

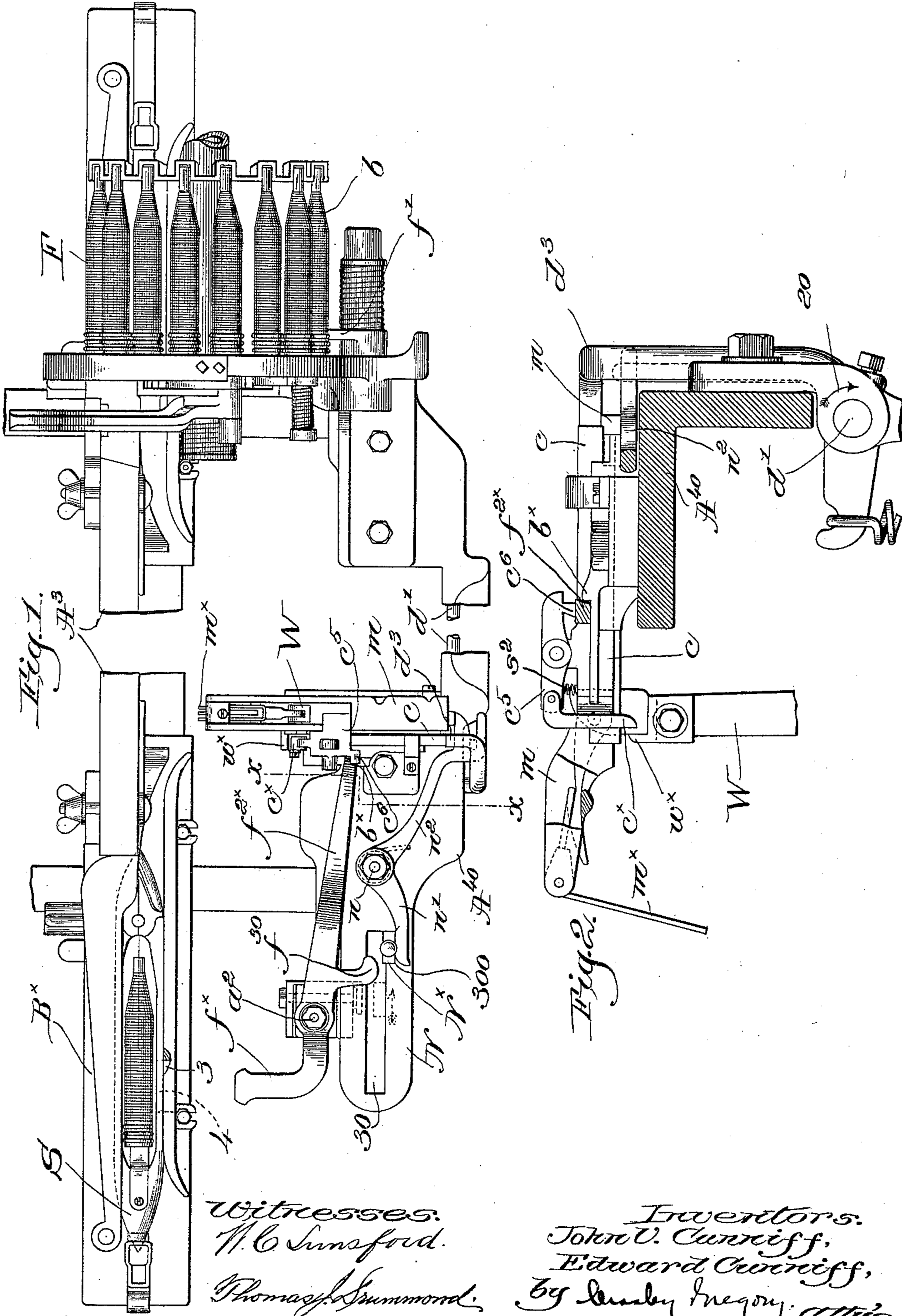
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Patented Dec. 3, 1901.

J. V. & E. CUNNIFF.
FILLING REPLENISHING LOOM.

(Application filed Aug. 7, 1901.)

(No Model.)



UNITED STATES PATENT OFFICE.

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FILLING-REPLENISHING LOOM.

SPECIFICATION forming part of Letters Patent No. 688,236, dated December 3, 1901.

Application filed August 7, 1901. Serial No. 71,126. (No model.)

To all whom it may concern:

Be it known that we, JOHN VINCENT CUNNIFF and EDWARD CUNNIFF, citizens of the United States, residing at New Bedford, county of Bristol, 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.

In United States Patent No. 648,986, dated May 8, 1900, a so-called "feeler-loom" is shown and described provided with automatic filling-replenishing mechanism, the feeler having an intermitting filling-induced movement imparted to it until the filling in the shuttle is exhausted to a predetermined extent. The means for controlling the replenishing mechanism includes a member which normally is in position to be engaged and operated by a vibrating part of the loom, such as the weft-hammer, and this normally operative member is rendered inoperative by the filling-induced movements of the feeler. When the filling is nearly exhausted, however, the feeler will have a very slight filling-induced movement or none at all, permitting the said member of the controlling means to remain in operative position to be engaged by the vibrating part of the loom. Looms of this general class are provided with stopping mechanism to operate when a warp-thread breaks and for other causes, and in the patent referred to the said mechanism is operated automatically, and in practice the stoppage of the loom frequently occurs when there is too much filling in the shuttle to be made waste, and it is customary for the weaver at such times to move the feeler by hand into position to render the controlling means inoperative while he restores the stopping mechanism to running condition. This movement of the feeler by hand is necessary in order to prevent operation of the filling-replenishing mechanism before the filling-induced movement of the feeler is properly established, a beat or two of the lay being necessary after throwing the shipper.

The present invention has for its object the

production of means for automatically preventing an improper or premature operation of the filling-replenishing mechanism when the loom is started.

Figure 1 is a top or plan view, centrally broken out, of an automatic filling-replenishing loom of the feeler type with one embodiment of our invention applied thereto; and Fig. 2 is a transverse sectional detail thereof, enlarged, on the line $x x$, Fig. 1, looking toward the right.

The breast-beam A^{40} , lay A^3 , filling-feeder F to hold the filling-carriers b , the transferrer f' , and the operating or controlling rock-shaft d' , adapted to be rotated in the direction of arrow 20, Fig. 2, are and may be all as in the patent referred to, as are also the notched holding-plate N for the shipper N^x , (the only member of the stopping mechanism shown,) the feeler-arm $f^x f^{2x}$, fulcrumed on a vertical pivot a^2 , the feeler proper, f^x , by entering, through a slot 3 in the front wall of the shuttle-box B^x , a slot 4 in the side of the shuttle S to intermittingly engage and be moved by the filling therein until such filling is exhausted to a predetermined extent.

A member of the controlling means for the replenishing mechanism, shown as a latch c^x , is pivotally mounted on a latch-carrier c^5 , fulcrumed on a slide c , located adjacent the guide for the usual slide m , on which is fulcrumed the filling-fork m^x , the weft-hammer W acting in the usual manner upon failure of filling to move the slide m outwardly to operate the knock-off lever $n' n^2$, fulcrumed at n , to thereby release the shipper and stop the loom in well-known manner.

A spring (not shown) normally holds the inner end of the arm f^{2x} against a fixed stop b^x and beneath a foot c^6 , depending from the latch-carrier c^5 to hold the latch in the path of a shoulder w^x on the weft-hammer, a spring s^2 acting to lift the latch into inoperative position when filling-induced movement of the feeler withdraws the end of the arm f^{2x} from beneath the foot c^6 , all as in the patent referred to.

When the latch is engaged by the shoulder w^x , the slide c is moved outward and rocks an upturned arm d^3 , fast on the rock-shaft

d' , to rock the latter and effect the actuation of the filling-replenishing mechanism.

Referring to Fig. 1, the arm f^{2x} is herein shown as provided with a forwardly-extended cam f^{30} between its fulcrum a^2 and its free end, said cam projecting into the path of the shipper when moving toward or away from its holding-notch 300. When the loom is stopped, the shipper is at the outer end of the slot 30 in the plate N, and when the operative is ready to start the loom he swings the shipper to the right, viewing Fig. 1, and as it passes to the holding-notch 300 it engages the cam f^{30} and swings the inner end of the arm f^{2x} from beneath the foot c^6 of the latch-carrier. The spring s^2 immediately lifts the latch c^x into inoperative position and by the time the various parts assume their normal position the loom has attained sufficient headway to insure the proper filling-induced movement of the feeler. It will be understood that after such movement is established the latch will be properly controlled by or through the feeler.

Our invention obviates the movement inward of the arm f^{2x} by hand, as is now customary in starting the loom, so that the premature or improper operation of the filling-replenishing mechanism is automatically prevented. When the shipper is released from its holding-notch, it pushes the cam f^{30} to one side as it moves toward the outer end of the slot 30.

Our invention is not restricted to the precise construction and arrangement shown, as the same may be modified or rearranged without departing from the spirit and scope of our invention.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a loom provided with automatic filling-replenishing mechanism, controlling means therefor, including a member moved into inoperative 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, stopping mechanism for the loom, and means operated by or through return of the stopping mechanism to running condition to temporarily render the said member of the controlling means inoperative.

2. In a loom provided with automatic filling-replenishing mechanism, controlling means therefor, including a member moved into inoperative 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, stopping mechanism for the loom, and means operating through the feeler upon return of the stopping mechanism to running condition to render said member of the controlling means inoperative until filling-induced movement of the feeler is properly established.

3. In a loom provided with automatic filling-replenishing mechanism, controlling means therefor, including a member moved into inoperative 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, stopping mechanism for the loom, including a shipper, and means operated by return of the shipper to running position to render said member of the controlling means inoperative until filling-induced movement of the feeler is properly established.

4. In a loom provided with automatic filling-replenishing mechanism, controlling means therefor, including a member moved into inoperative 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 cam on the feeler, and stopping mechanism for the loom, and including a shipper, return of the latter to running position acting upon the cam to move the feeler and thereby render said member of the controlling means inoperative until filling-induced movement of the feeler is properly established.

5. In a loom provided with automatic filling-replenishing mechanism, controlling means therefor, including a normally operative latch, a feeler intermittently moved by or through the filling in the shuttle until predetermined exhaustion of such filling, each of such movements of the feeler rendering the latch inoperative, a shipper, means to release it automatically to stop the loom, and means operated by return of the shipper to running position to render the latch inoperative until proper resumption of filling-induced movement of the feeler.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN VINCENT CUNNIFF.
EDWARD CUNNIFF.

Witnesses:

ARTHUR ROY DICKINSON,
JOHN SCHMIDT.