

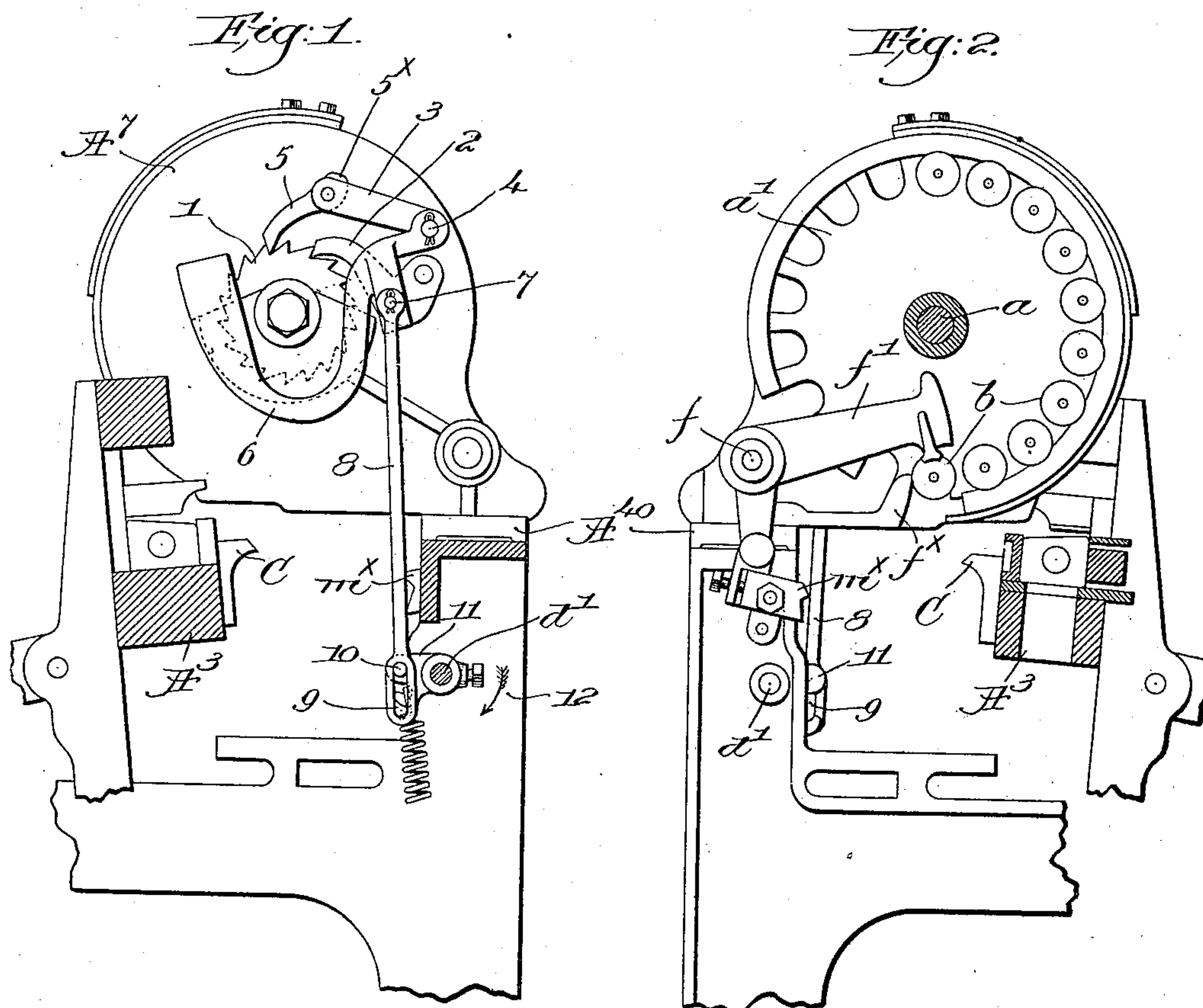
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PATENTED MAY 5, 1908.

U. HEBERT.

AUTOMATIC FILLING REPLENISHING LOOM.

APPLICATION FILED JULY 24, 1907.



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# UNITED STATES PATENT OFFICE.

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## AUTOMATIC FILLING-REPLENISHING LOOM.

No. 886,700.

Specification of Letters Patent.

Patented May 5, 1908.

Application filed July 24, 1907. Serial No. 385,316.

*To all whom it may concern:*

Be it known that I, UBALD HEBERT, a citizen of the United States, and resident of Manchester, county of Hillsboro, State of New Hampshire, have invented an Improvement in Automatic Filling - Replenishing Looms, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

This invention relates particularly to filling replenishing looms of the Northrop type, such for instance as shown in United States Patent No. 529940 dated November 27, 1894, wherein the reserve supply of filling-carriers or bobbins are held in a rotatable feeder, from which they are automatically transferred singly to the running shuttle at the time a replenishment of filling is called for.

The feeder is rotated step by step to bring one after another of the filling-carriers into proper position to be transferred, and various means have been devised for effecting the intermittent rotative movement of the feeder.

My present invention has for its especial object the production of novel means for effecting such intermittent movement of the feeder in a loom of the type referred to, such movement in accordance with my present invention being controlled or governed directly from the controlling or starting shaft which causes the operation of the transferring mechanism.

There are several practical advantages in operation secured by my novel apparatus, as will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a transverse sectional view of a loom of the Northrop type, showing the inner end of the filling-feeder, with the operating mechanism therefor embodying one practical form of my present invention; Fig. 2 is a transverse section taken through the feeder, showing the usual transferring mechanism the operation of which is caused by the controlling or starting shaft.

Referring to the drawings the lay  $A^3$ , breast-beam  $A^{40}$ , stand  $A^7$  mounted thereon and having a horizontal stud  $a$  on which the filling-feeder is rotatably supported, said feeder comprising two connected and parallel plates to sustain the butt and tip ends of the circularly-arranged series of filling-car-

riers or bobbins  $b$ , Fig. 2, (only one of the plates  $a'$  being shown in Fig. 2); the transferer  $f'$  fulcrumed at  $f$  and having connected therewith a dog or latch  $m^x$ , to cooperate at times with a bunter  $C$  on the lay, and the starting rock-shaft  $d'$  by which the positioning of the latch  $m^x$  is controlled, may be and are all substantially as in the Northrop patent referred to and operate in a well-known manner.

Referring to Fig. 1 I have shown a ratchet 1 at the inner face of the stand  $A^7$  but connected with the plate  $a'$  of the feeder to rotate therewith, a detent pawl 2 pivoted on the stand cooperating with the ratchet to prevent retrograde movement of the feeder. A pawl-carrier 3 fulcrumed at 4 on the stand has pivotally connected with it a feed or actuating pawl 5 which cooperates with the ratchet to effect intermittent advance of the feeder, the pawl-carrier having fixedly connected with it a depending U-shaped weighted extension 6, the weight of which operates at the proper time to depress the pawl-carrier 3. Such depression acts through the pawl 5 to effect an advance of one step of the feeder, to bring a bobbin into transferring position beneath the transferer  $f'$ .

At 7 the upper end of a link 8 is pivoted to the extension 6, the lower end of the link having an elongated slot 9 which is loosely entered by a lateral stud 10 on a short arm 11 fixedly secured to the starting shaft  $d'$ . The normal position of the parts is shown in the drawings, the weight of the extension 6 at such time holding the top of slot 9 against the stud 10 and thereby limiting the down or operating stroke of the feed-pawl 5. When a change of filling is called for the shaft  $d'$  is rocked or turned in the direction of arrow 12, Fig. 1, lifting the arm 11 and the link 8, so that the pawl-carrier 3 is elevated and the pawl 5 drops back behind a fresh tooth of the ratchet 1. At the same time the latch  $m^x$  is positioned to be engaged by the bunter  $C$  as the lay beats up, and the leading filling-carrier is transferred to the shuttle. The transferer  $f'$  then returns to normal position, as does the shaft  $d'$ , and thereupon the weight of the extension 6 swings down the pawl-carrier 3 and the pawl 5 acts through the ratchet 1 to move the feeder forward one step, bringing the next filling carrier into transferring position against the abutment  $f^x$ , Fig. 2. As the feeder is advanced the



detent-pawl 2 clicks over the ratchet into the next tooth. It will be manifest that no advance of the hopper can take place unless the starting shaft  $d'$  is operated, for the weighted part 6 holds the pawl 5 pressed into the ratchet, a stop  $5^x$  on the pawl bearing on the pawl-carrier to limit the swing of the pawl. One of the practical advantages of this construction is that if the feeder is empty it will remain quiescent while the weaver is filling it, when the loom is running, whereas in other constructions the vibrations of the loom tends to keep the feeder turning forward.

Only one filling-carrier can be transferred for each operation of the starting shaft  $d'$ , because the advance of the feeder is only effected when such shaft resumes its normal position after filling replenishment. If for any reason the shaft should remain in abnormal position long enough for the bunter C to engage the latch  $m^x$  a number of times in succession there is no possibility of the feeder being emptied of all the bobbins, because after the first descent of the transferrer there will be an empty space beneath it, and subsequent descents will have no effect. Heretofore when such an accidental operation of the transferring mechanism has occurred the feeder has frequently been completely emptied, as the feeder advanced one step after each transfer, bringing a fresh bobbin into transferring position.

The construction is simple, direct and positive in operation, and advance of the feeder is controlled directly by or through the controlling or starting shaft of the loom.

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

1. A movable feeder to hold a series of filling-carriers, a transferrer to engage and remove the latter one by one, means, including a rock-shaft, to effect the operation of the transferrer, and means to effect intermittent advance movement of the feeder, controlled directly by or through said rock-shaft, and independently of the transferrer.

2. A movable feeder to hold a series of filling-carriers, a transferrer to engage and remove the latter one by one, means, including a rock-shaft, to effect the operation of the transferrer, means, including a ratchet and a cooperating feed-pawl, to effect advance movement of the feeder to present a filling-carrier to transferring position, and a connection independent of the transferrer and between the feed-pawl and the rock-shaft, to directly control the operation of the former by movement of the latter when a transfer of filling is called for.

3. A movable feeder to hold a series of filling-carriers, a transferrer to engage and remove the latter one by one, means, including a rock-shaft, to effect the operation of the

transferrer, means, including a gravity-actuated feed-pawl to effect advance of the feeder, and a controlling connection between said pawl and the rock-shaft, to set the pawl by rotative movement of said rock-shaft when a transfer of filling is called for and to permit the operation of the pawl only when the rock-shaft returns to normal position.

4. A movable feeder to hold a series of filling-carriers, means, including a controlling member, to transfer the filling-carriers one by one from the feeder, mechanism to effect advance of the feeder, and a connection between said mechanism and the controlling member, to set the mechanism when said member is moved to abnormal position and to permit said mechanism to operate only when the controlling member returns to normal position.

5. A rotatable feeder to hold a series of filling-carriers a ratchet rotatable therewith, a cooperating feed-pawl, a pawl-carrier having a weighted actuator, to effect the feed stroke of the pawl and cause advance of the feeder, a transferrer, means to operate it, including a rock-shaft, and a connection between the latter and the pawl-carrier, to set the same when the rock-shaft is abnormally positioned and to permit the weighted actuator to operate when said rock-shaft returns to normal position.

6. In a loom, filling-replenishing mechanism, including an intermittently movable filling-feeder and a transferrer, and a controlling member to effect the operation of the transferrer, combined with mechanism to effect feed movement of the feeder, and a direct connection between said feed mechanism and the controlling member, to effect an operation of said feed mechanism only after said controlling member has caused the transferrer to operate and has returned to normal position.

7. A rotatable feeder to hold a series of filling-carriers, means, including a feed-pawl, its carrier, and an actuator for the carrier, to effect intermittent advance of the feeder, combined with a transferrer, a rock-shaft to effect its operation, and a connection between the rock-shaft and pawl-carrier to set the latter against its actuator when the rock-shaft is turned to effect transfer, and to release the pawl-carrier by or through return of the rock-shaft to normal position, the actuator acting through the pawl-carrier and pawl to hold the feeder from advancing under normal conditions.

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

UBALD HEBERT.

Witnesses:

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J. A. BOIVIN.