

No. 758,968.

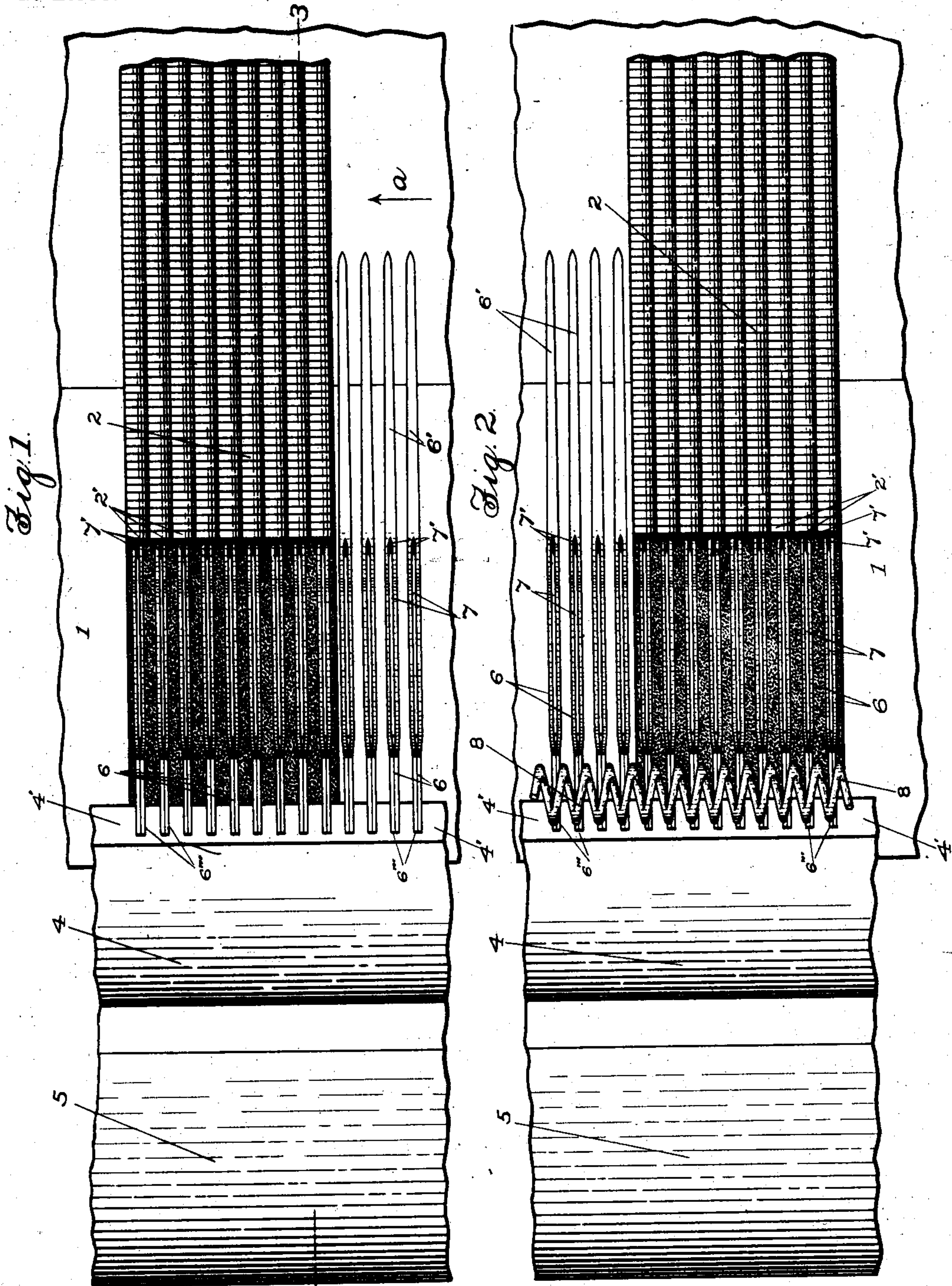
PATENTED MAY 3, 1904.

G. F. HUTCHINS.
LOOP CUTTING MECHANISM FOR PILE FABRIC LOOMS.

APPLICATION FILED JULY 15, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



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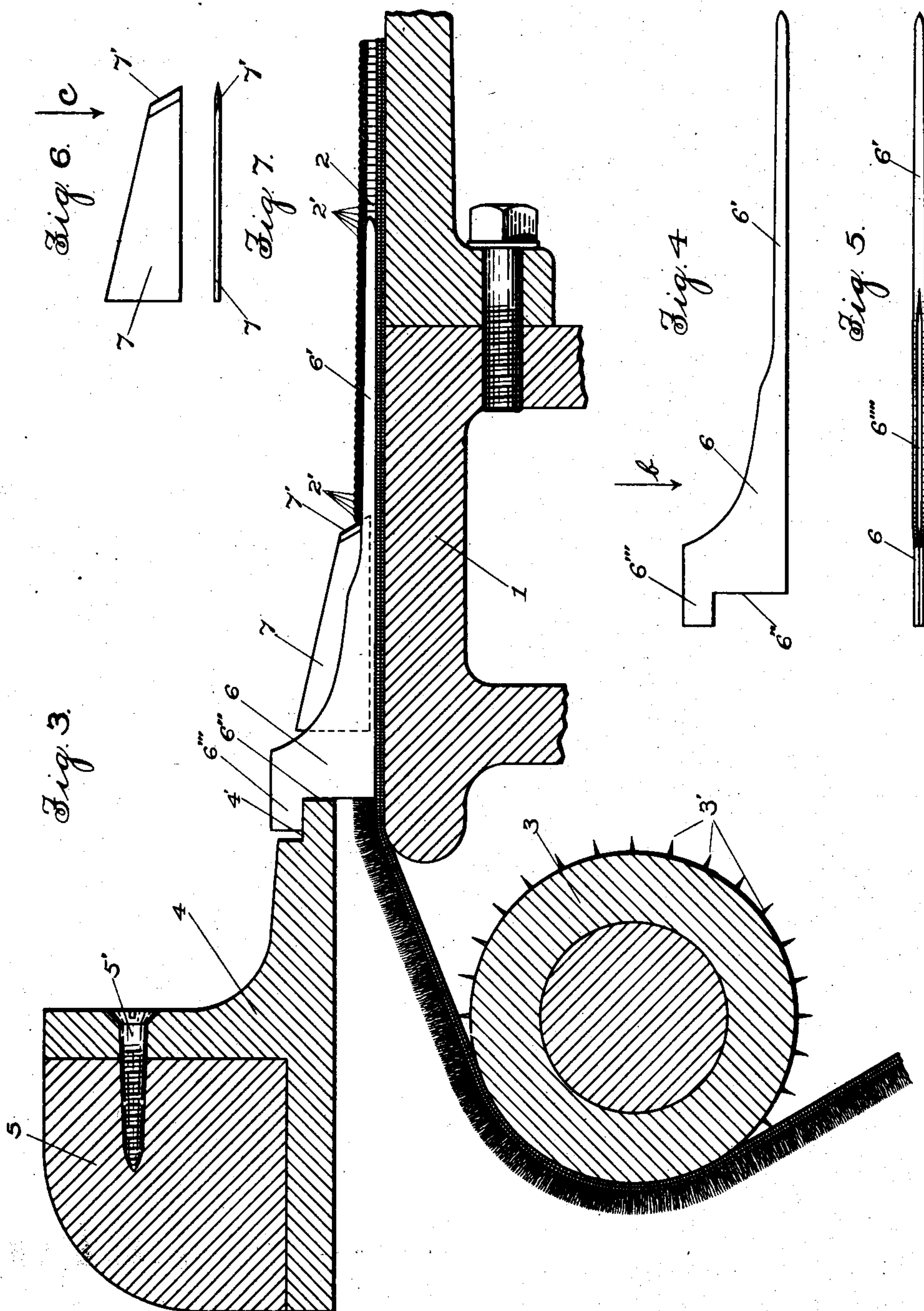
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APPLICATION FILED JULY 15, 1903.

NO MODEL.

3 SHEETS—SHEET-2.



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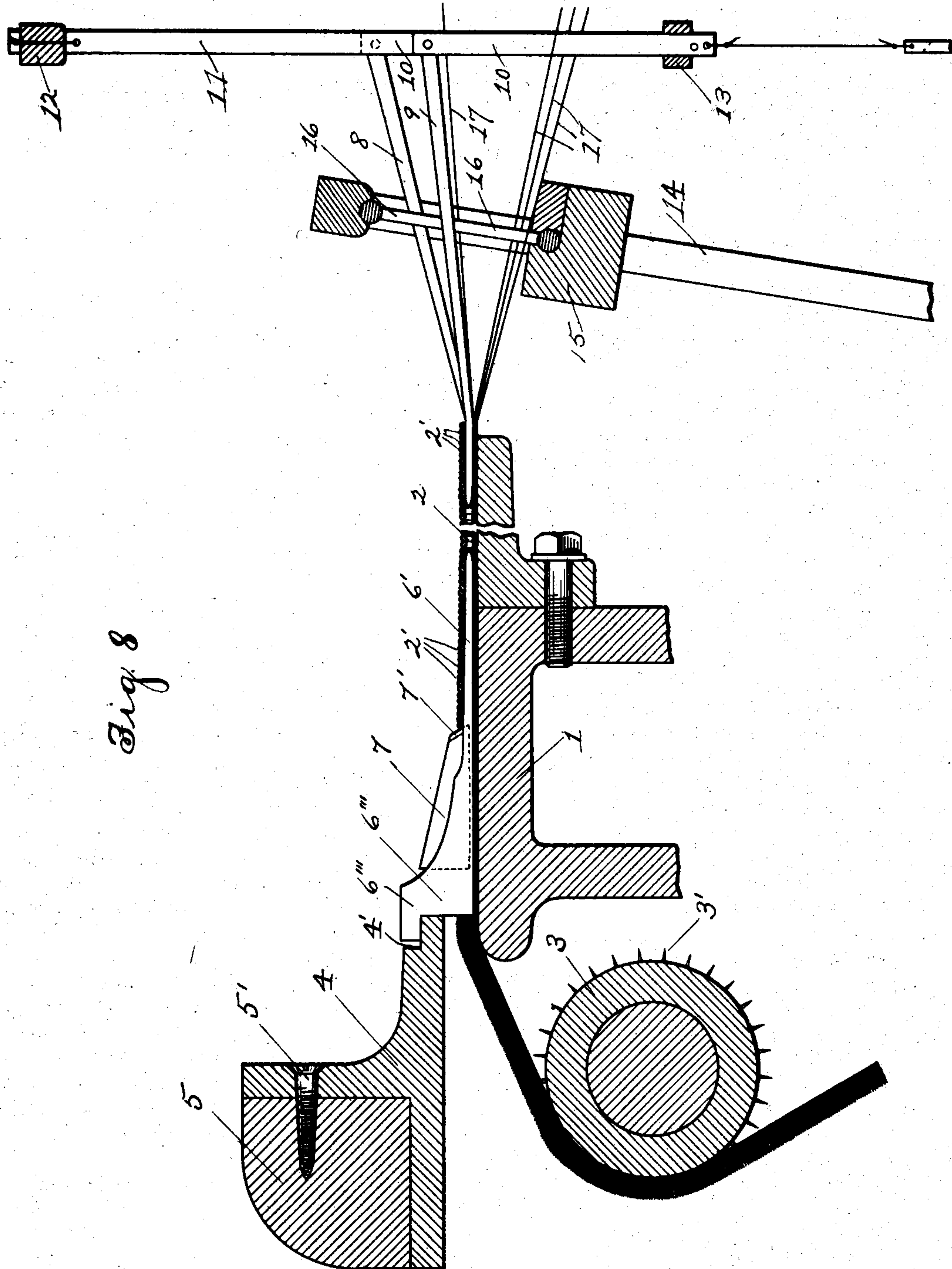
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LOOP CUTTING MECHANISM FOR PILE FABRIC LOOMS.

APPLICATION FILED JULY 15, 1903.

NO MODEL.

3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

GEORGE F. HUTCHINS, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO CROMPTON & KNOWLES LOOM WORKS, OF WORCESTER, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

LOOP-CUTTING MECHANISM FOR PILE-FABRIC LOOMS.

SPECIFICATION forming part of Letters Patent No. 758,968, dated May 3, 1904.

Application filed July 15, 1903. Serial No. 165,624. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. HUTCHINS, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Loop-Cutting Mechanism for Pile-Fabric Looms, of which the following is a specification.

My invention relates to loop-cutting mechanism for pile-fabric looms, and more particularly to improvements in the mechanism for cutting the loops in that class of carpet-loom in which the needles or wires over which the loops are formed extend in the direction of the length of the fabric and the loops also extend in the direction of the length of the fabric.

The object of my invention is to improve upon the construction of the mechanism for cutting the loops as now ordinarily made in the class of looms referred to; and my invention consists in certain novel features of construction of my improvements, as will be hereinafter fully described.

Referring to the drawings, Figure 1 is a plan view of a loop-cutting mechanism embodying my improvements and showing a section of looped fabric with some of the loops cut. Fig. 2 corresponds to Fig. 1, but shows a modified construction of the loop-cutting mechanism. Fig. 3 is a section on line 3 3, Fig. 1, looking in the direction of arrow *a*, same figure. Fig. 4 is a side view of a knife-blade holder detached. Fig. 5 is a top view of the knife-blade holder shown in Fig. 4 looking in the direction of arrow *b*, same figure. Fig. 6 is a side view of a knife-blade detached; and Fig. 7 is a top view of the knife-blade shown in Fig. 6 looking in the direction of arrow *c*, same figure. Fig. 8 corresponds to Fig. 3, but shows in addition the longitudinal pile-wires and their supports, and the lay and reed, and the warp-threads.

In the accompanying drawings, 1 is a portion of a supporting-plate attached to the loom-frame (not shown) and upon which the woven fabric 2 is supported and over which it passes

to the take-up roll 3, provided with pins 3' in the usual way.

At the front of the plate 1 is a stationary metal plate or bar 4, which extends transversely across the loom and is secured to the loom-frame. (Not shown.) A hand-bar 5 is secured in this instance to the plate 4 by screws 5'. Along the inner edge of the plate 4 is in this instance a recessed or angular grooved portion 4'.

The loop-cutting mechanism embodying my improvements consists of a series of cutters. There is a cutter for each row of loops in the fabric. In this instance I have shown the cutters or knife-blades as removably supported in holders 6; but the cutters may be made a part of the holders 6 and not detachable therefrom, as is customary, if preferred. The cutter or knife-blade holder 6 is preferably made of sheet metal cut into the desired shape and bent along its middle portion and the two parts brought together and shaped to form a rounded or needle-shaped end 6' to extend into the loops 2' of the fabric 2. The other enlarged end of the cutter-holder 6 has a straight edge 6'' thereon to bear against the edge of the plate 4 and also in this instance a lug or projection 6''' thereon to extend over and rest upon the grooved or recessed portion 4' on the plate 4. (See Fig. 3.) The knife-blade holder 6 intermediate the rounded end 6' and the enlarged end has in this instance a pocket or opening 6'''' therein formed by spreading the sides of the holder to receive the removable cutter or knife-blade 7, which has one end 7' beveled and sharpened to engage the loops 2' and cut them apart as the fabric is drawn through the loom and onto the rounded ends 6' of the knife-blade holders 6.

The enlarged ends of the cutter or knife-blade holders 6 bear against the stationary bar 4; but they are not attached to said bar or held in a fixed or rigid position thereon, but are free to move sidewise to adapt their position to the row of loops on the fabric into which the rounded or needle-shaped end 6' of the cutter-holder extends.

The loops of the fabric into which the rounded end 6' of each cutter or knife-blade holder 6 extends act to hold and keep the holder in its proper position longitudinally and transversely of the fabric and all the cutter-holders 6 are maintained in their proper relative positions by the loops on the fabric and by resting on the plate 1 without being attached to said plate.

10 In Fig. 2 is shown a modified construction of my loop-cutting mechanism. In said figure is shown a spiral spring on the plate 1, which extends over the ends of the cutter or knife-blade holder 6. The spirals of the spring 8
15 are so arranged that the enlarged end of each holder 6 extends between two adjoining partial spiral convolutions of the spring.

The spring 8 may be employed as a supplemental attachment to yieldingly hold the enlarged ends of the cutters or knife-holders 6 in their proper upright position.

In Fig. 8, in addition to the parts above described, are shown two longitudinal pile wires or blades 8 and 9, over which the loops 2' on the fabric are formed. Said pile-wires 8 and 9 in this instance extend in two different planes at their attached ends and are secured to the upright blades 10, attached to the guide-strips supported in this instance on the transverse bar 12 and passing loosely at their lower ends through transverse bar 13. The lay-sword 14 carries the lay 15, having the reed 16 thereon. The warp-threads 17 pass through the reed to form the woven fabric and the loops thereon in the ordinary way. The position of the longitudinal pile-wires relative to the other parts of the mechanism shown and described is clearly shown in Fig. 8.

It will be understood that the details of construction of my improvements may be varied, if desired.

Instead of having the blades 7 made separate and removable from the holder 6, as shown in the drawings, a knife or cutting edge 45 may be formed directly on the inclined portion of the holder 6, in which case the holder will act as a cutter or blade, and the shape thereof will correspond with the shape shown in Fig. 4.

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

1. In loop-cutting mechanism for pile fabrics, the combination with a stationary transverse plate, bar, or rod, of a series of cutter or knife-blade holders, having one end reduced to extend into the loops on the fabric, and the other end bearing against said transverse plate and cutter or knife-blades supported by said holders, said holders being free to
60 bodily move laterally or sidewise.

2. In a loop-cutting mechanism for pile fabrics, the combination with a stationary transverse plate, bar or rod, of a series of cutter

or knife-blade holders, having one end adapted to extend into the loops on the fabric, and the other end bearing against said transverse plate, and cutter or knife-blades, supported by said holders, said holders being free to bodily move laterally or sidewise.

3. In a loop-cutting mechanism for pile fabrics, the combination with a transverse stationary plate, bar, or rod, of a series of cutter or knife-blade holders having one end reduced to extend into the loops on the fabric, and the other end bearing against said transverse plate, bar, or rod, and cutters or blades detachably supported on said holders, said holders and cutters or blades carried thereby being free to bodily move laterally or sidewise, substantially as shown and described.

4. In a pile-fabric loom, the combination with longitudinal pile-wires extending in the direction of the length of the warp-threads, and over which the loops are formed, of knife-blade holders extending in the direction of the length of the warp-threads, with one end extending into the loops on the fabric, and the other end bearing against a stationary transverse plate, bar, or rod, and said transverse plate, bar, or rod, said knife-blade holders being free to move bodily sidewise or laterally, substantially as shown and described.

5. In a pile-fabric loom, the combination with longitudinal pile wires or blades extending in the direction of the length of the warp-threads, and over which the loops on the fabric are formed, of cutters or blades extending in the direction of the length of the warp-threads, and adapted to cut the loops on the fabric, said cutters or blades being free to bodily move laterally or sidewise and a stationary transverse plate, bar, or rod, against which said cutters or blades bear, substantially as shown and described.

6. In a loop-cutting mechanism for pile fabrics, the combination of a supporting-frame and a series of cutters or blades adapted to engage and cut the pile-loops of the fabric to be treated, said cutters or blades being free to bodily move laterally or sidewise of said frame to adapt their position to the rows of loops on the fabric.

7. In a loop-cutting mechanism for pile fabrics, the combination with a supporting-frame, and a spiral spring, of a series of cutters or blades adapted to engage and cut the pile-loops of the fabric to be treated, each cutter or blade extending between two adjoining spiral convolutions of the spring, and yieldingly held to bodily move laterally or sidewise of said frame, to adapt their position to the rows of loops on the fabric, substantially as shown and described.

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Witnesses:

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