

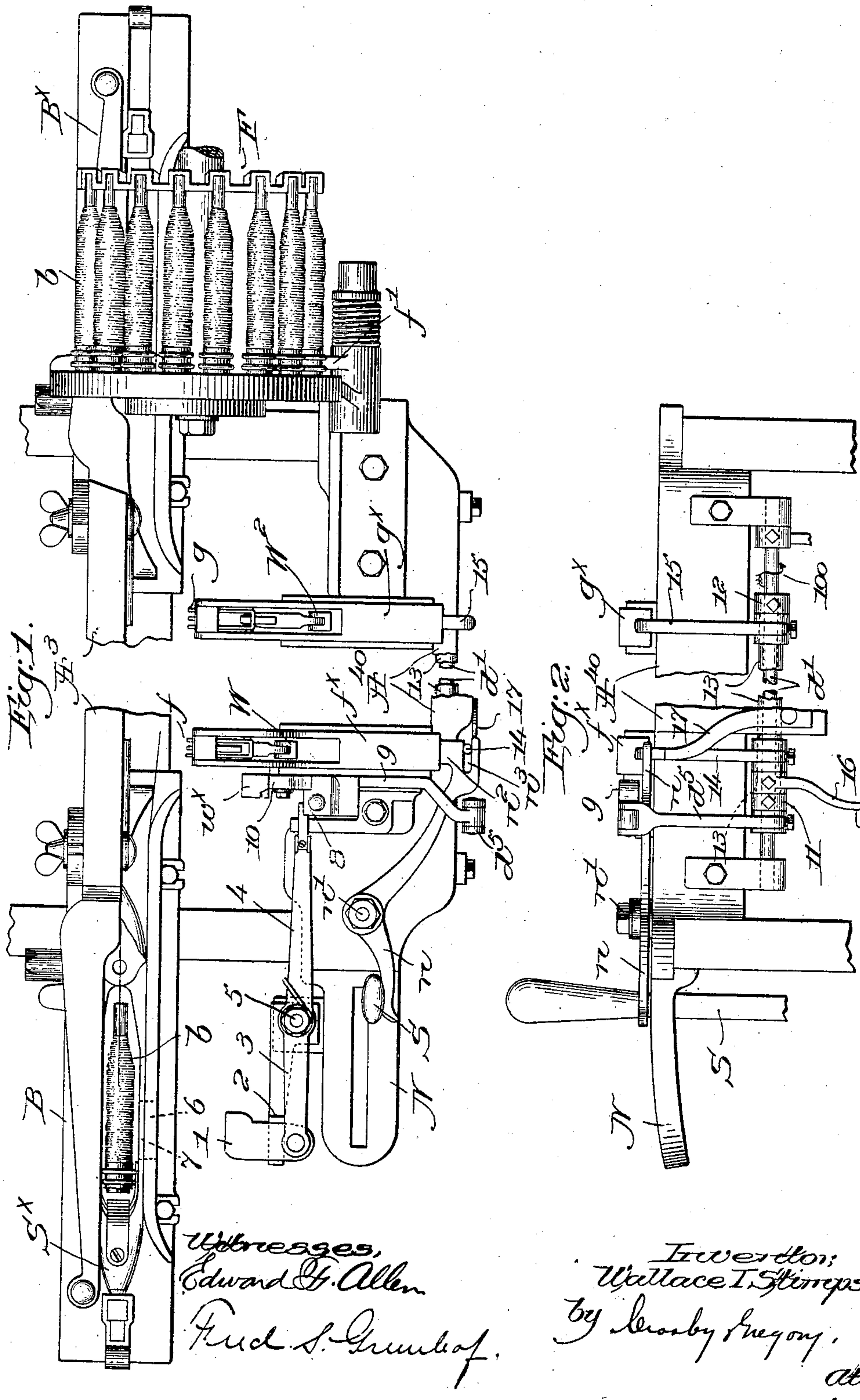
No. 763,441.

PATENTED JUNE 28, 1904.

W. I. STIMPSON.  
FILLING REPLENISHING LOOM.

APPLICATION FILED JAN. 8, 1904.

NO MODEL.





# UNITED STATES PATENT OFFICE.

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## FILLING-REPLENISHING LOOM.

SPECIFICATION forming part of Letters Patent No. 763,441, dated June 28, 1904.

Application filed January 8, 1904. Serial No. 188,176. (No model.)

*To all whom it may concern:*

Be it known that I, WALLACE I. STIMPSON, a citizen of the United States, residing at Milford, county of Worcester, and State of Massachusetts, have invented an Improvement in Automatic Filling-Replenishing Looms, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to looms provided with means for automatically replenishing the running filling, and particularly to looms of such class known technically as "feeler-  
15 looms," wherein the filling replenishment is effected prior to complete exhaustion of the supply of filling in the active shuttle. This changing or replenishment of the filling prior to complete exhaustion of the supply contained in the running shuttle is designed to prevent the possibility of thin places being made in the cloth, because the change is made before the filling completely runs out, and hence there should be no pick occurring in  
25 which filling is either wholly absent or extending only part way across the cloth. The filling-replenishing mechanism is controlled as to the time of its operation by the feeler, which intermittently engages and "feels" the filling in the running shuttle, and a filling fork or detector is used to detect failure—i. e., breakage of filling—and when detected to effect stoppage of the loom. Such filling-detector is located at the side of the loom opposite that at which the replenishing mechanism is placed, and in actual practice if the filling breaks so as to leave a long end dragging from the shuttle it frequently will tilt the filling-fork just as if the filling were intact and  
40 a mispick is made. Manifestly this might continue for a number of picks and no filling would be laid, producing a thin place in the cloth of greater or less width. In my present invention I have overcome this objection by providing a second filling-detector, located at the opposite side of the loom and arranged also to effect stoppage of the loom upon detection of filling failure. With the second de-

tector if a dragging or trailing end is present it will be carried so far into the shuttle-box at the replenishing side of the loom that such second detector will detect the filling failure and operate to stop the loom, so that when necessary the weaver can readily match the pick by hand. I have also provided means  
55 whereby detecting action of either filling-detector is adapted to arrest the operation of a take-up instrumentality, so that no thin place can be made.

My present invention therefore comprehends, in a loom provided with mechanism to furnish fresh filling prior to complete exhaustion of the supply of filling in the running shuttle, two filling-detectors to detect filling failure on alternate picks and adapted to arrest the operation of a take-up instrumentality when filling failure is detected by either detector and stopping means for the loom operated by or through detecting action of either detector.

The various novel features of my invention will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a top or plan view, centrally broken out, of a sufficient portion of a loom to be understood with one embodiment of my present invention applied thereto; and Fig. 2 is a front elevation, enlarged and also centrally broken out, of a portion of the apparatus shown in Fig. 1.

The lay  $A^3$ , having shuttle-boxes  $B B^x$  thereon, the breast-beam  $A^{40}$ , having at one end the notched holding-plate  $N$  for the shipper  $S$ , forming a part of the loom-stopping means, and the filling-feeder  $F$ , mounted on the other end of the breast-beam, the transfer  $f'$  to remove the filling-carriers  $b$  one by one from the feeder and insert them in the automatically-self-threading shuttle  $S^x$ , having a thread-delivery eye at its right-hand end viewing Fig. 1, may be and are all of usual construction and operate in well-known manner. A knock-off lever  $n$ , fulcrumed at  $n'$  on the breast-beam and adapted to release the shipper from its holding-notch, has its in-





the arm 14 enters the slot  $m^3$  of the knock-off lever, so that the member 13 will be rocked when the slide  $f^x$  is moved forward, and arm 15 extends upward in front of the slide  $g^x$ , so that outward movement of the latter will also turn said rocking member 13. Consequently whichever detector detects filling failure the shipper will be released directly by the movement of slide  $f^x$  and through arms 15 and 14 and the connecting rocking member 13 by the movement of slide  $g^x$  to stop the loom. A depending arm 16 is secured to the member 13, which arm in practice is arranged to arrest the operation of a take-up instrumentality whenever the member 13 is turned. Such take-up instrumentality is included as a part of an organized loom and may be of any suitable construction—such, for instance, as shown in United States Patent No. 643,284—and in that case the arm 16 would when rocked cooperate with the take-up pawl-carrier to arrest its operation. The detecting action of either detector is thereby arranged to arrest the operation of the take-up instrumentality on the detected pick, and it will be manifest from Fig. 1 that the detectors act on alternate picks to detect presence or absence of the filling. Should a trailing end of filling prevent the detector  $f$  from detecting the failure of the filling, it will not interfere with the detecting action of the other detector,  $g$ , because when the shuttle is in the box  $B^x$  the thread-eye is nearest the outer end of the box and the trailing filling is drawn out of the path of the detector  $g$  and its slide  $g^x$  will be moved outward, releasing the shipper by or through the operation of the rocking member 13, as has been described. A single spring 17, secured to a fixed part of the loom-frame and bearing upon the arm 14, suffices to return both slides  $f^x$   $g^x$  to their normal position after they have been moved outward.

I have shown and described one practical embodiment of my invention without attempting to illustrate or explain various modifications, changes, or rearrangements which would occur to those skilled in the art, as the same may be made without departing from the spirit and scope of my invention and are not necessary to the proper understanding thereof.

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

1. In a loom, mechanism to provide fresh filling prior to complete exhaustion of the supply of filling in the running shuttle, two filling-detectors to detect filling failure on alternate picks and adapted to arrest the operation of a take-up instrumentality when filling failure is detected by either detector, and stopping means for the loom operated by or through detecting action of either detector.

2. In a loom provided with filling-replenishing mechanism, means to cause the operation thereof prior to complete exhaustion of

the filling in the running shuttle, two filling-detectors, located at opposite sides of the loom and adapted to arrest the operation of a take-up instrumentality when filling failure is detected by either detector, and stopping means for the loom operated by or through detecting action of either detector.

3. In a loom, mechanism to provide the running shuttle with fresh filling prior to complete exhaustion of the filling therein, two filling-detectors to detect filling failure on alternate picks and adapted to arrest the operation of a take-up instrumentality when filling failure is detected, a shipper, and means to effect release of the same when either detector detects filling failure.

4. In a loom, filling-replenishing mechanism, means to control the time of its operation, including a feeler to intermittently engage the filling in the running shuttle, two filling-detectors located at opposite sides of the loom and adapted to govern the operation of a take-up instrumentality, a shipper, and releasing means therefor operated by or through either detector upon detection of filling failure thereby.

5. In a loom, filling-replenishing mechanism, means to cause the operation thereof prior to exhaustion of the filling in the running shuttle, filling-detectors at opposite sides of the loom, a shipper, releasing means therefor, including a rocking member extending across the loom, and operating connections between said rocking member and both of said filling-detectors whereby said rocking member is operated when either detector detects failure of filling.

6. In a loom, filling-replenishing mechanism, means to cause the operation thereof prior to exhaustion of the filling in the running shuttle, filling-detectors at opposite sides of the loom, a shipper, releasing means therefor, including a rocking member extending across the loom, a device connected therewith adapted to arrest the operation of a take-up instrumentality when said member is rocked, and operating connections between both detectors and the rocking member whereby the latter is operated when either detector detects failure of filling.

7. In a loom, in combination, filling-replenishing mechanism arranged to effect the replenishment of the running filling-supply, controlling means therefor including a rock-shaft extending across the loom, and a filling-feeler to cause the operation of said rock-shaft prior to exhaustion of the running filling-supply, filling-detectors located at opposite sides of the loom, a shipper, releasing means therefor, including a rocking member, and operating connections between it and both of said filling-detectors whereby said rocking member is operated when either detector detects filling failure.

8. In a loom, in combination, filling-re-

