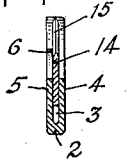


Fig. 3.

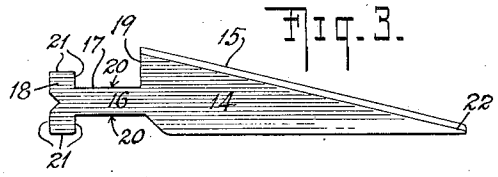


Fig. 5.

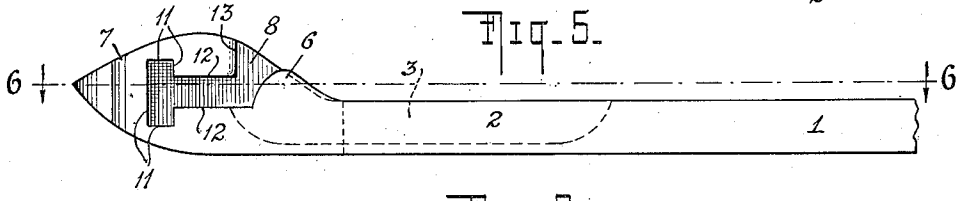


Fig. 6.

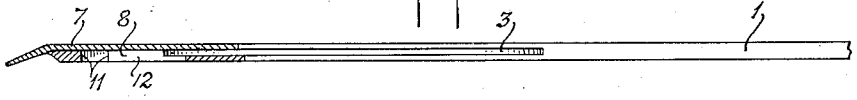


Fig. 7.

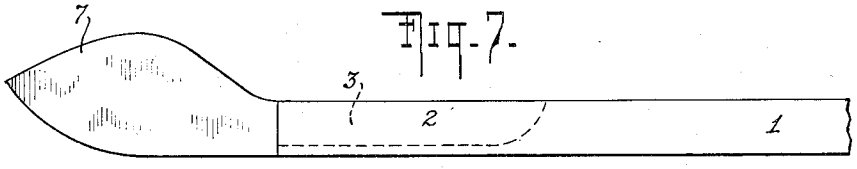
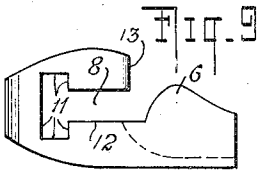


Fig. 8.



Fig. 9.



WITNESS

G. V. Rasmussen

INVENTOR

CARL R. SCHREINER

BY

Bissell & Schmidt

ATTORNEYS

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PILE WIRE FOR LOOMS

Carl R. Schreiner, Brooklyn, N. Y.

Application June 20, 1934, Serial No. 731,422

6 Claims. (Cl. 139—44)

This invention relates to pile wires for looms, including a holder for a removable blade, which blade is readily replaceable by a like blade.

The object of the invention is to provide a blade and blade holder, in which the blade body is supported with respect to the channel into which its lower edge is inserted mainly by a key and keyway located rearwardly of the cutting edge of the blade, the interengagement of said parts constituting the chief means for retaining the blade in proper operative position. The blade and the holder in assembled condition provide a structure which is substantially smooth on both side faces of the holder and blade and all fingers or lugs extending beyond the side surfaces of the spoon and of the holder are eliminated. A further object of the invention is to provide the key extension of the blade with substantially strong and comparatively large holding members in order to eliminate thin and narrow members or extensions on the blade, thereby avoiding breakage of the key portions and permitting the blade to be assembled in the holder by sliding motion and substantially eliminating the flexing of any of the individual edges of the key.

In the drawing, Fig. 1 represents a side elevation of the pile wire and holder; Fig. 2 is a top view thereof; Fig. 3 is a side view of the blade; Fig. 4 is a cross-section on line 4—4 of Fig. 1; Fig. 5 is a view, similar to Fig. 1, showing a modification but omitting the blade; Fig. 6 is a section on line 6—6 of Fig. 5; Fig. 7 is a side elevation of the face portion of the blade holder and pile wire before the keyway member is attached; Fig. 8 is a top view of Fig. 7, and Fig. 9 is a side elevation of the keyway member, which when spot-welded to the blade of Fig. 7 will complete the structure of Fig. 5.

The pile wire 1 is provided with the blade holder 2 having a slot 3 therein, which slot is bordered by the side walls 4 and 5. The blade holder 2 shown in Figs. 1, 2 and 4, is made, in a manner well known in this art, of a suitably shaped sheet of metal bent up to the form illustrated in Fig. 4, the upstanding side walls being somewhat decreased in thickness by a swedging operation or the like to make room for the blade. The blade holder 2 when made in this fashion, is attached to the pile wire 1 by welding at X. The front side wall 5 of the blade holder is provided with a lip 6 extending upwardly with respect to the top edge of the side wall 5. The free end of the holder is provided with a spoon 7. The spoon 7 is provided with a keyway 8, which keyway comprises an irregular shaped groove comprising the cross groove 9, and the longitudinal groove 10. The walls defining the cross groove 9 constitute engaging edges 11 and the walls defining the longitudinal groove 10 constitute engaging edges 12. The longitudinal groove 10 merges with the slot 3, and in proximity to the point of merger the groove 10 extends entirely across the inside face of the rear wall 4 to provide the shoulder 13. The blade, preferably of the flexible steel type, comprises the body portion 14 and the inclined cutting edge 15. The rear of the blade is provided with an integral extension or key 16 (see Fig. 3), which key comprises the substantially long neck 17 and the cross member 18. The blade body and its key, by reason of their configuration, provide the engaging shoulder 19 on the blade body, engaging surfaces 20 on the neck 17 and the engaging surfaces 21 on the cross member. The relation of the blade and holder when assembled, are as follows: the lower edge of the body of the blade extends into the slot 3 but the lower edge of the blade does not necessarily rest upon the bottom of the slot; the terminal tip 22 of the blade extends into the slot 3 and below the upper edge of the side walls 4 and 5; the lip 6 lies against the front face of the blade below the cutting edge thereof; the shoulder 19 on the blade body bears against the shoulder 13; the engaging surfaces 20 on the neck of the blade are aligned and in close proximity to the engaging edges 12 of the longitudinal groove 10 and the engaging surfaces 21 on the cross member 18 are aligned and in close proximity to the engaging edges 11 on the cross groove 9.

When the blade is assembled in the holder its tip 22 is free from locking engagement with the blade holder and the entire cutting edge 15 is welded, so to speak, from the anchoring portions 16, 17 and 18. Due to the described construction the fly and grease which, as the result of the method of weaving pile carpets for example, tends to accumulate in the slot 3, are not forced and packed in a hard body in the slot and do not tend to detract from the efficiency of the cutting operation.

The key 16 is made to fit the grooves 9 and 10 snugly and so that the parts may readily interengage by a sliding motion of the blade. By reason of the large surfaces of the key 16, breakage of the key is avoided and if an attempt is made to flex the key, the strain thereof will be readily taken up by the long neck 17. A blade, should it be desirable to replace it by reason of dullness of its edge or by breakage, is readily removable and inasmuch as the tip end 22 of

the blade is not positively held, it can be readily removed from the slot 3 should the blade break during operation. Inasmuch as there are no undercut portions or corners in the slot 3, it can be cleaned should it become congested with fly or grease. The blade, by reason of its being supported from the key 16, is provided with slight free movement, reducing the tendency to break, as breakage is always a source of annoyance inasmuch as a broken blade in the holders heretofore used tends to swing up exposing the blunt broken edge, which broken edge coming into engagement with the pile, rips or tears the pile instead of cutting it cleanly. Inasmuch as the blade is secured against movement in all directions by the interengaging relation of the various engaging edges and shoulders on the blade and on the groove, this type of blade and blade holder is particularly advantageous in cutting pile of carpets which are woven with the face down, where the pile cutter operates with the blade edge in a downward direction.

In the manufacture of the holder it is also possible to swedge the end of the pile wire itself. This is illustrated in Figs. 5–9. The end of the wire in such cases is reduced to the configuration shown in Figs. 7 and 8, the slot 3 being milled out, resulting in the pile wire 1, the side walls 4 and 5, and the portion of the rear spoon 7 being integral. When the pile wire is utilized for forming the aforementioned part of the holder, the keyway member 8 and the lip 6 are made separately as shown in Fig. 9 and this unit is then spot-welded in proper position (Fig. 5) with the parts of the holder formed directly from the end of the pile wire. This method of forming the holder overcomes many objectionable features of the present types of holder, in which the holder is formed separately from the wire and has its end butt-welded to the wire. Such butt-welding provides a weakened area at the point of union of the wire and the holder and there is often breakage at this point.

I claim:

1. In a pile cutting device, in combination, a holder, a spoon at one end of the holder, a keyway in the spoon, said keyway comprising a longitudinal groove and a groove crosswise thereof, a slot between the side walls of said holder, a blade, a key on the blade, said key having a long, flexible neck and a cross member on said neck, said cross member being located at the extreme end of said neck and comprising two arms extending crosswise thereof, said neck fitting into said longitudinal groove and the cross member fitting into said crosswise groove, the lower portion of the body of the blade fitting into said slot.

2. In a pile cutting device, in combination, a holder, a spoon at one end of the holder, a keyway in the spoon, said keyway comprising a longitudinal groove and a groove crosswise thereof, said crosswise groove extending beyond both side edges of said longitudinal groove, a slot between the side walls of said holder, a blade, a long, flexible key on the blade, said key having a neck and a cross member located at the extreme end of said neck, said cross member extending to each side of said neck, said neck fitting into said longitudinal groove and the cross member fitting into said crosswise groove, the lower portion of the body of the blade fitting into said slot.

3. In a pile cutting device, in combination, a holder, a spoon at one end of the holder, a slot between the side walls of the holder, a plurality of grooves in the spoon, one of said grooves extending longitudinally of the spoon and one extending crosswise of said spoon, a blade, a key on the blade, said key having portions corresponding to and fitting into the grooves in said spoon, a lower portion of the body of the blade fitting into the said slot, the lower edge of the body of the blade being spaced from the bottom of the groove and the tip end of the blade being unsupported, whereby the blade body floats between said side walls.

4. In a pile cutting device, in combination, a holder, a slot between the side walls of the holder, a spoon at one end of the holder, a keyway in the spoon, said keyway comprising a longitudinal groove and a transverse groove at one end of the longitudinal groove, the other end of the longitudinal groove extending crosswise of the spoon to the top edge of the spoon, a blade, a key extending from the body of said blade at a distance below the cutting edge thereof, a shoulder between the point of junction of the key and the body of the blade and the cutting edge of the blade, a long, flexible neck and a transverse extension on the neck substantially in the plane of the body of the blade, said transverse extension, said neck and said shoulder having an outline corresponding substantially to the outline of said keyway and fitting said keyway, the lower portion of the body of the blade fitting into said slot, whereby the blade is secured in said holder against accidental removal the tip end of the blade being unsupported.

5. In a pile cutting device, in combination, a holder, a spoon on the holder, a groove in the spoon, a slot between the side members of the holder, a tapering blade, a key on the blade, said key extending from the wide end of the blade and lying in the plane of the blade, said key fitting into the groove in said spoon, the end of the blade being unsupported and the blade body being secured in said holder solely by the interengagement of said key and said groove.

6. A blade adapted for association with a holder of a pile cutting device, comprising a body portion having a diagonal cutting edge, a long, flexible neck at the wide end of said body portion, a cross member at the free end of said long neck, said cross member comprising two arms extending to each side of said long, flexible neck at substantially right angles thereto, engaging edges at the inside of said arms, a shoulder extending from the inner end of the neck toward the cutting edge of the blade, said neck and arms being adapted to fit into corresponding grooves and said shoulder being adapted to fit against a corresponding shoulder in the spoon end of a pile cutting device.

CARL R. SCHREINER.