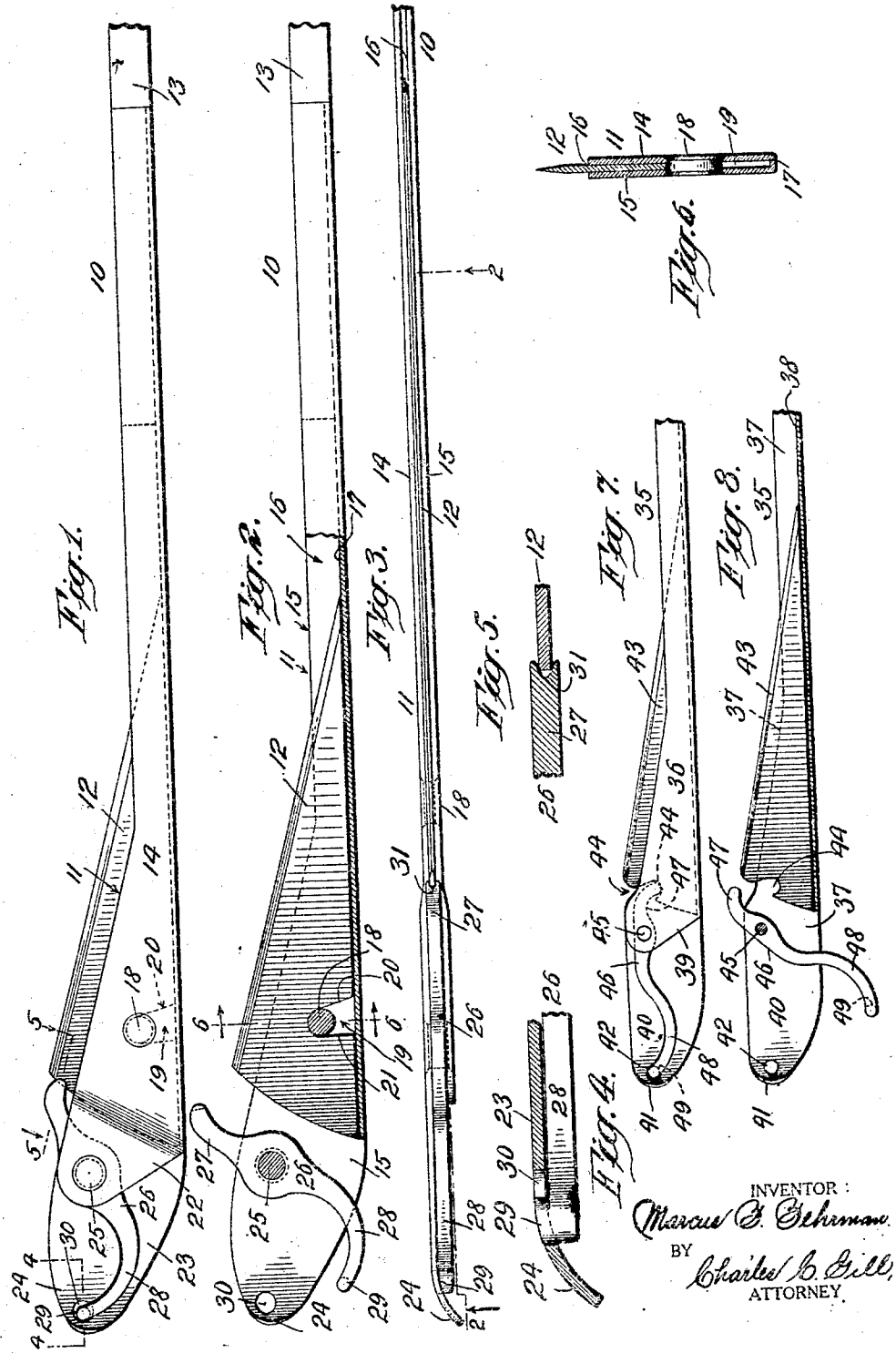
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PILE WIRE FOR LOOMS

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PILE WIRE FOR LOOMS.

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To all whom it may concern:

Be it known that I, MARCUS B. BEHRMAN, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Pile Wires for Looms, of which the following is a specification.

The invention relates to the class of looms for weaving pile fabrics, and it consists in a novel construction of the pile wires employed in such looms for cutting the pile, it being commonly known that the wires are made use of in a group and are successively inserted into and withdrawn from the shed of the fabric. Each wire carries at one of its ends a blade or cutter, which when drawn through the pile-loops or floats formed from the warp threads, severs or cuts the same to form the pile.

The pile wires of my invention are applicable to existing looms, and hence my invention, while relating to looms, consists primarily in the wires operating in a customary manner and by the usual means, but possessing novelty in respect to that portion thereof directly carrying the blade for cutting the pile.

In accordance with my invention the pile wire is specially constructed at its forward end to form a holder adapted to detachably receive and securely hold a small flat steel blade or cutter, and said blade or cutter is of special construction adapting it to said holder and to cooperate with the blade-securing features thereof, one of said features, in the preferred construction, being a durable transverse cross-pin or abutment which the blade or cutter, at an upwardly extending slot or recess therein, straddles, and another of said features being a pivoted latch carried by the holder and adapted to be engaged with the outer end of the blade or cutter for latching or locking the blade in firm position.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which:

Fig. 1 is a side elevation, on an enlarged scale, of a portion of a pile wire embodying my invention, the blade or cutter being shown in its operative position within the holder provided at the forward end of the wire;

Fig. 2 is a vertical longitudinal section through a portion of the same, the section being taken on the dotted line 2—2 of Fig. 3 and the latch for the blade being shown in inoperative position or free of the blade; Fig. 2 may be regarded as illustrating the introductory position of the blade in the holder preparatory to being latched or locked therein or the release of the latching or locking means from the blade preparatory to the withdrawal of the blade from the holder;

Fig. 3 is a top plan view, on a larger scale, of the pile wire, with the blade shown as latched or locked in its operative position;

Fig. 4 is an enlarged sectional view taken on the dotted line 4—4 of Fig. 1;

Fig. 5 is a like view taken on the dotted line 5—5 of Fig. 1;

Fig. 6 is a vertical section taken on the dotted line 6—6 of Fig. 2;

Fig. 7 is a side elevation, corresponding with Fig. 1, showing a modified construction of pile wire embodying features of my invention, and

Fig. 8 is a sectional view, corresponding with Fig. 2, of the same.

In the drawings 10 designates a pile wire and pile cutter embodying at its forward end, that being the left hand end looking at the drawings, the features of my invention, the other portion of the wire being of usual or any suitable form and construction. The pile wire is usually a reasonably thin strip or bar of steel and somewhat longer than the width of the fabric to be woven. Pile wires are employed in groups and all the pile wires in a group are alike. I have therefore only shown one pile wire and the method of using the same in a loom requires no description.

On the forward end of the wire 10 is a holder 11 for the blade or cutter 12, said holder being of sheet metal and the blank therefor being bent or folded into approximately U-shape in cross section and brazed at its inner end to the adjacent end of the body or rod 13 of the wire.

The holder 11 is of special construction and between its side members 14, 15 is formed a narrow elongated recess or socket 16 to receive the body portion of the blade or cutter 12, the edge of the base of the blade being straight and seated against the

upper surface of the bottom 17 of the recess or socket 16 and the cutting edge of the blade being exposed above said holder. The side members 14, 15 match each other except at their outer ends beyond the blade and incline downwardly and inwardly on a line below and conforming to the inwardly and downwardly inclined line of the exposed cutting edge of the blade, said members being adapted to engage the major portion of the opposite faces of the blade and afford extended support therefor. The side members 14, 15 of the holder are connected by a durable cross-pin or abutment 18, the ends of which are upset in said sides and flush therewith. The cross-pin or abutment 18 is definitely positioned with relation to the proper location for the blade or cutter in the holder, and said blade or cutter is formed with an upwardly extending recess or slot 19 (Fig. 2) to pass downwardly over said pin or abutment when the blade is introduced into the holder, said recess or slot preferably having its edge 20 inclined outwardly and its opposite edge 21 vertical, thereby providing the recess or slot with a wide open mouth to readily pass over the pin or abutment. The upper end of the recess or slot 19 closely engages the top and sides of the pin 18, so as to definitely position the blade and permit said pin to act as an abutment for the blade when pressure is exerted against the cutting edge of the same by the pile-loops through and against which the blade may be drawn.

The side member 14 of the holder is formed at its outer end with a wing 22 projecting outwardly beyond the outer end of the blade 12, and the side member 15 is formed at its outer end with a wing 23, whose outer extremity is deflected laterally to form the customary guard 24. Between the wings or extensions 22, 23 is mounted, on a transverse pivot pin 25, a latch 26 having a dog-arm 27 to engage the outer edge of the blade 12 near the upper end thereof and a locking-arm 28 provided with a laterally extending stud 29 to enter a hole 30 in the wing 23 when said latch 26 is turned to operative position (Figs. 1 and 4). The wing 23 may be flexed sufficiently to permit the stud 29 to enter the hole 30 when the latch is turned to its operative position and to leave said hole when the latch is turned to its inoperative position (Fig. 2) for the purpose of releasing the blade 12. The end of the dog-arm 27 is recessed, as at 31, to straddle the edge of the blade 12, as shown in Fig. 5, and thereby not only effect a firm engagement of said arm with the blade but enable the arm to resist any tendency to lateral deflection in the upper outer end of the blade when the device is in use. The pivot pin 25 is upset or headed in the wings 22, 23 and firmly connect said wings.

The blade 12 has a straight lower edge, a downwardly and inwardly inclined upper cutting edge and, usually, a downwardly and outwardly extending curved outer edge, as shown in Fig. 2, and, in addition, said blade contains the recess or slot 19 extending upwardly through its lower edge to engage the pin or abutment 18, which in cooperation with the walls of said recess, serves to correctly locate the blade in the holder and resist longitudinal sliding movement of the blade in either direction.

In assembling the blade or cutter 12 with the holder 11, the latch 26 will be turned to its inoperative position shown in Fig. 2, and the blade will then be introduced downwardly into the holder, with the recess 19 straddling the pin 18, and thereupon the latch 26 will be turned to its operative position shown in Fig. 1, the dog-arm 27 then engaging the outer edge of the blade and the stud 29 on the locking-arm 28 being caught in the hole 30 and securing the latch in its operative position, with the dog-arm firmly pressing against the blade and binding the blade against the pin 18. When it is desired to remove the blade from the holder the latch 26 will be turned to its inoperative position shown in Fig. 2 and the blade will then be free to be lifted from the holder. The ease with which the blade may be applied to and removed from the holder, is one of the desirable benefits of my invention. The security with which the blade is held in the holder, is another of the desirable benefits of my invention. The dog-arm 27 acts to press the blade 12 downwardly into the holder, as well as to perform its other duties hereinbefore referred to.

In Figs. 7 and 8, I illustrate a modification of some of the features of my invention, and therein the holder 35 has side members 36, 37 and a bottom 38 and corresponds generally with the holder shown in Figs. 1 and 2. The side member 36 has at its outer end a wing or extension 39, and the side member 37 has at its outer end a wing or extension 40 terminating in the usual guard 41 and containing the hole 42. The wings 39, 40 correspond generally with the wings 22, 23 of Figs. 1 and 2. The holder 35 does not possess the pin 18 shown in Fig. 2, and the blade 43 is minus the recess 19 of the blade 12. The blade 43 is recessed downwardly in its outer end, as at 44. Between the wings 39, 40 is pivotally mounted on a transverse pin 45, a latch lever 46 having a dog-arm 47 to enter the recess 44 of the blade 43 and a locking-arm 48 carrying a stud 49 on its outer end to enter the hole 42 in the wing 40 and corresponding with the stud 29 shown in Fig. 4. In the construction shown in Figs. 7 and 8 the locking-arm 49 performs the same duties as the locking-arm 28 shown in Fig. 1, and the dog-arm 47 serves

at its rounded outer end to engage the blade 43 at the concave bottom of the recess 44 therein and bind said blade against the upper surface of the bottom of the holder and also prevent said blade from having longitudinal movement in the holder, said arm 47 in this latter respect constituting an abutment and positioning the blade and performing some of the duties of the cross-pin 18 of Fig. 2.

I do not confine my invention to the shapes of the holder, blade and latch hereinbefore specifically described, since these details may be changed or modified within the scope of the appended claims. I have shown and described two very desirable embodiments of my invention possessing in many respects like characteristics of efficiency and convenience in construction, assembly and disassembly.

What I claim as my invention and desire to secure by Letters Patent, is:

1. For use in looms for weaving pile-fabrics, a pile-wire having on one end a holder which is approximately of U-shape in cross-section and has a bottom and side members forming a blade-receiving recess, a blade seated in said recess with its cutting edge exposed above the same, a latch-lever pivoted between portions of said side members and having a dog-arm to engage the outer end portion of said blade and means for releasably locking said lever in its operative position.

2. A pile-wire as claimed in claim 1, in which the means for releasably locking the latch-lever in operative position consist of a locking arm on said lever having at one side thereof a stud and a hole in the adjacent side member to receive said stud.

3. A pile-wire as claimed in claim 1, in which said side members have wings extending outwardly beyond the outer end of the blade to receive the pivot for said latch-lever and in which one of said wings extends beyond the other wing and is deflected laterally to form a guard.

4. A pile-wire as claimed in claim 1, in which said side members have wings extending outwardly beyond the outer end of the blade to receive the pivot for the latch-lever, one of said wings extending beyond the other and containing a hole, and in which the latch-lever has a locking-arm carrying a stud to enter and interlock with said hole, said hole and locking arm constituting the means for releasably locking the latch-lever in its operative position.

5. A pile-wire as claimed in claim 1, in which there is also embodied means serving as an abutment for resisting longitudinal movement of the blade.

6. A pile-wire as claimed in claim 1, in which the engaging end of said dog-arm is recessed to straddle the edge of the blade.

7. A pile-wire as claimed in claim 1, in which the holder has a transverse abutment and the blade a recess to pass downwardly upon and closely engage said abutment, thereby to resist force tending to slide the blade longitudinally.

8. A pile-wire as claimed in claim 1, in which said side members are connected by a transverse pin and in which the blade has a recess to pass upon and closely engage said pin as an abutment to resist longitudinal movement of the blade.

9. For use in looms for weaving pile-fabrics, a pile-wire having on one end a holder which is approximately of U-shape in cross-section and has a bottom and side members forming a blade-receiving recess, a blade seated in said recess having a straight lower edge, a downwardly and inwardly inclined cutting edge and a downwardly and outwardly extending outer edge, said side members at their upper edges inclining downwardly and inwardly below said cutting edge, a latch adapted to engage the outer edge of the blade for securing said blade and means for releasably locking said latch in operative position.

10. A pile-wire as claimed in claim 9, in which the holder has a transverse abutment and said blade an upwardly extending recess to pass upon and closely engage said abutment, thereby to resist force tending to slide the blade longitudinally.

11. A pile-wire as claimed in claim 9, in which the latch is pivotally mounted and has a locking arm connected therewith, and in which said arm carries a locking stud and one of said side members has a hole to receive said stud when the latch is in operative position, said arm, stud and hole constituting the means for releasably locking the latch in operative position.

Signed at New York city, in the county of New York and State of New York, this 14th day of January, A. D. 1924.

MARCUS B. BEHRMAN.