

UNITED STATES PATENT OFFICE.

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WARP STOP-MOTION FOR LOOMS.

No. 813,765.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HARRY G. BAKER, 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 Warp Stop-Motions for Looms, of which the following is a specification.

My invention relates to warp stop-motions for looms and to that class of warp stop-motions in which the breaking of a warp-thread allows the drop device supported thereon to be lowered and to close the electric circuit in case of an electric warp stop-motion, or to be engaged by a moving part in case of a mechanical warp stop-motion, to cause mechanism to be operated to stop the loom in the usual and well-known way. In the ordinary construction of warp stop-motions of the class referred to the stands or frames supporting the warp lease-rods and the terminals or the guide-rods for the drop devices are rigidly secured to the loom frames or sides and held in a fixed position. By this construction the warp-threads are prevented from having a free motion up and down, actuated by the harnesses and by the operation of the whip-roll.

The object of my invention is to improve upon the construction of warp stop-motions of the class referred to, and more particularly to provide a warp stop-motion supported by the warp-threads and vertically movable with the warp-threads in their up-and-down motion and preferably adjustably connected with the loom-frame or some stationary part of the loom to prevent movement of the warp stop-motion in the direction of the length of the warp-threads.

My invention consists in certain novel features of construction of my improvements, as will be hereinafter fully described.

I have shown in the drawings my improvements in connection with an electric warp stop-motion of ordinary and well-known construction and operation.

Referring to the drawings, Figure 1 is a rear perspective view of an electric warp stop-motion embodying my improvements and some of the parts connected therewith. Fig. 2 is a central vertical section through the parts shown in Fig. 1 and looking in the

direction of arrow *a*, same figure. One of the drop devices is shown in its lowered position.

In the accompanying drawings, 1 is a detached portion of a loom side or frame on one end of the loom.

2 is the whip-roll, journaled in the loom sides or frames in the usual way.

The warp-threads 3 pass over the whip-roll 2 from the warp-beam (not shown) at the lower part of the loom and are divided in the usual way into two planes which cross each other intermediate the two lease-rods 4 and are held apart by said lease-rods, which may be supported and carried by the warp-threads and have an up-and-down motion in a vertical plane with the warp-threads as they are actuated by the harnesses (not shown) in the usual way.

To the ends of the lease-rods 4 are rigidly secured a stand or frame 5, forming the end stands or frames of the warp stop-motion. Supported on and secured to the end stands or frames 5 are the two guide-rods 6 for the drop devices 7, which in this instance extend through elongated openings 7' in the upper part of the drop devices. The lower part of the drop devices 7 have in this instance open-end slots 7'', through which the warp-threads 3 pass to support the drop devices in their raised position in the ordinary way. Each guide-rod 6 acts in this instance as one of the terminals of an electric circuit. Extending between the drop devices 7 and supported upon and secured at each end to the end stands or frames 5 is a bar 8, forming the opposite terminal of the electric circuit. A wire 9 of one pole (positive) is connected to the terminal 8, and a wire 10 of the opposite pole (negative) is connected to each of the terminals 6, and said wires lead to mechanism (not shown) for stopping the loom in the usual and well-known way.

It will be understood that a drop device 7 is supported on each warp-thread and that upon the breaking of any warp-thread the drop device supported thereon is lowered until the side projection engages the central terminal 8, as indicated in Fig. 2, to close the circuit and cause mechanism to be operated to stop the loom in the usual and well-known way.

In order to prevent the lease-rods 4 and the other parts of the warp stop-motion from having a movement in the direction of the length of the warp-threads as the warp-threads are drawn through the loom and also to provide means for adjusting the position of the warp stop-motion relative to the whip-roll, if desired, I provide means for connecting the same with some stationary part of the loom; but these means do not prevent the free vertical or up-and-down movement of the several parts of the warp stop-motion with the warp-threads. In this instance I provide a boss or hub 11 on each end frame 5, which has a hub or sleeve 11' therein, of non-conducting material, into which extends and is secured by a set-screw 12 a wire 13. The wire 13 is in this instance bent at its other end at an angle to extend outwardly and pass loosely through a non-conducting hub or sleeve 14, fast on the head or hub 15' on the upper end of a vertically-moving stud 15, which is adjustably secured by a set-screw 16 in a hub or boss 17' on a stand 17, secured to the loom side or frame 1. (See Fig. 2.)

In order to lessen the weight of the warp stop-motion on the warp-threads and to assist in supporting the warp stop-motion, I may provide a spiral coiled spring 18 or its equivalent at each side or end of the warp stop-motion, which spring in this instance encircles the outwardly-projecting ends of the bent wires 13 and is secured at one end to the head 15' on the stud 15 and at its other end to a collar 19, which is rotatably adjustable on the end of the wire 13 to vary the tension of the spring 18 and secured thereon by a set-screw 20.

In order to hold the warp stop-motion in its raised position in case the operator wishes to find a broken thread or for any other reason, I preferably provide a stand or arm 21 at each side or end of the warp stop-motion, which is preferably pivotally supported in this instance on a stud 22 on an extension 17'' on the boss 17' on the stand 17. Each arm 21 has a forked upper end, which is adapted to be moved under the wires 13 by raising said wires and the warp stop-motion and receive said wires 13 in the forked end and support the same and with them the warp stop-motion, as shown in the drawings.

It will be seen that in my improvements the several parts of the warp stop-motion, including the lease-rods and the terminals or guide-rods for the drop-wires, will have a free up-and-down motion with the warp-threads, as the same are supported directly on the warp-threads and at the same time are connected with the stationary parts of the loom to prevent movement of the warp stop-motion in the direction of the length of the warp-threads.

In case the spring 18 or its equivalent is not used to lessen the weight of the warp

stop-motion on the warp-threads the whole weight of the warp stop-motion will be supported by the warp-threads, the wire 13 turning loosely in the hub 14 in the head 15' on the stud 15. In case the spring 18 or its equivalent is used to lessen the weight of the warp stop-motion on the warp-threads said spring acts to partially support the warp stop-motion or to take a portion of the strain of the warp stop-motion off the warp-threads, as will be well understood.

The advantages of my improvements will be readily appreciated by those skilled in the art, and they may be adapted to be used in connection with mechanical warp stop-motions and different classes of electric warp stop-motions.

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

Instead of a spring 18 a weight or an equivalent device may be used.

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

1. A loom warp stop-motion, supported by the warp-threads, and movable up and down therewith in a vertical plane.

2. A loom warp stop-motion, supported by the warp-threads, and movable up and down therewith in a vertical plane, and adjustably connected with a stationary part of the loom.

3. A loom warp stop-motion, supported by the warp-threads, and movable up and down in a vertical plane, and adjustably connected with a stationary part of the loom, to be moved in the direction of the length of the warp-threads.

4. A loom warp stop-motion, supported by the warp-threads, and movable up and down therewith in a vertical plane, and means for lessening the weight of the warp stop-motion on the warp-threads.

5. A loom warp stop-motion, supported by the warp-threads, and movable up and down therewith in a vertical plane, and means for adjusting the weight of the warp stop-motion on the warp-threads.

6. A warp stop-motion for looms, comprising lease-rods and guide-rods for the drop devices, supported by the warp-threads to have a vertical up-and-down movement therewith, and means for connecting the lease-rods and guide-rods.

7. A loom warp stop-motion, supported by the warp-threads, and movable up and down therewith in a vertical plane, and connected with a stationary part of the loom.

8. The combination with warp-threads divided into two planes which cross each other intermediate two lease-rods, of a warp stop-motion supported by said warp-threads and having as a part thereof said lease-rods.

9. The combination with warp-threads divided into two planes which cross each other

intermediate two lease-rods, of a warp stop-motion supported by said warp-threads, and comprising said lease-rods, two end frames secured to said lease-rods, guide-rods or terminals for drop devices secured to said end frames, and said drop devices, and a central bar or terminal extending between the drop devices and secured to said end frames.

10. A loom warp stop-motion, comprising lease-rods and guide-rods for the drop devices, supported by the warp-threads to have a vertical up-and-down movement there-

with, and means for lessening the weight of the warp stop-motion on the warp-threads.

11. The combination with a loom warp stop-motion, comprising lease-rods and guide-rods for the drop devices, supported by the warp-threads to have a vertical up-and-down movement therewith, of means for holding the warp stop-motion in its raised position.

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Witnesses:

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