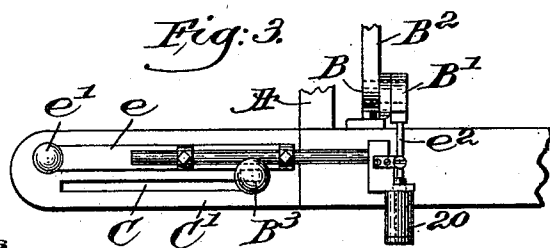
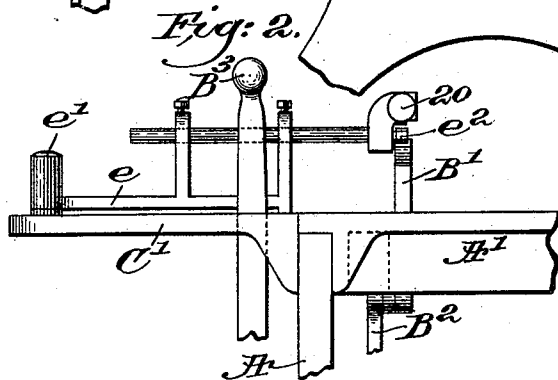
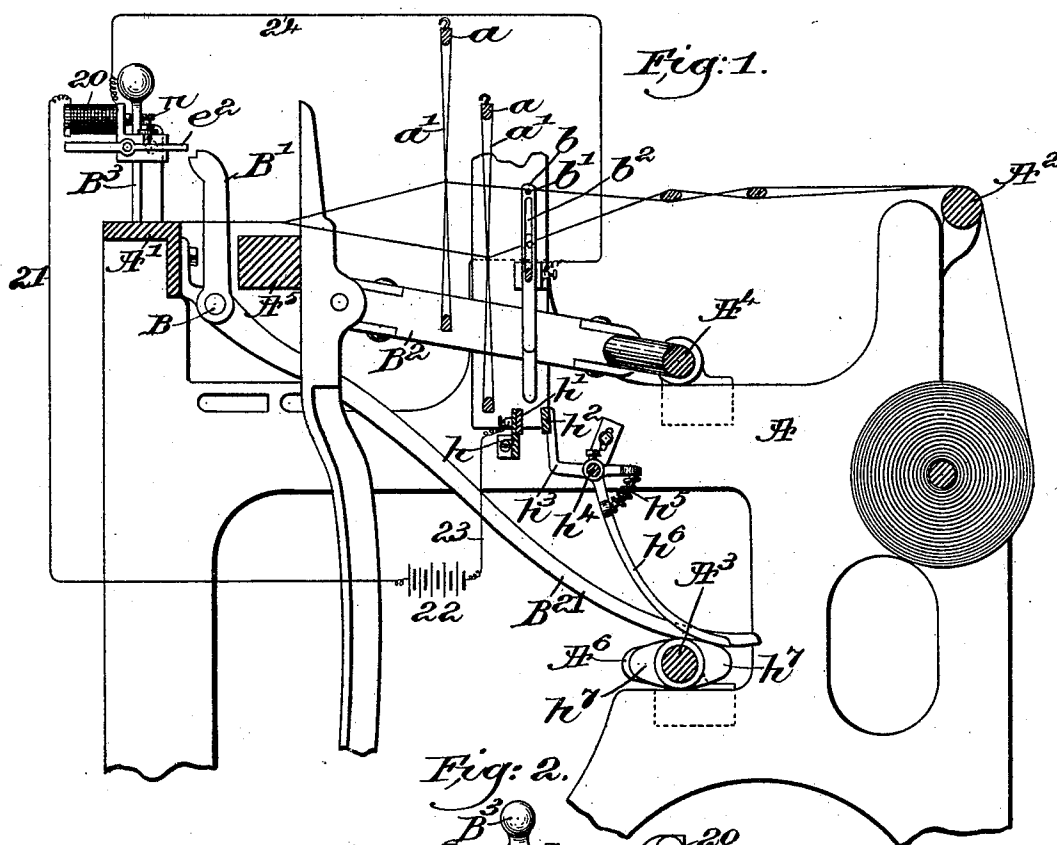


(No Model)

R. J. MOMMERS.
ELECTRIC WARP STOP MOTION FOR LOOMS.

No. 583,214.

Patented May 25, 1897.



Witnesses.
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Thomas J. Drummond.

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UNITED STATES PATENT OFFICE.

RICHARD J. MOMMERS, OF MANCHESTER, CONNECTICUT, ASSIGNOR TO
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ELECTRIC WARP STOP-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 583,214, dated May 25, 1897.

Application filed August 31, 1896. Serial No. 604,379. (No model.)

To all whom it may concern:

Be it known that I, RICHARD J. MOMMERS, of South Manchester, in the county of Hartford and State of Connecticut, have invented an Improvement in Electric Warp Stop-Motions for Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention, relating to looms, has for its object to provide a warp stop-motion which when a warp-thread breaks will permit a metallic drop device having a warp-eye and a slot to fall and effect the closing of an electric circuit, the closing of the circuit causing an electromagnet, carried, preferably, by a knock-off lever, to put a lever or finger, preferably pivoted and forming the armature of the said magnet, in position to be struck by a hammer actuated continuously by a suitable cam or device on a cross-shaft of the loom, the blow of the hammer causing the knock-off device or lever to be moved and push the usual shipper-handle out of its usual holding-notch.

The particular features in which my invention consist will be hereinafter described, and pointed out in the claims.

Figure 1 shows a sufficient portion of a loom with my improvement added to enable my invention to be understood. Fig. 2 is a partial front elevation of the left-hand end of the loom, showing part of the usual shipper-handle and the knock-off device or lever; and Fig. 3, a top view of the parts shown in Fig. 2.

The loom-frame A, breast-beam A', whip-roll A², under shaft A³, crank-shaft A⁴, lay A⁵, cam A⁶ on under shaft, rock-shaft B, and a hammer B' and lay-connecting rods B², harness-frames a, having harnesses a', and the shipper-handle B³, adapted to be moved in a slot C in plate C', one side of said slot having a notch to receive the said shipper-handle and hold it in place to keep the usual driving-belt on the usual driving-pulley, (not shown,) are and may be all as common in looms now in general use, so need not herein be further described, and it will be understood that the

harness-frames in practice will be operated in usual manner.

I desire to stop the loom on the breaking of a warp-thread, and to do this I have provided a series of flat ribbon-like drop devices b, each having a warp-eye b' to receive a warp-thread, and at one side of said eye a slot b², through which is extended a metallic bar b³, said bar acting to keep the said drop devices substantially parallel and to also act as a guide for a series of said devices. Below the lower ends of these drop devices I have arranged closure devices to coöperate with the dropped lower ends of said drop devices to close an electric circuit, move the armature, and effect the stopping of the loom.

The slot b² in the drop device and the bar b³ determine the position of the drop device when it falls, due to the breaking of a warp-thread, and opposite the position occupied by the lower end of a drop device I have placed two bars h h², the bar h being shown as stationary with relation to the loom-frame and provided at its inner face next to the metallic drop device with a metallic bar h', arranged in and forming part of the electric circuit with the magnet, the other bar h² being made movable toward and from the bar h', one movement for each shed, so that should a drop device fall its lower end will be acted upon and forced firmly against the bar h', thus closing the electric circuit.

The electric circuit may be traced as follows: Starting at one pole of the magnet 20, a wire 21 leads to the battery 22, and a wire 23 from the battery leads to the metallic bar h', and from the opposite pole of the magnet I arrange a wire 24, which goes to the metallic bar b³ in the slot b² of the drop-lever. The magnet 20 is located at or near the end of a knock-off device or lever e and lying close to the shipper-handle pivoted at e', said lever carrying the pivoted armature e² for the said magnet, the outer end of said armature being the heaviest, so that it in its normal position presents its inner end out of the range of movement of the constantly-operating hammer or magnet-actuator B'.

The hammer or actuator B' is herein shown as an arm attached to a rockingshaft or stud

B and a second arm B², extended backwardly over and so as to be actuated by a suitable cam A⁶ on the lower shaft A³.

When the electric circuit is closed through the dropping of a drop device and the movement of the bar h², the electromagnet attracts its armature and puts its inner end into its abnormal position, where it is immediately struck by the hammer B', thus moving the knock-off lever and causing it to act against the shipper-handle and push it from its usual holding-notch and effect in usual manner the stopping of the loom.

A drop device may be dropped by the slackening or by the breaking of its warp-thread.

The bar h² is carried by suitable lever-arms h³, mounted on a rock-shaft h⁴, the arms h³ being moved by a yielding pressure, so as to avoid breaking of parts by a spring h⁵, resting on a lever h⁶, mounted loosely on said shaft h⁴ and actuated by a suitable cam h⁷.

This invention is not limited to the particular means shown for moving the bar h², and instead I may use any other suitable well-known device.

By the term "shipper-handle" I mean to include any usual device which will keep the driving power of the loom effective to rotate the main shaft of the loom.

The screw n is employed as an up-stop for the magnet.

I intend that the term "eye" shall include any shape, open or closed, by which the drop device may be suspended from a warp-thread.

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

1. In a warp stop-motion for looms, the following instrumentalities, viz: a series of metallic drop devices having eyes to hang on the warp-threads, a shipper-handle to control the application of the driving power to the loom, a knock-off device or lever, an armature mounted on it, an electric circuit containing a magnet, a hammer or magnet-actuator, and a closure device for said circuit, it consisting of two bars, one of which is in said circuit, while the other is made movable to press a dropped drop device firmly against the said bar in said circuit to close the same, and

means to actuate said bar, substantially as described.

2. In a warp stop-motion for looms, the following instrumentalities, viz: a series of metallic drop devices having eyes to hang on the warp-threads, and having elongated slots next said eyes, a metallic bar by which said drop devices are guided, a shipper-handle to control the application of the driving power to the loom, a knock-off device or lever, an armature mounted on it, an electric circuit containing a magnet, a hammer or magnet-actuator, and a closure device for said circuit, it consisting of two bars, one of which is in said circuit while the other is made movable to press a dropped drop device firmly against the said bar in said circuit to close the same, and means to actuate said bar, substantially as described.

3. In a warp stop-motion for looms, a drop device freely suspended from a warp-thread, stopping mechanism for the loom, an electric circuit including said drop device and said stopping mechanism, two bars, one of which is in said circuit, one of said bars being movable toward the other bar to press the dropped drop device between the two bars thereby to complete the circuit and operate said stopping mechanism, and means to operate said movable bar, substantially as described.

4. In a warp stop-motion for looms, a drop device freely suspended from a warp-thread, stopping mechanism for the loom, an electric circuit including said drop device and said stopping mechanism, two bars, one of which is in said circuit, one of said bars being yieldingly movable toward the other bar to press the dropped drop device between the two bars thereby to complete the circuit and operate said stopping mechanism, and means to operate said movable bar, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

RICHARD J. MOMMERS.

Witnesses:

WILLIAM H. COATES,
ANNETTA MCCAW.