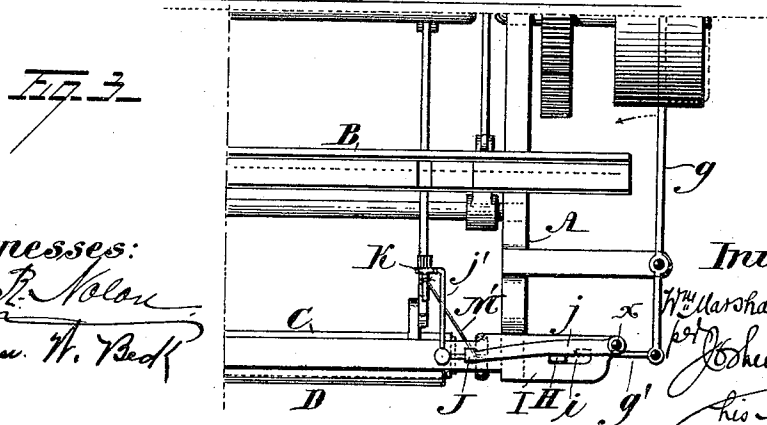
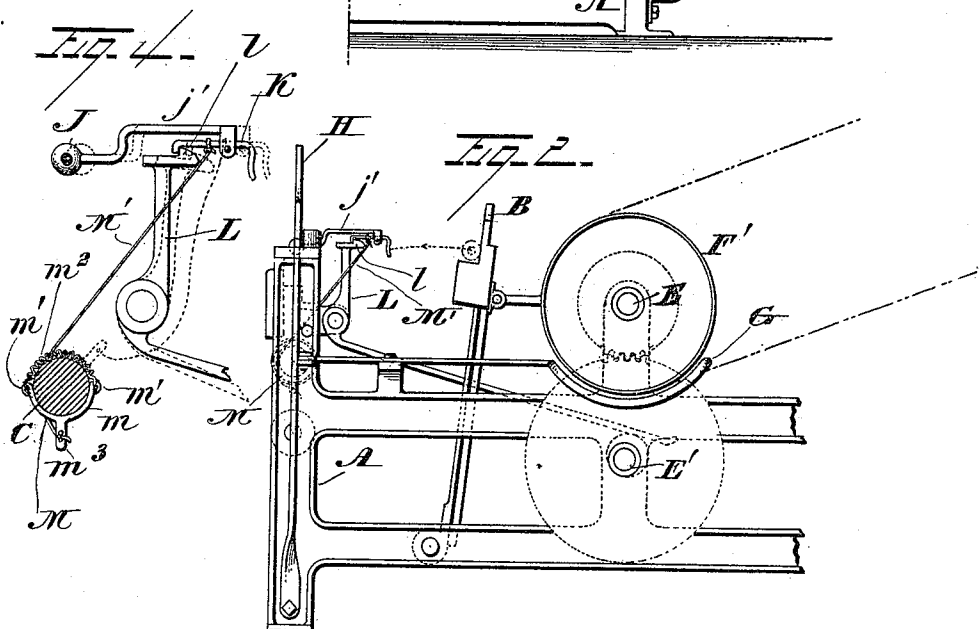
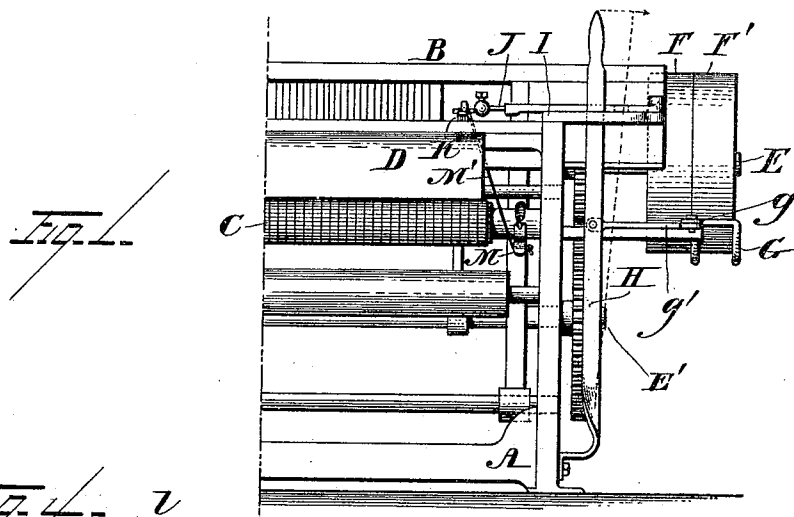


(No Model.)

W. M. AIKLEY.
STOP MOTION FOR LOOMS.

No. 481,292.

Patented Aug. 23, 1892.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM MARSHALL AIKLEY, OF LENNI MILLS, PENNSYLVANIA.

STOP-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 481,292, dated August 23, 1892.

Application filed October 15, 1891. Serial No. 408,755. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MARSHALL AIKLEY, a citizen of the United States, residing at Lenni Mills, in the county of Delaware and State of Pennsylvania, have invented certain new and useful Improvements in Stop-Motions for Looms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which—

Figure 1 is a partial front view of a loom in which my invention is embodied, only so much of the loom being shown as is necessary to represent the improvement. The machine is shown as at rest. Fig. 2 is a side view of the mechanism illustrated in Fig. 1. Fig. 3 is a plan thereof. Fig. 4 is a detail enlarged of the stop-motion.

The object of this invention is to provide a simple and efficient means whereby the motion of a loom may be arrested just before the spool or cop in the shuttle becomes exhausted. In usual stop-motions as heretofore constructed the action of the loom was checked upon the weft or filling breaking or giving out. Hence the thread was apt to terminate in the body of the web being woven. This was objectionable for the reason that it necessitated the finding of the end by the attendant and his connecting therewith the new weft or filling thread. Time and the exercise of skill were thus required. Moreover, the appearance of the web was injuriously affected at the points of connection of the weft-threads, and in instances in which these connections frequently occurred the value of the web was materially reduced. These objections are overcome by my said invention, which consists of a device of novel construction mounted on the shaft of the take-up roller of the loom, (or an adjacent driven shaft,) and so connected with the weft-fork lever that when the said roller has moved a predetermined distance the lever is drawn down positively into action in a manner to co-operate with the shifting devices to arrest the motion of the loom. Thereupon a fresh spool or bobbin may be applied to the shuttle and the operation of the loom continued without there being necessitated a connection of threads in the body of the web, and at or about the termination of the thread on this spool or bobbin the pre-

vious stopping motion may be repeated, and so on continuously. Consequently the fabric will be uniform throughout and free from projecting ends in the body thereof.

Referring to the annexed drawings, A represents the framework of the loom; B, the lay; C, the take-up roller, and D the breast-beam.

E is the driving-shaft, with which the lay is connected. F is the fast pulley, and F' the loose pulley on said shaft. G is the belt-shipping frame below said pulleys, *g* being its pivoted supporting-lever, and H the shipping-lever, connected by means of the link *g'* with said lever *g*, whereby when said shipping-lever is operated the belt may be transferred from one pulley to the other.

I is a plate upon the forward standard of the loom-frame, which plate has an offset slot therein, through which the shipping-lever extends. Normally the latter takes against the inner or narrow end of the slot; but when the lever is drawn to the outer or offset end of the slot it springs into the offset and is locked therein. When it is released from the offset, it resumes its original position. When the lever is in engagement with the offset, the belt is on the fast pulley and the loom is in operation; but when the lever is in the other described position the belt is on the loose pulley and the loom is idle.

J is an angle-arm, one member *j* of which is pivoted at *x* on the plate I, so as to extend longitudinally thereon in proximity to the lever H, while the other member *j'* extends inward and supports the weft-fork lever K.

L is a vibrating lever, on which is formed a shouldered head-piece *l*, with which the hooked end of the weft-fork lever engages. This lever is vibrated by a suitable cam on the lower or heddle-operating shaft E' of the loom.

The above is a general description of the construction of the original weft stop-motion.

Its operation, which is well known, may be briefly described as follows: The hooked end of the weft-fork lever being heavier than the fork portion, is in a position normally to engage the shoulder of the head-piece *l*. The fork is in line with the usual grid-wires (not shown) in the lay, so that when the latter is moved forward to beat up the weft or filling said fork enters the spaces between the wires.

If the weft in the shuttle be intact, the thread will bear against the fork, and thus raise up the hooked portion of the lever out of line with the vibrating head-piece; but if the weft-thread be finished or broken, the path of the fork will be unobstructed and the hooked end of the lever will naturally engage the shouldered head-piece, which latter in its forward vibratory movement will draw forward the weft-fork lever, and therewith the angle-arm J, which latter will bear against the shipping-lever and disengage it from the offset in slot *i*—that is to say, it will “knock off” said lever. Thereupon the latter will resume its normal position and coact with the intermediate devices to transfer the belt from the fast to the loose pulley, and thereby arrest the motion of the machine.

In order to effect the knocking off of the shipping-lever at a predetermined period before the ending or giving out of the weft-thread in the shuttle, I mount upon the shaft of the usual take-up roller C of the loom (or upon a shaft adjacent to and operating connectedly with the take-up roller) a band or ring device M, which is connected with the hooked arm of the weft-fork lever by means of a flexible cord M'. This device is circumferentially adjustable on the shaft—that is to say, it may be turned around or partially around thereon and held at the point of adjustment by friction or otherwise. The length of the cord is such that when the band device occupies the position represented by the dotted lines in Fig. 4 the cord is loose, so as not to affect the action of the weft-fork; but when the device has been turned by and with the rotating roller, so as to occupy the position indicated by the full lines in said figure, the cord is taut and the hooked arm is engaged with the shouldered head-piece of the vibrating lever. Thereupon the motion of the loom is arrested in the manner above described. The length of the cord and the position of the band device on the shaft are determined by the length of the thread in the shuttle, the whole bearing such relation to each other that the loom is stopped at a predetermined time before the thread is exhausted. This done, a new cop is applied to the shuttle, the band device is pushed back to its original po-

sition by the attendant, so as to release the weft-fork from the tension, and the loom is started as before. The above-described action is repeated, and so on continuously.

Although there is more than one way in which the band device may be constructed without departing from my invention, I have represented the same in the drawings in the nature of a semicircular yoke *m* with hooked ends *m'*, connected by a spring-strap *m²*, the whole surrounding the shaft of the take-up roller and maintained in place thereon by friction. The yoke is provided with a projecting stud *m³*, to which the cord is attached.

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

1. In a loom, the combination, with the weft-fork lever and its supporting parts, the vibrating lever and its shouldered head-piece, the shipping-lever, and the connections intermediate the same and the driving mechanism, of a revoluble shaft and a flexible connection between said shaft and the weft-fork lever, substantially as described.

2. In a loom, the combination, with the driving mechanism, weft-fork lever and its supporting parts, the vibrating lever and its shouldered head-piece, the shipping-lever, and the connections intermediate the same and the driving mechanism, of the take-up roller and its shaft, the yoke mounted thereon, the strap connecting the ends of said yoke, and the cord or flexible connection between said yoke and the weft-fork lever, substantially as described.

3. In a loom, the combination, with the weft-fork and its supporting and operating devices, the shipping-lever, and the connections intermediate the same and the driving mechanism, of a revoluble shaft and a flexible connection between said shaft and the weft-fork, substantially as described.

In testimony whereof I have hereunto affixed my signature this 1st day of October, A. D. 1891.

WM. MARSHALL AIKLEY.

Witnesses:

T. B. HARTMANN,
FRANK B. RHODES.