

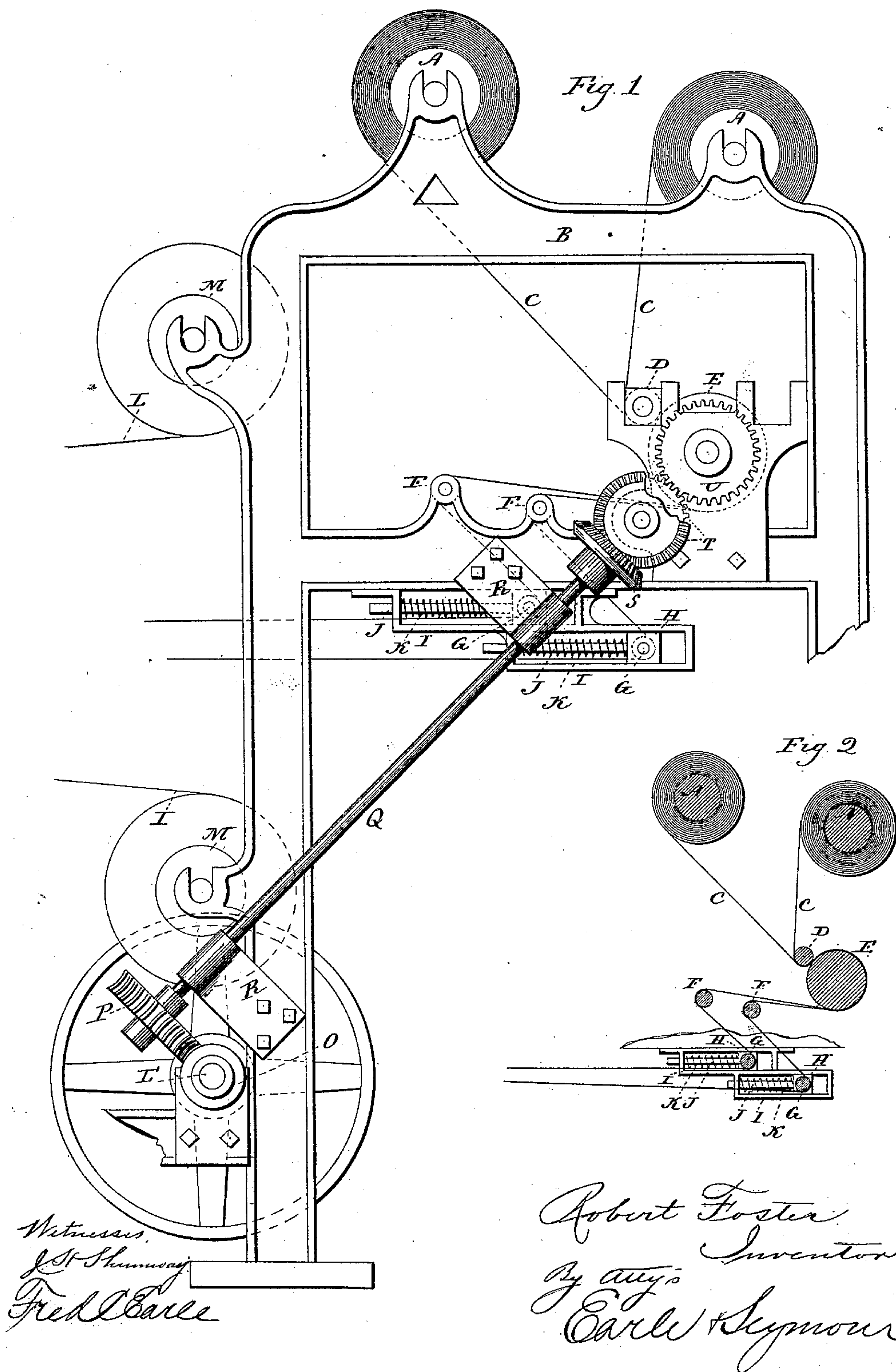
(No Model.)

R. FOSTER.

PILE WARP SUPPLYING MECHANISM FOR LOOMS.

No. 428,902.

Patented May 27, 1890.



UNITED STATES PATENT OFFICE.

ROBERT FOSTER, OF SEYMOUR, CONNECTICUT.

PILE-WARP-SUPPLYING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 428,902, dated May 27, 1890.

Application filed October 7, 1889. Serial No. 326,249. (No model.)

To all whom it may concern:

Be it known that I, ROBERT FOSTER, of Seymour, in the county of New Haven and State of Connecticut, have invented new Improvements in Pile-Warp-Supplying Mechanisms for Looms; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a view in end elevation of one form which a loom embodying my invention may assume; Fig. 2, a view in the nature of a diagram, and showing how the pile warps are let off and taken up preparatory to being fed into the machine.

My invention relates to an improvement in positively-driven let-offs for pile-fabric looms, the object being to simplify the construction and operation of the looms, and by securing uniformity in the pile to avoid waste of stock both in weaving and finishing the fabric.

With these ends in view my invention consists in certain details of construction, as will be hereinafter described, and pointed out in the claims.

As herein shown, the two pile-warp beams A A are mounted in suitable bearings upon the top of the frame B of the machine, the pile warps C C from the said beams being led under a compression-roller D, and then over a feed-roll E, with which the said compression-roller is in contact. After leaving the said feed-roll the pile warps are separated and respectively led forward over in front of guide-rollers F F, and then rearward, downward, and over two horizontal take-up rods G G, which are located and operate in the plane in which the pile warps C C are fed to the feeding mechanism of the loom. Each of the said rods is provided at each end with a bearing H, located in an open horizontal box I, and provided with a horizontal spindle J, playing through an opening formed in the forward end of the box, each spindle being encircled by a spring K, adapted to exert a constant tendency to move the rods back, and so take up the slack in the pile-warps. The pile warps, after passing over the rods, are led directly forward to the weaving mechanism

of the loom, between the backing warps L L, which are fed from the backing-warp beams M M.

The feed-roll is positively driven from the main shaft L' of the machine by means of a worm O, mounted on the said shaft, a worm-gear P meshing into the said worm and secured to the lower end of a long shaft Q, supported in bearings R R, attached to the frame B, and provided at its upper end with a bevel-gear S, meshing into an idle-gear T, which in turn meshes into a gear U, mounted upon the feed-roll, which has already been described.

It will be readily understood that as the actuation of the feed-roll is positive, and that as both of the pile warps are fed from it, the feeding of the two pile warps will be absolutely uniform, whereby a uniform pile necessarily results. As fast as the pile-warps are let off from the feed-roll, the slack in them is taken up by the take-up rods, which are alternately pulled forward against the tension of their springs by the taking up of the warps into the fabric, the two warps being taken up alternately into the fabric in harmony with the action of the machine in first using one of the pile warps and then the other, and so on. It will be noticed that the pile warps are led between the backing-warp beams, so that the pile warps are not crossed with the backing warps, as in many looms, whereby the annoyance and waste resulting from the tangling and breaking of the crossing-warps are avoided. By letting off both of the pile warps from the same roll the let-off of both of the said warps is made absolutely uniform, and uniformity in the pile secured without relying upon the shearing of the pile to secure the same result, the shearing of the pile always involving a waste of stock and reducing the value of the finished fabric by shortening the length of the pile.

The take-up rods, as by me constructed, operate to take up the slack in the pile warps, but never pull the same so as to interfere with the right formation of the pile, as often happens in pile-fabric looms employing weights, which, if they do not act freely, pull the warps and prevent the pile from forming, and thus cause a loss. By locating the take-up rods in the plane in which the pile warps are fed to the weaving mechanism of the

loom and arranging for them to operate in the said plane the rods respond directly to the call of the said mechanism, whereby although the slack is always taken up effectually it is done with the minimum of friction and with the imposition of the minimum of strain on the threads in overcoming the tension of the take-up mechanism.

I claim—

10 1. In a pile-fabric loom, the combination, with two backing-warp beams, of two pile-warp beams, a single feed-roll, over which the pile-warp threads from both of the said pile-warp beams are passed, two guide-rollers, over
15 which the threads are led from the feed-roll, two horizontal take-up rods located in the plane in which the pile-warp threads are fed to the weaving mechanism of the loom, two pairs of horizontal boxes located in the same
20 plane and affording bearing for the ends of the rods, springs located in the boxes and combined with the rods to actuate the same in taking up slack in the warp-threads which are led over them, and means for positively
25 actuating the feed-roll, whereby the slack in the threads is taken up with the minimum of

friction and of strain on the threads, substantially as described.

2. In a pile-fabric loom, the combination, with two pile-warp beams, of a single feed-roll, 30 over which the pile-warp threads from both of the pile-warp beams are passed, two horizontal take-up rods located in the plane in which the pile-warp threads are fed to the feeding mechanism of the loom, two pairs of 35 horizontal boxes located in the same plane and receiving bearings to which the ends of the rods are attached, a horizontal spindle attached to each bearing and playing through an opening formed in the forward end of 40 each box, and a spring encircling each spindle and exerting a constant effort to push the bearings to the rear ends of the boxes and responding to the call of the feeding mechanism for pile-warp threads, whereby the slack of 45 the said threads is taken up with the minimum of friction and of strain on the threads, substantially as described.

ROBERT FOSTER.

Witnesses:

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