

No. 720,209.

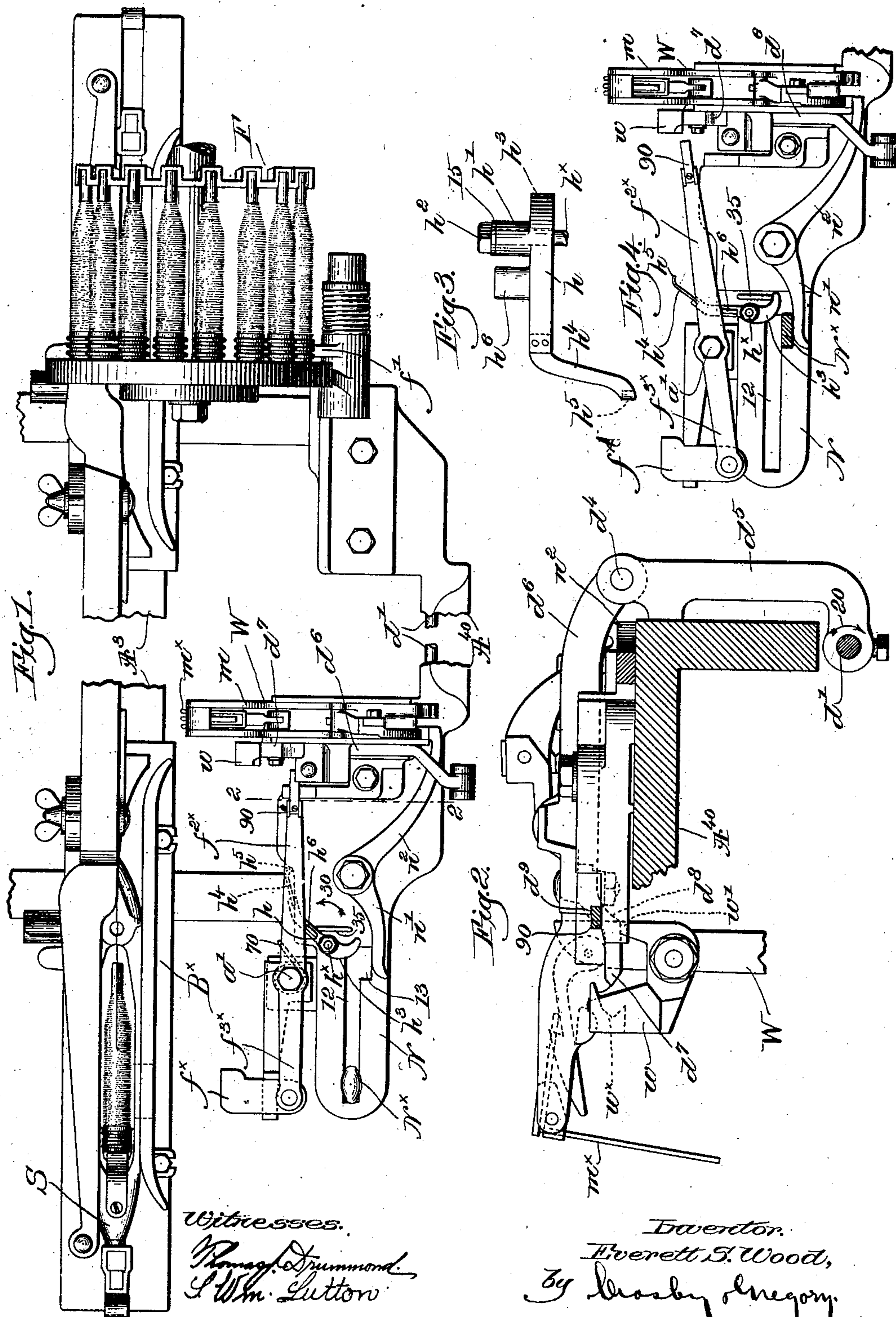
E. S. WOOD.

PATENTED FEB. 10, 1903.

AUTOMATIC FILLING REPLENISHING LOOM.

APPLICATION FILED OCT. 24, 1902.

NO MODEL.



UNITED STATES PATENT OFFICE.

EVERETT S. WOOD, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO DRAPER COMPANY, OF HOPEDALE, MASSACHUSETTS, A CORPORATION OF MAINE.

AUTOMATIC FILLING-REPLENISHING LOOM.

SPECIFICATION forming part of Letters Patent No. 720,209, dated February 10, 1903.

Application filed October 24, 1902. Serial No. 128,518. (No model.)

To all whom it may concern:

Be it known that I, EVERETT S. WOOD, a citizen of the United States, and a resident of Hopedale, county of Worcester, 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 letters on the drawings representing like parts.

In so-called "feeler-loom," wherein a fresh supply of filling is provided by replenishing mechanism operated automatically prior to complete exhaustion of filling in the running shuttle—such, for instance, as is shown and described in United States Patent No. 648,986—the replenishing mechanism is controlled as to its operation by means including a member normally in position to be engaged and operated by an actuator, such as the weft-hammer. Through a filling-feeler this member is rendered inoperative by the presence and operative by the substantial exhaustion or absence of the filling in the shuttle, fresh filling being supplied to the latter while there is still remaining in the shuttle enough filling to prevent an imperfection in the cloth. Stoppage of the loom, as by breakage of a warp-thread, will frequently occur when there is too much filling in the shuttle to be made waste, and means have been devised to automatically prevent premature or improper operation of the replenishing mechanism when the operative starts the loom after a stoppage such as referred to. When a loom is running regularly, the lay will on beating up move farther toward the front of the loom than it will on the first beat after the power has been thrown on, and such slight difference in stroke is often sufficient to prevent the proper action of the feeler when the filling in the shuttle has been woven off to a considerable extent under the conditions hereinbefore referred to.

My present invention has for its object the production of novel means for automatically preventing the premature or improper operation of the replenishing mechanism when starting the loom.

Figure 1 is a top or plan view, centrally broken out, of a "feeler-loom" provided with

automatic filling-replenishing mechanism with my present invention applied thereto and shown in normal or inoperative condition. Fig. 2 is an enlarged sectional detail on the line 2 2, Fig. 1, looking toward the right. Fig. 3 is a side elevation, enlarged, of the main novel feature of the present invention; and Fig. 4 is a detail in plan of some of the parts shown in Fig. 1, but in the position assumed by the operation of starting the loom.

The breast-beam A^{40} , lay A^3 , filling-feeder F , the transferrer f' , and the operating or controlling rock-shaft d' are and may be all as in the patent referred to, the breast-beam having attached to it the notched holding-plate N for the shipper N^x , (the only member of the stopping mechanism illustrated.) The feeler-arm $f^{2x} f^{3x}$, fulcrumed at a' and provided with a wear-plate 90, and the feeler proper, f^x , are substantially as in United States Patent No. 677,607, the feeler intermittently passing through slots in the shuttle-box B^x and shuttle S to periodically engage and be moved by the filling in the shuttle until such filling is exhausted to a predetermined extent.

A member of the controlling means for the replenishing mechanism is shown as a latch d^6 , pivoted at its outer end at d^4 on an upturned arm d^5 , fast on the rock-shaft d' , Fig. 2, the rear end of the latch extending beyond the breast-beam at d^7 , and a beveled or cam face d^8 is formed on the under edge of the latch. (See dotted lines, Fig. 2.)

The weft-hammer W has secured to its upper end (at one side of the guide for the weft-fork slide m) an upturned head w , having a notched bunter w^x , (shown in dotted lines, Fig. 2,) to at times engage the end d^7 of the latch. An upturned projection w' on the head w is adapted to travel beneath the end d^7 of the latch and to at times cooperate with the cam-face d^8 , for a purpose to be described. The weft-hammer acts in usual manner upon detection of filling failure by the filling-fork m^x to move the slide m outward and operate the knock-off lever $n' n^2$, Fig. 1, to release the shipper. A spring 70 tends to move the wear-plate 90 beneath an overhanging shoulder d^9 on the latch, (see Fig. 2,) to

thereby maintain the end d^7 of the latter in the path of the bunter w^x . Filling-induced movement of the feeler, however, withdraws the plate 90 and permits the latch end d^7 to drop 5 below the bunter-path, the projection w' passing from beneath the said end before the bunter has moved far enough forward to engage it. When the weft-hammer swings back, the projection w' travels along the under edge 10 of the latch to the cam-face d^8 , and thereby lifts the latch into the position shown in Fig. 2 and permits the plate 90 to again pass under the shoulder d^9 . When the plate is not withdrawn, as will occur when the filling in the 15 shuttle has been exhausted to a predetermined extent, the bunter will engage the end d^7 and move the latch d^6 outward, rocking the arm d^5 and the shaft d' in the direction of arrow 20, Fig. 2, and effecting the actuation of the replenishing mechanism in well-known manner.

In accordance with my present invention the holding-plate N is provided with an upright stud h^x , Figs. 1, 3, and 4, passing through 25 the elongated hub h' of a lever h , which rests on the plate, a washer 15 and nut h^2 on the stud serving to frictionally control the lever and prevent accidental swinging movement thereof. The front end of the lever projects 30 over the slot 12 in the plate N opposite the holding-notch 13 and is shaped to present a convex cam-face h^3 , which lies in the path of the shipper when the latter is moved into running position. The rear end of the lever 35 projects beyond the rear edge of the plate N and has secured to it a yielding or resilient extension h^4 , such as a strip of steel, (shown in Fig. 3 as downturned and bent over at its extremity, as at h^5 .) An upturned lug or projection 40 h^6 is formed on the lever in front of the feeler-arm f^{2x} , beneath which the rear end of the lever extends. When the operative moves the shipper from stopping position, Fig. 1, to running position, Fig. 4, it engages 45 the cam-face h^3 and turns the lever on its fulcrum in direction of arrow 30, Fig. 1, into the position shown in Fig. 4, the projection h^6 engaging the feeler-arm f^{2x} and moving it to withdraw the plate 90 from beneath the latch- 50 shoulder d^9 , the projection at such time being between the lever-fulcrum and its point of engagement with the feeler-arm. Consequently the latch end d^7 drops below the bunter-path as the weft-hammer moves forward, and the rock-shaft d' cannot be turned, 55 as it might occur should the filling in the shuttle fail to act upon the feeler and withdraw plate 90 on the first beat up of the lay. The lay on this first beat, however, engages 60 the end of the yielding extension h^4 and turns the lever h back toward its normal position, throwing the projection h^6 off center, and thereupon the spring 70 acts, through the feeler-arm, to move the lever into normal position against a stop-lug 35 on the holding- 65 plate N when the latch end d^7 has been raised, as described, to permit the plate 90 to again

pass underneath the latch-shoulder d^9 . The yielding extension h^4 prevents any breakage of the parts should the lever h move hard or 70 should there be any accidental obstruction to its movement, and by bending the extension in or out the throw of the lever can be adjusted when necessary. By the time the lever has been turned back to normal position 75 the loom will have attained sufficient headway to insure proper filling-induced movement of the feeler, and thereafter the member d^6 will be controlled by or through the feeler. When the shipper is released from 80 its holding-notch to effect stoppage of the loom, it will slide past the cam-face h^3 of the lever and out to the end of the slot 12. The movement of the lever h is positive in each direction, and it does not depend on spring 85 action for its proper operation, so that it can be thoroughly depended upon at all times.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is— 90

1. In a loom provided with automatic filling-replenishing mechanism, a controlling member therefor rendered inoperative by the presence and operative by the substantial absence of filling in the shuttle, a pivotally- 95 mounted device caused to turn on its fulcrum by or through starting of the loom, to render said member inoperative, and a moving part of the loom to subsequently engage said device and turn it back from operative position, 100 to thereby restore the controlling member to the influence of the filling in the shuttle.

2. A loom having in combination a member to cause or control the operation of a filling-replenishing mechanism, and made inactive 105 by the presence and active by the substantial absence of filling in the shuttle, a pivoted device turned on its fulcrum by or through starting of the loom, to prevent influence of said controlling member by the shuttle-filling, said device having a yielding extension, 110 and a moving part of the loom to subsequently engage such yielding extension and turn the device from operative position, to thereby restore the controlling member to the influence 115 of the filling in the shuttle.

3. A loom having in combination a member to cause or control the operation of a filling-replenishing mechanism, and made inactive 120 by the presence and active by the substantial absence of filling in the shuttle, a lever having a yielding extension, and a cam-face, the latter being moved by or through starting of the loom to turn the lever on its fulcrum and prevent the influence of said controlling member by the shuttle-filling, and a moving part 125 of the loom to subsequently engage the yielding extension and turn the lever back from operative position, to thereby restore the controlling member to the influence of the filling 130 in the shuttle.

4. A loom having in combination a member to cause or control the operation of a filling-replenishing mechanism, and made inactive

by the presence and active by the substantial absence of filling in the shuttle, a pivoted device turned on its fulcrum by or through starting of the loom, to prevent influence of
 5 said controlling member by the shuttle-filling, said device having a yielding extension, a fixed stop for said device, and a moving part of the loom to subsequently engage such yielding extension and turn the device back against
 10 its stop into inoperative position, to thereby restore the controlling member to the influence of the filling in the shuttle.

5. In a loom provided with automatic filling-replenishing mechanism, a controlling
 15 member therefor rendered inoperative by the presence and operative by the substantial absence of filling in the shuttle, a shipper, a lever turned by movement of the shipper to running position to render said controlling
 20 member irresponsive to the shuttle-filling, and means to turn the lever back to normal, inoperative position after the loom has started, to thereby restore the controlling member to the influence of the filling in the shuttle.

25 6. In a loom provided with automatic filling-replenishing mechanism, a controlling member therefor rendered inoperative by the presence and operative by the substantial absence of filling in the shuttle, a shipper, a
 30 lever having a yielding extension and a cam-face, the shipper when moved to running position acting upon the cam-face to turn the lever and thereby render the controlling member irresponsive to the shuttle-filling, and a
 35 moving part of the loom to subsequently engage the yielding extension and turn the lever backward, to thereby restore the controlling member to the influence of the shuttle-filling.

40 7. In a loom provided with automatic filling-supplying mechanism, controlling means therefor, including a member moved into in-

operative position by filling-induced movement of the feeler, a feeler intermittently moved by or through the filling in the shuttle
 45 until said filling is exhausted to a predetermined extent, a shipper, a lever fulcrumed adjacent the feeler and having a lug thereon, movement of the shipper to running position turning the lever and causing its lug to act
 50 upon the feeler, to therethrough render said member of the controlling means inoperative and automatic means to subsequently return the lever to normal position, to relieve the feeler from its control when filling-induced
 55 movement of the feeler is established.

8. In a loom provided with automatic filling-supplying mechanism, controlling means therefor, including a member moved into in-
 60 operative position by filling-induced movement of the feeler, a feeler intermittently moved by or through the filling in the shuttle until said filling is exhausted to a predetermined extent, a shipper, a lever fulcrumed
 65 adjacent the feeler and having a yielding extension on its rear end and a cam-face on its front end, and an upturned lug, the shipper when moved to running position acting upon the cam-face and turning the lever to cause
 70 its lug to act upon the feeler and therethrough render said member of the controlling means inoperative, and a moving part of the loom to subsequently engage the yielding extension of and turn the lever backward, to relieve the feeler from its control when filling-
 75 induced movement of the feeler is established.

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

EVERETT S. WOOD.

Witnesses:

GEORGE OTIS DRAPER,
 ERNEST W. WOOD.