No. 647,918. Patented Apr. 17, 1900.

W. F. DRAPER & J. H. NORTHROP.

TRANSFERRER FOR FILLING CHANGING LOOMS.

(Application filed Dec. 15, 1899.)

(No Model.)

Fig. 1.

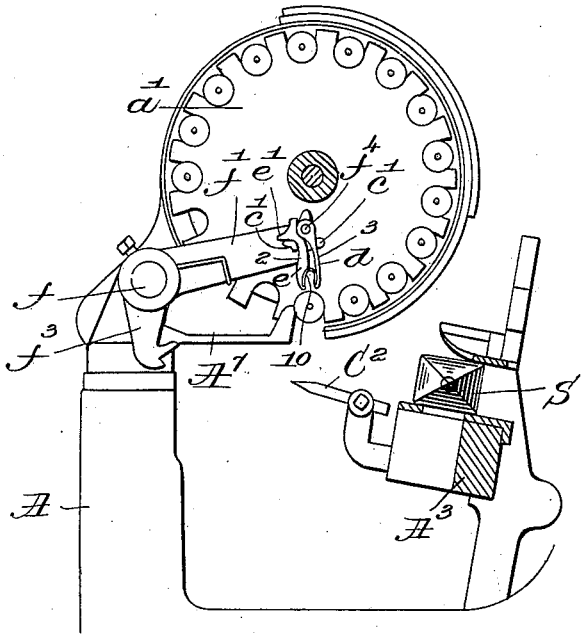

Fig. 2.

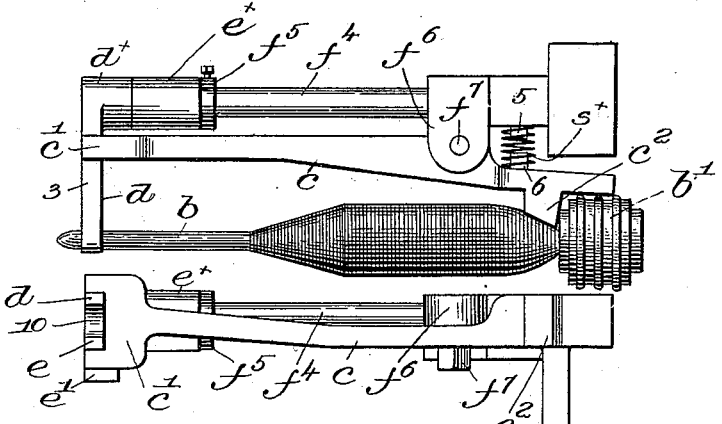

Fig. 3.

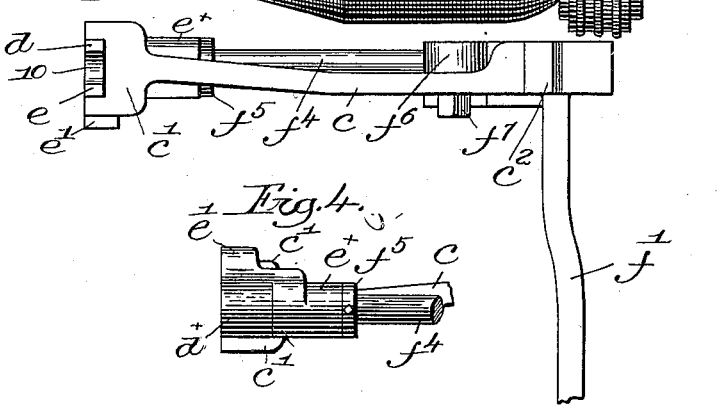

Fig. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM F. DRAPER, OF HOPEDALE, MASSACHUSETTS, AND JAMES H. NORTHROP, OF TUSTIN, CALIFORNIA, ASSIGNORS TO THE DRAPER COMPANY, OF PORTLAND, MAINE, AND HOPEDALE, MASSACHUSETTS.

TRANSFERRER FOR FILLING CHANGING LOOMS.

SPECIFICATION forming part of Letters Patent No. 647,918, dated April 17, 1900.

Application filed December 15, 1899. Serial No. 740,391. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM F. DRAPER, a resident of Hopedale, in the county of Worcester and State of Massachusetts, and JAMES H. NORTHROP, a resident of Tustin, in the county of Orange and State of California, citizens of the United States, have invented an Improvement in Transferrers for Filling Changing Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

Automatic looms of the Northrop type are provided with a transferrer for transferring automatically a fresh filling-carrier from the hopper or filling-feeder to the shuttle at the proper time, such a loom being shown in United States Patent No. 529,940, dated November 27, 1894, the transferrer consisting of a rocking arm adapted to engage the head and tip the filling-carrier and quickly transfer it from the hopper to the shuttle. The filling-carrier is not positively held by the transferrer, and sometimes the tip will become disarranged, so that it will not enter the shuttle properly, causing breakage or the transfer of another filling-carrier.

Our invention has for its object the production of means for positively holding or grasping the tip end of the filling-carrier during transfer, so that it is always put into the shuttle properly, the tip having no opportunity to deviate from its proper path.

Figure 1 is a cross-sectional view of a portion of a loom provided with automatic filling-supplying mechanism, taken between the end plates of the hopper or filling-feeder, the transferrer showing one embodiment of our invention. Fig. 2 is an enlarged detail in rear elevation of the transferrer looking toward the left, Fig. 1, and just about to engage a filling-carrier to be transferred. Fig. 3 is an under side view of the transferrer, the jaws being shown open; and Fig. 4 is a top view of the jaw portion of the transferrer.

The loom-frame A, lay A^3, having one of its shuttle-boxes slotted at the bottom for the passage of the ejected filling-carrier, the self-threading shuttle S, the hopper or filling-feeder, only the outer plate a' of which is shown in Fig. 1, the stand A^7, the stud f, and the transferrer f', mounted to rock thereon, may be and are substantially as shown in said Patent No. 529,940, the transferrer having a depending notched arm f^3 to be engaged by a bunter C^{12} on the lay when a change of filling is to be effected. The filling-carriers b are held in the hopper by their ends, the heads b' in one plate and the tips b^2 in the other, as in said patent.

In accordance with our present invention the transferrer f' has rigidly secured thereto an arm f^4, extended laterally in the direction of the tip of the filling-carrier, and at or near its end the hubs $d^\times e^\times$ of two depending jaws $d\ e$ are pivotally mounted, a collar f^5, fast on the arm, preventing inward movement of the hubs. The outer faces of the jaws are convexed from top to bottom to form cam-surfaces 2 3, and at their inner faces they are recessed (see Fig. 1) to receive a bow-shaped piece 10, of rubber, leather, or other resilient and non-metallic material, which normally separates the jaws and also engages the tip of the filling-carrier when the jaws are closed. The arm f^4 is provided at its inner end with a depending ear f^6, on which is pivoted at f^7 a jaw-controller, shown as a lever c, bifurcated at its outer end at c' to embrace the jaws normally at or near their bases, where they are reduced in thickness, as shown in Fig. 1, so that when said lever is rocked to move its bifurcated end toward the extremities of the jaws they will be closed, owing to the action of the lever on the cam-surfaces 2 3 of the jaws. A spring $s^\times$ is interposed between the base of the arm f^4 and the controlling-lever c (see Fig. 2) to normally maintain the latter in the position shown, with the jaws open, said spring being held in place by lugs 5 6. The lower face of the controlling-lever has an abutment c^2, shaped to enter the space between the head b' of the filling-carrier and the yarn mass thereon when a transfer is to take place.

From the foregoing description and the drawings the operation will be manifest.

As the transferrer is moving to bring the

abutment c^2 into engagement with the head of the filling-carrier the spring $s^\times$ will be compressed and the controlling-lever c rocked relatively to the arm f^4, its bifurcated end moving down to close the jaws d and e upon the tip end b^2 of the filling-carrier, and while the tip is thus grasped the bodily movement of the transferrer is completed, transferring the filling-carrier from the feeder or hopper into the shuttle. As soon as the filling-carrier is inserted in the shuttle the transferrer begins its return stroke, and when the pressure is taken off the abutment c^2 the spring $s^\times$ returns the controlling-lever to normal position, the separator 10 at once opening the jaws.

One of the jaws, as e, (see Figs. 1 and 3,) has a rearwardly-extended ear e', which forms a stop to limit the return movement of the lever c, due to the spring.

Our invention is not restricted to the precise construction and arrangement shown, for so far as we are aware it is broadly new to positively grasp the tip end of a filling-carrier during transfer of filling, and accordingly various modifications may be made in the construction shown without departing from the spirit and scope of our invention.

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

1. In a loom provided with automatic filling-supplying mechanism, a transferrer, and separable means mounted thereon to grasp the tip of a filling-carrier during its transfer.

2. In a loom, the lay having a shuttle, a filling-feeder, a transferrer to transfer a filling-carrier from the feeder to the shuttle, and means carried by the transferrer to positively grasp the tip of the filling-carrier during transfer.

3. In a loom provided with automatic filling-supplying mechanism, a transferrer having jaws to engage and hold the tip of a filling-carrier during transfer, and means to effect automatically the closing and opening of the jaws.

4. In a loom provided with automatic filling-supplying mechanism, a transferrer having jaws to engage and hold the tip of a filling-carrier during transfer, and means controlled by engagement with the filling-carrier, to close automatically the jaws upon the tip of the filling-carrier when it is being transferred.

5. In a loom provided with automatic filling-supplying mechanism, a transferrer having jaws to engage and hold the tip of a filling-carrier during transfer, and means mounted on the transferrer to effect automatically the closing and opening of the jaws.

6. In a loom, a feeder to hold a supply of filling-carriers, a transferrer having tip-holding jaws, and means, mounted on the transferrer and operative by or through engagement with the head of a filling-carrier to be transferred, to effect the closure of the jaws upon the tip of the filling-carrier.

7. A transferrer for automatic looms, having tip-holding jaws, a separator therefor, means mounted on the transferrer and operative upon engagement with the head of a filling-carrier to close the jaws upon the tip thereof, and a spring to act upon said means and permit the jaws to open as the transferrer is retracted.

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

WILLIAM F. DRAPER.
JAMES H. NORTHROP.

Witnesses to signature of William F. Draper:

GEO. OTIS DRAPER,
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Witnesses to signature of James H. Northrop:

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CHAS. HOCKMAN.