

(No Model.)

2 Sheets—Sheet 1.

H. A. OWEN.
LOOM STOP MOTION.

No. 549,461.

Patented Nov. 5, 1895.

Fig. 1.

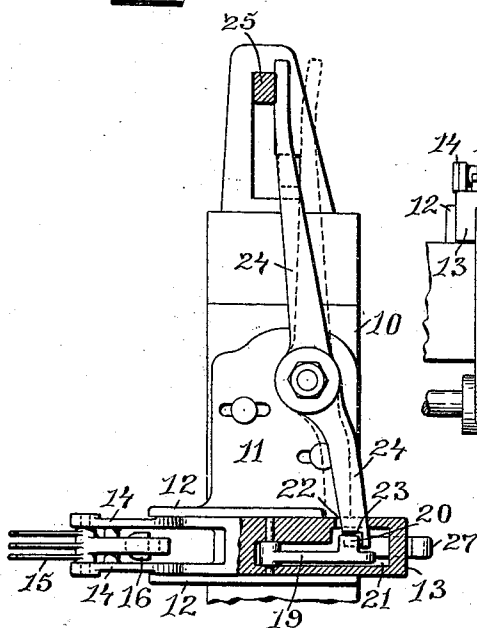


Fig. 2.

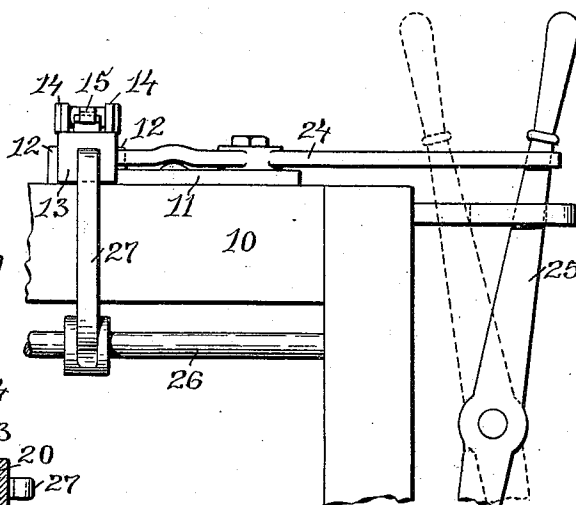


Fig. 3.

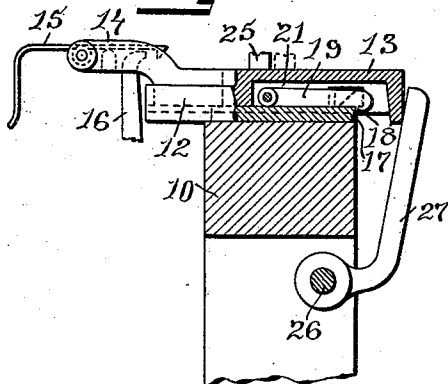


Fig. 4.

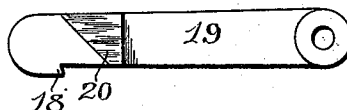


Fig. 5.



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2 Sheets—Sheet 2.

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Fig. 6.

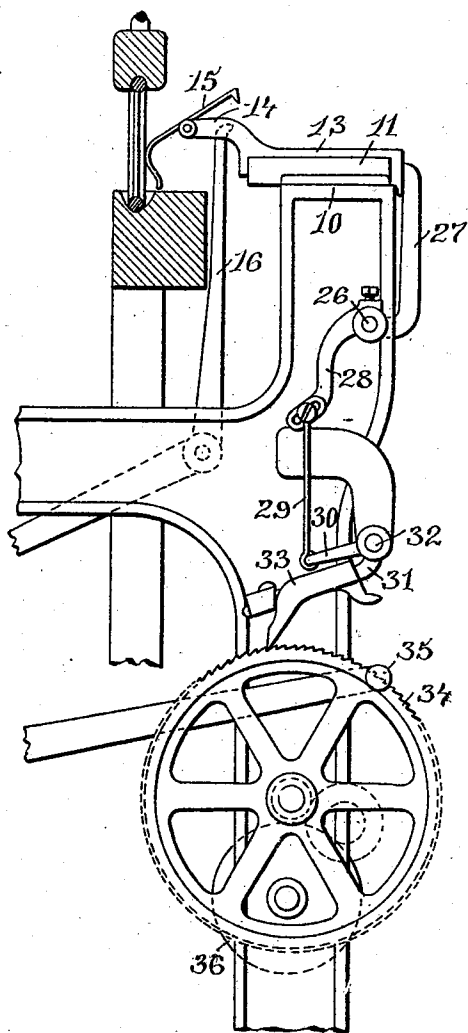
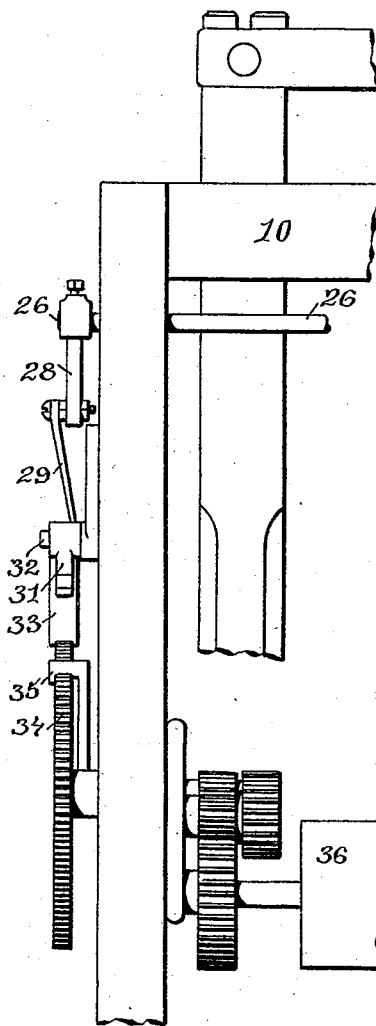


Fig. 7.



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UNITED STATES PATENT OFFICE.

HENRY A. OWEN, OF WHITINSVILLE, MASSACHUSETTS, ASSIGNOR TO THE
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LOOM STOP-MOTION.

SPECIFICATION forming part of Letters Patent No. 549,461, dated November 5, 1895.

Application filed July 11, 1895. Serial No. 555,605. (No model.)

To all whom it may concern:

Be it known that I, HENRY A. OWEN, of Whitinsville, in the county of Worcester and State of Massachusetts, have invented certain
5 new and useful Improvements in Loom Stop-Motions; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to improvements in weft stop-motions for looms.

The object of the invention is to relieve the warp-threads of strain exerted by the take-up mechanism at the time when the shipper is released through the weft-motion.

Another object of the invention is to release the take-up holding device of the cloth-beam at the time of knocking off the shipper, the ultimate object of the invention being to so
20 relieve the strain on the warp-threads that the same are not advanced at the time the shipper acts to positions where the weft cannot be inserted sufficiently close to the last-
25 inserted weft to prevent a thin place in the cloth.

The invention consists in the combination, with the weft-fork motion and the mechanism intermediate the weft-fork motion and the
30 take-up gear of the cloth-roll, including the ratchet, for locking this ratchet against reverse rotation, of means actuated by the weft-fork motion for holding the locking mechanism in an inoperative position at the time of
35 stopping the loom.

The invention also consists in the combination with the take-up ratchet-gear of the cloth-beam and the mechanism for taking up the same, of the locking device for said gear and
40 mechanism actuated from the weft-fork motion for holding the locking device from engagement with said gear when the loom is stopped from the shipper.

The invention also consists in the combination, with the weft-fork motion, of a device for
45 locking the weft-fork block from reciprocation.

The invention also consists in the peculiar construction of the locking device and its com-

bination with the weft-fork mechanism and
50 with the holding device of the take-up mechanism.

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

Figure 1 represents a plan view of a portion of the breast-beam with the weft-fork block in section and showing the connection of the locking device with the shipper through the
60 knock-off. Fig. 2 represents an end view of the knock-off lever. Fig. 3 represents a cross-sectional view of the breast-beam with a sectional view of the weft-fork block and its locking mechanism, showing its combination with
65 the rock-shaft, through the rotation of which the holding device for the cloth-roll gear of the take-up is actuated. Fig. 4 represents a side view of the locking-pawl. Fig. 5 represents an end view of the knock-off lever. Fig.
70 6 represents an end view of portions of a loom, showing the take-up gear of the cloth-roll, its locking device, and connections between the same and the weft-fork motion. Fig. 7 represents a front elevation showing the connections
75 between the cloth-roll and the upper rock-shaft.

Similar numbers of reference designate corresponding parts throughout.

When in a loom a detecting mechanism is
80 brought into action to stop the loom, it acts either directly or indirectly on the driving mechanism through which all the parts of the loom, from the pick-motion to the take-up, are
85 actuated. The detection of a fault in the action of any part of the loom generally occurs when the parts are subjected to the full power of the driving mechanism and when it is difficult to prevent the movement of some of the
90 parts, through the momentum derived from the driving mechanism, by simply disconnecting them from their source of power.

One of the important mechanisms of a loom is the take-up, including the warp-roll and the cloth-beam, with their actuating devices for
95 moving the warp-threads forward in unison with the filling of the same by the threads from the shuttle. It is evident that from the

small diameter of the filling-threads a constant forward strain must be exerted on the warp-threads, while the action of the take-up must be extremely sensitive and almost continuous. The stretch on the warp should be maintained in a degree; but the warp should not be moved forward until filled.

If during the operation of a loom the failure of the shuttle to lay a filling-thread is detected by the weft or filling fork, the fork is not tipped and the vibrating lever acts on the fork to reciprocate the same and the block on which it is mounted to release the shipper through the knock-off lever and to thus ship the drive-belt from the tight-pulley to the loose pulley on the loom drive-shaft. This cuts off the loom from its driving power, but does not prevent the movement of the parts, and particularly of the take-up, through the momentum attained when under full operation, the result of this being to draw the warp to a point where it will not be fully filled when the loom is again started.

To avoid the undue movement of the warp-threads or the stretch of the same through the take-up, I include in the mechanism actuated by the weft-fork a locking device for locking the holding-pawl of the take-up from engagement with the ratchet of the cloth-roll-rotating mechanism, thus preventing the holding of the cloth-roll when the take-up hook is advanced by the momentum acquired during operation and relieving the strain on the warp.

In the drawings, 10 represents the breast-beam of a loom supported, in the usual manner, by the frame. On the breast-beam is mounted the plate 11, having the ways 12, between which the hollow-block 13 is free to reciprocate. From the rear or inner portion of the block 13 extend the arms 14 14, between which the weft-fork 15 of any usual construction is pivoted, the fork being adapted to act in the ordinary manner to detect the absence of the filling-thread and to be acted upon by the vibrating lever 16 to reciprocate the block 13. The plate 11 has a beveled edge 17 at its front portion, which is engaged by the tooth 18 of the latch 19 when the block 13 is moved forward by the lever 16. This latch has at one side the beveled arm 20 and is pivoted at its rear end in the recess 21 of the block 13 and resting from its own weight on the surface of the plate 11. In the side of the block 13 is the opening 22, through which the beveled end 23 of the knock-off lever 24 extends, this lever being pivoted to the plate 11 and acting on the shipper-lever 25 in the usual manner when thrown forward by the movement of the block 13 to knock the shipper out of its step, while when the shipper is replaced to start the loom the beveled end 23 of the shipper rides under the beveled arm 19 of the latch 20 and lifts the latch from its engagement with the edge 17 of the plate 11. Below the breast-beam is journaled the rock-shaft 26, to which the up-

wardly-extending arm 27 is secured. This arm, being in contact with the front end of the block 13, is thrown outward by the reciprocation of the block and is held in the outward position when the latch 19 engages the edge 17 of the plate 11. Depending from the rock-shaft 26 is the curved arm 28, to the lower end of which is pivoted the connecting-rod 29, the lower end of this rod being in turn pivotally connected on the arm 30, extending from the counterweighted guide or way 31, mounted to swing on the pivot 32, secured in the machine-frame.

On the guide or way 31 is the sliding pawl 33, the finger of which engages the ratchet take-up wheel 34 to hold the same against reverse rotation when the take-up hook 35 is advanced to a fresh engagement with the ratchet, the rotation of the ratchet 35 being transmitted to the cloth-roll 36 through the usual system of gears to slowly rotate the cloth-roll and to thus take up the warp-threads.

When the filling-fork fails to detect the proper filling-thread and the block 13 is moved by the lever 16, the end 23 of the knock-off lever is swung with the block until the outer end of the lever knocks the shipper 25 out of its retaining-step, when the driving-belt is shifted from the fast to the loose pulley. When the block 13 has been moved sufficiently to so actuate the knock-off lever, it will have thrown the arm 27 outward sufficiently to rock the shaft 26 and through the connections to raise the pawl 33 out of engagement with the ratchet 34, and as the tooth 18 engages the edge 17 the mechanism will be locked in this position.

After a stop caused from the action of the weft-fork the throwing of the shipper to start the loom and its engagement in the shipper-step will cause the knock-off lever to be swung, and its beveled end 23, riding under the beveled arm 20, will cause the same to rise and release from the edge 17 of the plate 11, thus allowing the various parts to assume their normal positions.

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

1. In a loom-stop-motion, the combination with the weft-fork-motion, a locking-device included in such motion, and a knock-off-lever adapted to release the locking-device on the starting of the loom, of the take-up mechanism, the take-up ratchet, a device for holding the ratchet against reverse rotation, and mechanism adapted to be acted upon by the weft-motion for retaining the holding-device in an inoperative position.

2. The combination with the breast-beam 10, the plate 11 mounted thereon and having the guides 12—12 and the edge 17, the block 13, having the arms 14, the recess 21 and the opening 22, reciprocal between the guides, the weft-fork pivoted between the arms 14,

and the latch 19 pivoted in the recess 21 of the block and having the tooth 18 and beveled-arm 20, of the knock-off-lever 24 pivoted to the plate 11 and having the beveled-end 23 extending through the opening 22 and engaging the beveled surface of the latch-arm 20.

In witness whereof I have hereunto set my hand.

HENRY A. OWEN.

Witnesses:

E. W. WOOD,
O. L. OWEN.