No. 790,017. PATENTED MAY 16, 1905.

W. WATTIE.

PILE FABRIC LOOM.

APPLICATION FILED JULY 5, 1904.

Fig. 2.

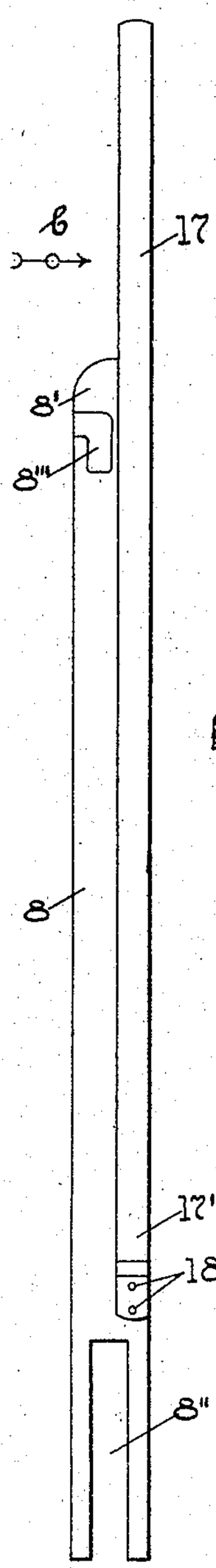

Fig. 3.

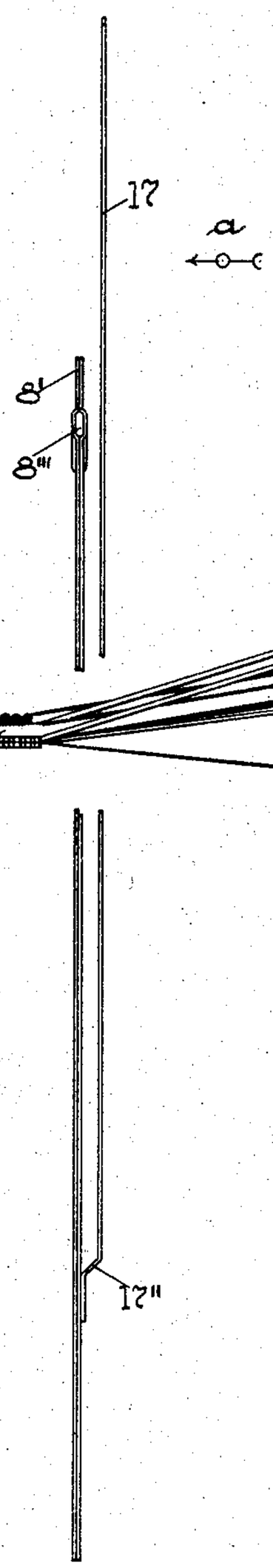

Fig. 1.

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No. 790,017. Patented May 16, 1905.

UNITED STATES PATENT OFFICE.

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PILE-FABRIC LOOM.

SPECIFICATION forming part of Letters Patent No. 790,017, dated May 16, 1905.

Application filed July 5, 1904. Serial No. 215,230.

To all whom it may concern:

Be it known that I, WILLIAM WATTIE, 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 Pile-Fabric Looms, of which the following is a specification.

My invention relates to pile-fabric looms and to that class of pile-fabric looms in which the needles or wires over which the pile-loops are formed extend in the direction of the length of the fabric; and my invention particularly relates to the supporting-blades for the pile needles or wires and the guide-strips extending between said blades, which are adapted to guide the pile-warps first over one side of the pile-needles and then over the other.

Heretofore in the class of looms referred to the guide strips or bars between which the pile-needle-supporting blades extend and which are attached thereto have been stationary and held at their upper ends and also at their lower ends in a fixed position, as shown and described in United States Letters Patent No. 747,587. By reason of this construction it has been difficult and almost impossible in practice to spread or move apart said guide strips or bars sufficiently to get access to the warp-threads back of said guide strips or bars.

The object of my invention is to improve upon the construction of the guide strips or bars of the ordinary construction, as above described, which ordinarily support the blades to which are attached the pile-needles, and more particularly to so construct said guide strips or bars that they may be readily moved apart and ready access be obtained to the warp-threads back of said strips or bars.

My invention consists in certain novel features of construction of my improvements, and more particularly in making the guide strips or bars to extend only a short distance above the pile-needle-supporting blades and to have their upper ends free, so that they may be readily moved apart, and, further, to have the pile-needle-supporting blades attached at their lower ends in a stationary position independent of the guide strips or bars and to have the lower ends of the guide strips or bars preferably attached to the pile-needle-supporting blades and made with an offset therein to form a long loop or guide to receive and guide the warp-threads.

I have only shown in the drawings a detached portion of a loom of the class referred to with my improvements combined therewith sufficient to enable those skilled in the art to understand the construction and operation of the same.

Referring to the drawings, Figure 1 is a sectional elevation through the lay, the transversely-moving pile-warp comb, and the three harnesses and showing two pile-needles and their supporting-blades and the guide strips or bar of my improved construction. Fig. 2 is a side view, on an enlarged scale, of one of the needle-supporting blades and guide-strips detached looking in the direction of arrow *a*, Fig. 3; and Fig. 3 is an edge view of the needle-supporting blades and guide-strip shown in Fig 2 looking in the direction of arrow *b*, same figure. The needle-supporting blade and guide-strip are broken out through the middle of this figure to allow of the completion of Fig. 1.

As my improvements relate only to the needle-supporting blades and the guide strips or bars extending between them which act to guide the pile-warps first on one side and then on the other of the pile-needles, it will only be necessary to briefly refer to the other parts shown in Fig. 1.

In the accompanying drawings, 1 is the lay, having a rocking motion communicated to it in the ordinary way.

2 is the reed, supported on the lay 1, and 3 is the hand-rail on top of the reed.

4 is a bar which has communicated to it a transverse motion in the direction of the width of the loom and has on its lower edge downwardly-projecting pins 5, forming teeth between which the pile-warps 6, which pass through the eyes 7′ in the heddle-cords 7, are raised when the pile-warps 6 are carried into the upper shed preparatory to the transverse movement of the bar 5 and teeth, forming

the comb, to carry the pile-warps 6 to one side of the upper ends 8′ of the pile-needle-supporting blades 8 and also to one side of the pile-needles 9, attached at one end to the upper end of the blades 8—in this instance pivotally and detachably attached—to form the loops of pile over the opposite or free end 9′ of the pile-needles 9 by the pile-warp 6 being carried down into the lower shed preparatory to the throwing of the shuttle through the shed in the well-known way and as fully shown and described in said Patent No. 747,587.

The three harnesses 10, 11, and 12 carry the two binder-warps 13 and the stuffer-warp 14.

All of the above-mentioned parts may be of the ordinary and well-known construction in the class of looms referred to, and particularly in the loom shown and described in said Patent No. 747,587.

I will now describe my improvements.

The pile-needle-supporting blades 8 are preferably made, as shown, with an open-end slot 8″ in their lower ends, which receives a rod 15. Also mounted on said rod 15 are separating-blocks 16. After the needle-supporting blades 8 have been connected with the supporting-rod 15, as shown in Fig. 1, a nut (not shown) is applied at each screw-threaded end (not shown) of said rod and the several supporting-blades 8 and separating-blocks 16 are forced together and held securely on said rod in a stationary position.

The upper ends 8′ of the needle-supporting blades 8 extend, preferably, a little above the lower ends of the pins or teeth 5 on the bar 4 and are provided in this instance with hook-shaped sockets 8‴ to receive the hooked ends of the pile-needles 9, so that said needles may have a pivotal motion and also be readily detached from the supporting-blades 8.

The guide strips or bars 17 extend between the needle-supporting blades 8 and are preferably of less width than the needle-supporting blades and are in this instance secured at their extreme lower ends 17′ by rivets 18 or otherwise to the lower part of the blades 8.

Above the attached end of the guide-strip 17 an offset or incline 17″ is preferably made in the guide-strip, as shown. From the upper part of this offset or incline 17″ the guide-strip 17 extends substantially parallel to the blade 8 and at a distance therefrom corresponding to the width of the offset 17″. The upper end of the guide-strip 17 extends above the upper ends 8′ of the blades 8 and preferably extends in substantially the same horizontal plane as the transversely-moving bar 4, so that there will not be any possibility of the pile-warps 6 when they are moved into the upper plane of the shed passing over or getting by the upper ends of the guide-strip 17.

The guide-strips 17 intermediate the blades 8 act as guides for the warp-threads in the formation of the shed to keep them separated and also act as guides for the pile-warp threads and prevent them from getting out of position and passing down on the wrong side of the pile-needle blades 8 and the pile-needles 9.

The guides 17 not being attached at their upper ends are free to be separated or moved apart to give access to the pile-warps and the other warps back of the pile-needle blades 8 and back of the guides 17.

The advantages of my improvements will be readily appreciated by those skilled in the art.

It will be understood that the details of construction of my improvements may be varied, if desired—for instance, the particular construction and manner of attachment of the pile-needle-supporting blades and the pile-needles shown—as the essential and important feature of my invention is the guide strips or bars 17 being unattached at their upper ends and free to be moved apart or separated.

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

1. In a loom of the class described, the combination of supporting-blades for the pile-needles, pile-needles carried at the upper ends of said blades, guide strips or bars arranged in the transverse plane of said blades, said guide strips or bars being secured at their lower ends to the said blades, and being bent laterally or offset above their point of attachment to the blades so as to extend substantially parallel with the blades.

2. In a loom of the class described, the combination with a pile-needle blade, of a guide strip or bar disposed at one side of said blade and attached thereto at its lower end, said strip or bar having an offset near its lower end and extending upwardly substantially parallel with and along the side of the pile-needle blade, the upper end of said strip or bar being free.

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