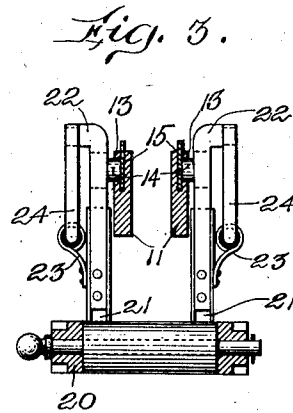
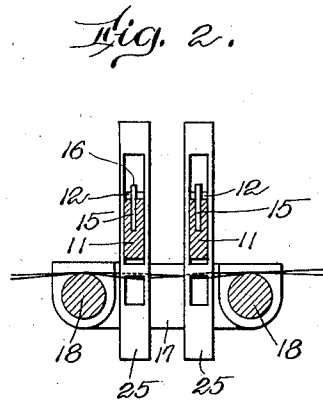


1,034,275.

2 SHEETS—SHEET 1.

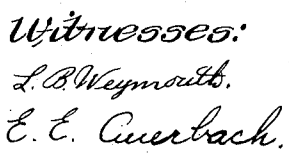


L. E. Cuerbach.

Henry J. Miller

1,034,275.

2 SHEETS—SHEET 2.



Inventor:
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UNITED STATES PATENT OFFICE.

HENRY J. MILLER, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO AMERICAN TEXTILE APPLIANCES COMPANY, A CORPORATION OF MAINE.

STOP-MOTION FOR LOOMS.

1,034,275.

Specification of Letters Patent.

Patented July 30, 1912.

Application filed July 9, 1910. Serial No. 571,217.

To all whom it may concern:

Be it known that I, HENRY J. MILLER, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Stop-Motions for Looms, of which the following is a description, reference being had to the accompanying drawings, forming part thereof.

This invention has reference to improvements in stop motions for looms, warping and similar machines and relates particularly to improvements in means for closing an electric circuit, by which the stopping mechanism is controlled at the occurrence of a fault in the warp.

The object of this invention is to so construct a warp stop motion having a member adapted to be mechanically actuated under normal conditions and, under abnormal conditions, to be arrested that when said member is so arrested an electrical circuit will be closed and the magnet in said circuit will be energized to attract its armature and actuator or release any well known stopping mechanism.

Other objects of the invention will appear from the following description.

The invention consists in an electric circuit including the magnet of a stopping mechanism and having terminals adapted to be closed by circuit closers actuated mechanically by or through the operation of the machine.

The invention also consists in a warp stop motion comprising a member movably mounted and operated from a moving part of the machine, said member being adapted to be arrested at the occurrence of a fault, and an electric circuit including the magnet of a stopping mechanism and a terminal and a circuit closer adapted to be operated by the machine after the stopping of said movable member and as a result thereof.

The invention also consists in such other novel features of construction and combination of parts as shall hereinafter be more fully described and pointed out in the claims.

Figure 1, represents a sectional view of portions of a loom frame and showing my improved stop motion. Fig 2 is a transverse sectional view taken upon line 2—2 of Fig. 1. Fig. 3, represents a similar view taken on line 3 Fig. 1. Fig. 4 represents a

view similar to Fig. 1, of portions of a loom showing a modified construction of the electric circuit closer. Fig. 5, represents an enlarged sectional view taken on line 5—5 Fig. 4.

Similar numbers of reference designate corresponding parts throughout.

As shown herein, in its preferred form, the improved stop motion is shown as applied to a loom of any usual construction having the end frame 6 and the shaft 7 having the eccentric 8 furnished with the frame 9 having the rod 10. Supported from the end frames as 6 is the grooved bar 11 having at its upper edges the notches 12, 12 and, in its side, the slot 13 through the latter of which extends the pin 14 of the slide bar 15 mounted in the groove of bar 11 and furnished at its upper edge with notches 16—16. Depending from the bar 11 or supported in any usual manner is the bracket 17 carrying the warp supporting rods 18—18 located slightly below the bar 11 and furnished with pivot 19 on which is mounted a bell crank of which the arm 20 is pivotally connected with the rod 10 while the arm 21 is furnished with the flexible fingers 22, 22 between which the pin 14 of slide bar 15 is engaged. Mounted on the bell crank arm 21 are the supports 23, 23 carrying the terminals 24—24 insulated electrically from said arm 21 and extending adjacent to the free ends of the flexible fingers 22, 22 which latter are adapted to form circuit closers for said terminals 24, 24 at times. The arm of the bell crank is connected with one arm of the electric circuit $x-y$, which may include any part of the frame, a source of electrical energy, and the magnet M of any magnetically actuatable or releasable loom stopping mechanism, the other arm of said electric circuit is electrically connected with the terminals 24—24. Slidably mounted with respect to said bars 11 and 15 are drops 25—25 made of thin sheet metal and of any suitable shape to be suspended on unbroken warp threads, as shown in Fig. 2 of the drawings and having an edge adapted, when the said drop 25 moves downward sufficiently, to engage in the notches 12 and 16 of the bars 11 and 15 to arrest the movement of the bar 15.

Under normal conditions the drops 25—25 are supported by unbroken warp threads as

shown in Fig. 2 of the drawings and the slide bar 15 is reciprocated by the flexible fingers 22, 22 of the bell crank arm 21 which said bell crank is vibrated on its pivots by the rod 10. When, now, one of the warp threads breaks or becomes unduly slack the drop 25, normally supported thereby, falls and is received on the edge of the slide bar 15 or in one of its notches 16 and then engages one of the notches 12 of the bar 11 and arrests the movement of bar 15, whereupon the continued vibration of the bell crank arm 21 presses one of the fingers 22—22 against the pin 14, as such pin 14 does not yield to the pressure, said finger 22 bends, as the arm 21 swings, until the related terminal 24 is brought into contact with said finger 22 and the circuit $x-y$ is completed, the magnet is energized to actuate or release some movable part of the loom stopping mechanism.

In Figs. 4 and 5 I have shown a modified construction of the circuit closing mechanism in which the yielding connection between the bell crank and the pin 14 of the slide bar 15, for actuating the slide bar under normal conditions, is formed by the lever 26 which is pivotally mounted on the pivot 27 extending from arm 21 of the bell crank, and is pivotally engaged with said pin 14 of slide bar 15, the lower end of said lever 26 forming a circuit closer and being connected with one arm of the said electric circuit $x-y$ of which the other arm is connected with the terminals 28—28 mounted on the bell crank arm 21. Provision is preferably made for resisting the movement of the lower end of lever 26 by engaging therewith the flexible blade 29 which is carried by the screw 30 secured in said bell crank arm 21. The operation of this modified form of electric circuit closer, shown in Figs. 4 and 5, under normal conditions is to form an actuating connection between the moving mechanism of the loom or similar machine and the slide bar 15 while, when the movement of said bar is arrested, the continued action of the bell crank effects the swinging of said lever until, through its contact with one of the terminals 28—28 the electric circuit $x-y$ is completed and the loom stopping mechanism operates to stop the loom.

I am aware that various other forms of circuit closers may be used without departing from the spirit of this invention and it is my intention to claim broadly herein any circuit closer adapted to cooperate with the slide bar 15 directly or indirectly to com-

plete the circuit of an electric stop mechanism.

By the term yielding connection used herein I intend to designate and include any connection between the mechanical fault detecting mechanism, formed by the bars 11 and 15 and the drops by which the movement of bar 15 is arrested, and the actuating means for said bar 15 whereby, when the movement of said bar is arrested, the actuating means therefor may continue to operate until the machine is stopped by or through the operation of the stopping mechanism. As used herein term "yielding" is synonymous with separable.

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

1. A stop motion for looms or similar machines comprising a stationary grooved bar, a movable member within the groove of said bar, means for actuating said slidable member comprising a bell crank lever and a circuit closer yieldingly mounted on said bell crank lever and in engagement with said slidable member, an electric circuit including the magnet of a loom stopping mechanism and a double point terminal insulated from and mounted upon said lever and adapted to be engaged by said circuit closer at times, said terminal points being upon opposite sides of the yielding circuit closer and its point of engagement with the slidable member.

2. A stop motion for looms and similar machines comprising two members one of which is slidable, means for actuating said slidable member, yieldable means connecting said actuating means with said slidable member, means for arresting the movement of said slidable member under abnormal conditions, an electric circuit including the magnet of a stopping mechanism and said actuating means and a circuit closure, the said circuit closure being insulated from said actuating means and movable in unison with said slidable member under normal conditions and movable independently of said slidable member under abnormal conditions and adapted under such latter conditions to complete an electrical connection with said stopping mechanism magnet and through said yielding and actuating means.

HENRY J. MILLER.

Witnesses:

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