

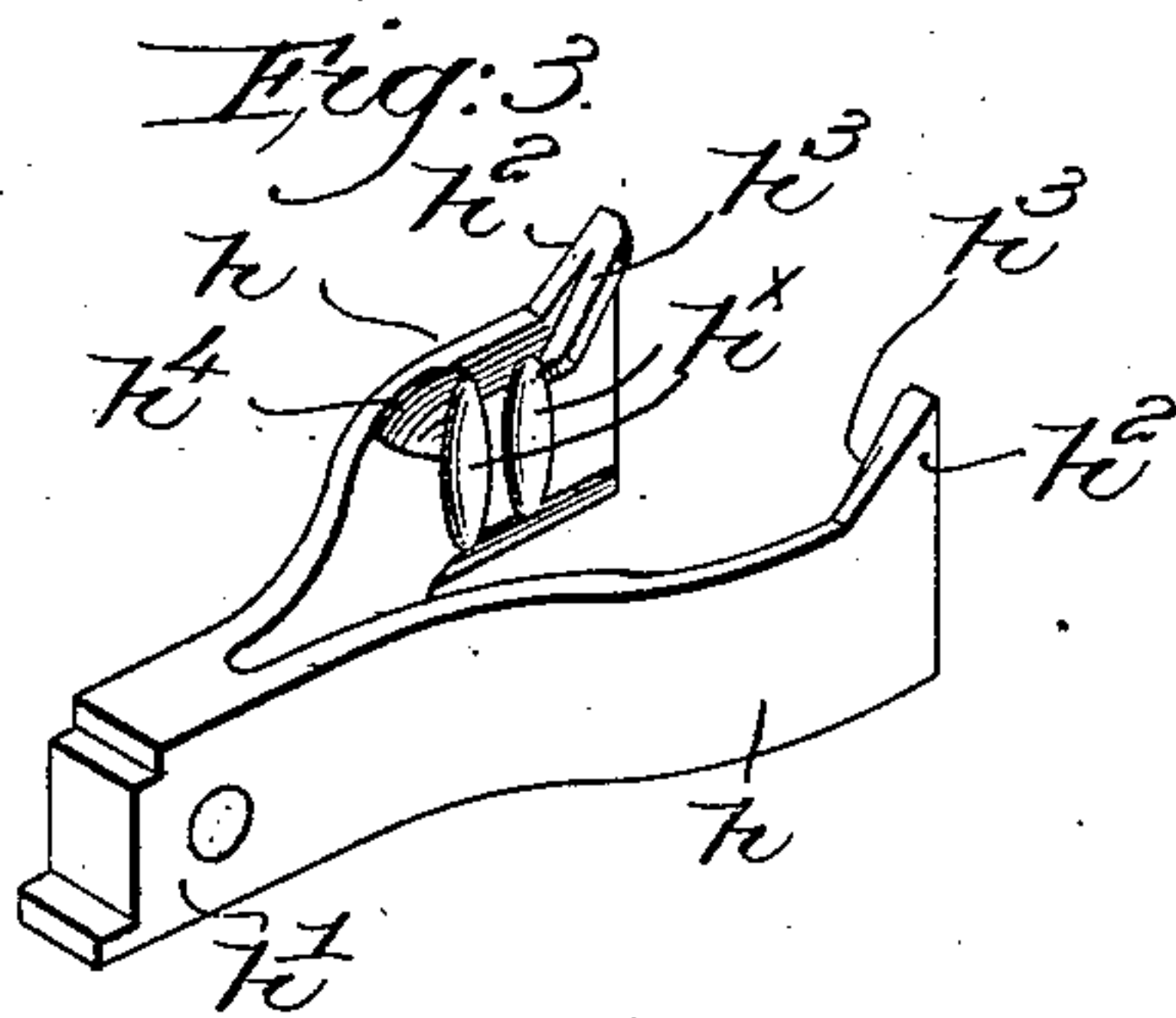
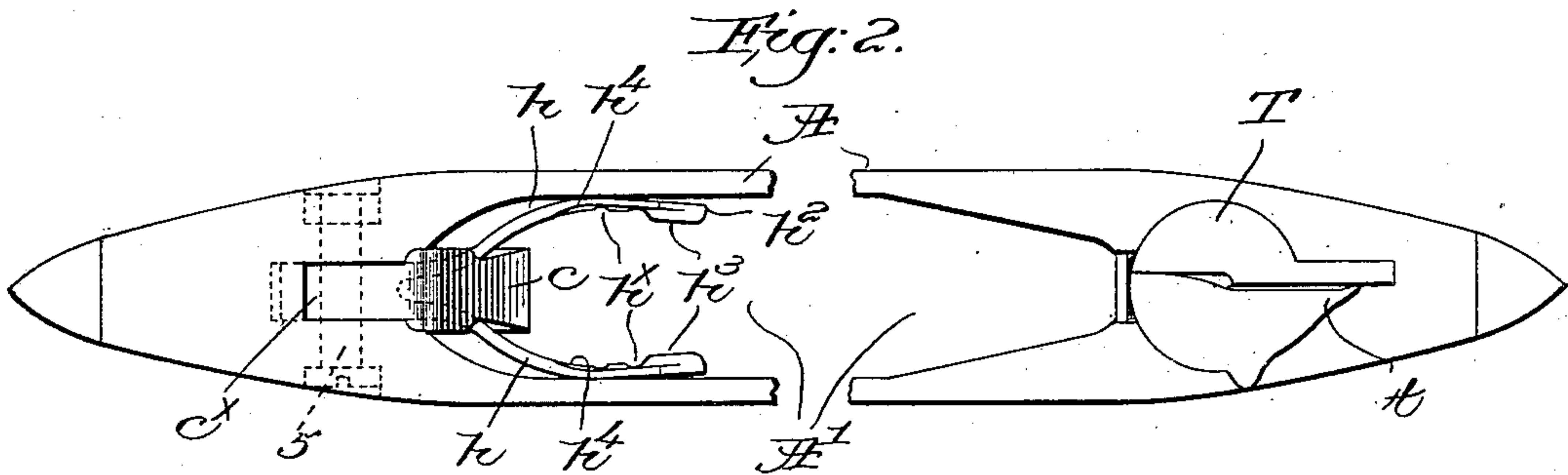
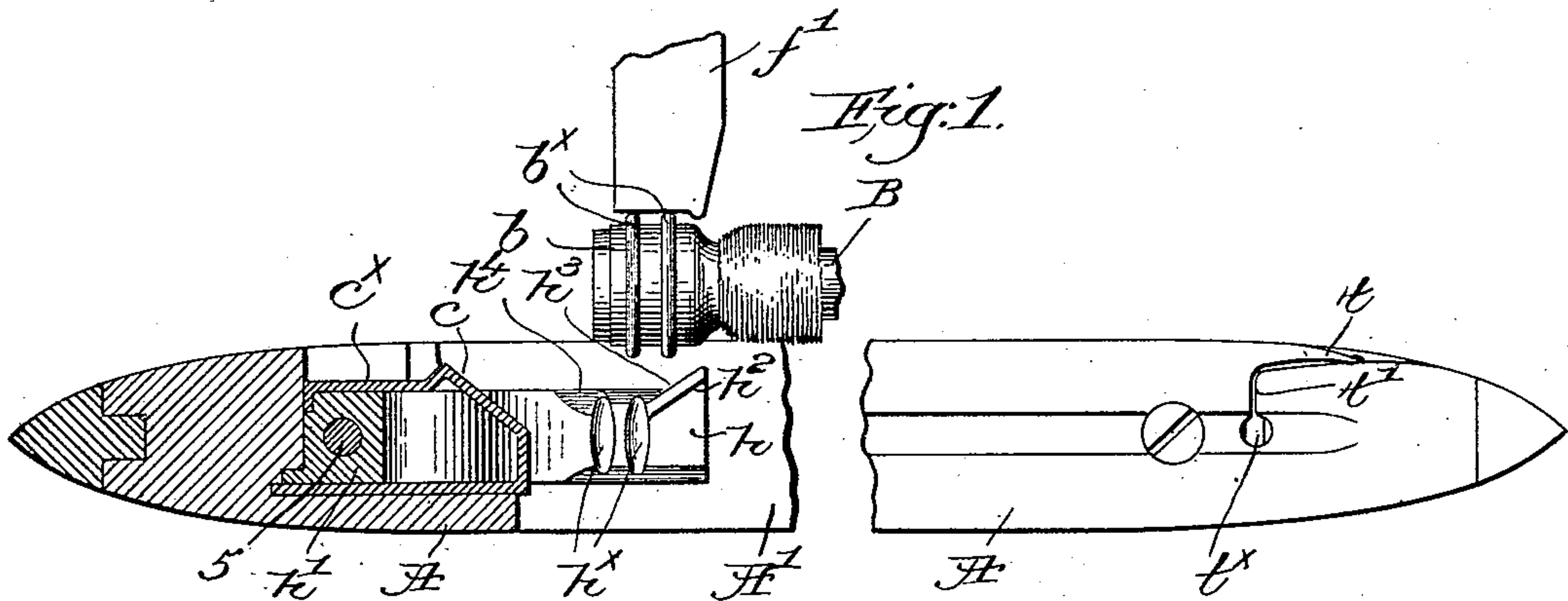
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PATENTED FEB. 2, 1904.

W. C. TROMBLY.  
SELF THREADING LOOM SHUTTLE.

APPLICATION FILED NOV. 23, 1903.

NO MODEL.



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# UNITED STATES PATENT OFFICE.

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## SELF-THREADING LOOM-SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 751,123, dated February 2, 1904.

Application filed November 23, 1903. Serial No. 182,343. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM C. TROMBLY, a citizen of the United States, and a resident of Lowell, county of Middlesex, State of Massachusetts, have invented an Improvement in Self-Threading Loom-Shuttles, 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 shuttles for use in looms wherein a filling-carrier or bobbin is automatically inserted in the running shuttle at the proper time—as, for instance, upon failure or breakage of the filling or prior to complete exhaustion of the filling in the shuttle.

Looms of the Northrop type, of which an example is shown in United States Patent No. 529,940, are provided with means to automatically provide the running shuttle with fresh supplies of filling. The filling-carriers used with such looms have annular projections or rings on their heads to enter upright notches or recesses in the inner faces of spring-acting holding-jaws which are located within and at one end of the chamber in the shuttle-body and into which the filling-carrier enters. In such automatic looms the filling-carrier is moved from a feeder or hopper to the shuttle, when filling replenishment is required, by means of a transferrer which engages the head of the filling-carrier and by a rocking movement withdraws it from the feeder and forcibly inserts the head between the jaws of the shuttle. At such time of transfer the notches in the jaw-faces should be in the paths of movement of the annular projections on the filling-carrier head in order that the holding-jaws may properly and firmly engage the projections to retain the filling-carrier securely in place. If the notches are not in such position, the projections may engage the jaws between the notches and the filling-carrier will not be held securely or in proper position in the shuttle. Should the tip of the filling-carrier be depressed, it will engage and break the warp when the shuttle is thrown, and if

lifted up the shuttle will fail to thread. So, too, such improper position of the jaws may prevent the entrance of the filling-carrier into the shuttle and breakage of parts is practically certain to occur.

My present invention has for its objects the production of simple and effective means for effecting proper positioning of the shuttle if the jaws thereof are not in the correct receptive position for an incoming filling-carrier.

Inasmuch as it is better that the shuttle move slightly in a longitudinal direction to attain the proper holding coöperation between the jaws and the head of the filling-carrier rather than to permit or cause any movement of the latter for such purpose, the construction to be described herein provides for end-wise movement of the shuttle when necessary.

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 partial side elevation and longitudinal section of a loom-shuttle embodying one form of my invention, the shuttle being centrally broken out and with the head of a filling-carrier shown as about to be inserted in the shuttle. Fig. 2 is a top or plan view, also centrally broken out, of the shuttle shown in Fig. 1; and Fig. 3 is a perspective view of the holding-jaws detached from the shuttle.

The shuttle-body A, having an elongated chamber A' extended therethrough to receive the filling-carrier or bobbin, and the automatically-acting self-threading block T, having a horn *t* overhanging the slot *t'*, leading to the side delivery-eye *t<sup>x</sup>*, may be of well-known construction in self-threading shuttles.

The head *b* of the filling-carrier or bobbin B, partly shown in Fig. 1, is provided with annular projections or rings *b<sup>x</sup>*, which are adapted to enter and be held in upright notches *h<sup>x</sup>*, made in the inner faces of the holding-jaws *h*, when the filling-carrier is inserted in the shuttle by means of the transferrer, the head *f'* of which is shown in Fig. 1. The two jaws *h* are made of resilient or spring metal



and connected at their bases by a block  $h'$ , which is held in place in the shuttle by a screw 5, Figs. 1 and 2, in well-known manner, said jaws being located within the chamber  $A'$  at the end thereof opposite the threading device T.

A metal plate  $c^x$ , which embraces the block  $h'$ , is provided with an inclined portion or guide-bridge  $c$ , which extends between the jaws, near the bases thereof, substantially as in United States Patent No. 538,507, to co-operate with the end of the head of the filling-carrier should the shuttle be a considerable distance out of its proper receiving position.

Each jaw has at its free end an upturned lug  $h^2$ , projecting above its top edge and presenting a rearwardly-inclined cam-surface  $h^3$ , extended downward toward the notches  $h^x$ , while back of the notches the inner faces of the jaws are chamfered to present cam-surfaces  $h^4$ , which incline forward and downward from the tops of the jaws toward the notches. If at the instant of transfer the shuttle is properly positioned, the notches  $h^x$  will be in the paths of movement of the projections  $b^x$  and the filling-carrier will be properly inserted in the jaws, and the latter will firmly engage and hold the filling-carrier in proper position. If the shuttle is not far enough in the shuttle-box, however, as shown in Fig. 1, in which the error is somewhat exaggerated for purposes of illustration, it will be manifest that the jaws will not properly engage the head. In such a case, however, the projections  $b^x$  will strike the cam-surfaces  $h^3$  as the filling-carrier descends, and the shuttle will thereby be moved to the right, viewing Fig. 1, until the notches  $h^x$  are positioned to receive the projections and transfer is completed. As the filling-carrier descends the cam-surfaces slide under the projections  $b^x$  and the entrance of the latter into the notches of the jaws is insured. On the other hand, if the shuttle is too far in the shuttle-box the outer projection  $b^x$  will engage the cam-surfaces  $h^4$  and the latter will slide under the projection, causing the shuttle to move to the left, Fig. 1, until the notches in the jaws are in proper position to receive the projections  $b^x$ . Thus the shuttle is made to position itself properly to receive the incoming filling-carrier if it is too far out of the box or too far in it with relation to the path of the incoming filling-carrier, and the means which by coöperation with the head of the latter cause such movement is movable with the shuttle.

The device is very simple and performs the work efficiently and easily without undue strain or shock upon the parts.

Referring to Figs. 1 and 3, it will be seen that the lower inner ends of both the cam-surfaces  $h^3$  and  $h^4$  terminate adjacent the upper end of the nearer notch of the jaw, so that when the engaging projection  $b^x$  leaves a cam-surface it passes directly into a notch of the jaw.

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

1. A shuttle-body having a chamber for the reception of a filling-carrier, holding-jaws located within and at one end of the chamber and adapted to engage and hold the filling-carrier, and means movable with the shuttle to coöperate with an incoming filling-carrier and cause longitudinal movement of the shuttle in either direction to properly position the jaws to receive the filling-carrier.

2. A shuttle-body having a chamber for the reception of a filling-carrier, holding-jaws located within and at one end of the chamber and adapted to engage and hold the head of a filling-carrier, and means on the holding-jaws to coöperate with an incoming filling-carrier and properly position the jaws to receive the head of such incoming filling-carrier.

3. A shuttle-body having a chamber for the reception of a filling-carrier, having its head provided with annular projections, holding-jaws located within and at one end of the chamber and provided on their inner faces with notches to receive such annular projections, and means on the jaws to coöperate with the head of an incoming filling-carrier and properly position the jaws to bring the notches thereof into the paths of the annular projections on the head of such incoming filling-carrier.

4. A shuttle-body having a chamber for the reception of a filling-carrier, holding-jaws located within and at one end of the chamber, to engage and hold the filling-carrier, and rearwardly-inclined cam-surfaces on the tops of the jaws at their free ends, to coöperate with the head of an incoming filling-carrier, substantially as and for the purpose set forth.

5. A shuttle-body having a chamber for the reception of a filling-carrier, having its head provided with annular projections, holding-jaws located within and at one end of the chamber and provided on their inner faces with notches to receive such annular projections, and oppositely-inclined cam-surfaces on the jaws in front of and behind the notched portions thereof, to coöperate with the head of an incoming filling-carrier and properly position the notched portions of the jaws with relation to the annular projections of an incoming filling-carrier.

6. A shuttle-body having a chamber for the reception of a filling-carrier, holding-jaws located within and at one end of the chamber and adapted to engage and hold the head of a filling-carrier, the inner faces of the jaws having upright notches therein, cam-surfaces on said faces at the rear of the notches, and upturned lugs on the tops of the jaws at their free ends having their upper surfaces inclined rearwardly toward the notches.

7. An automatically self-threading loom-shuttle provided with spring-jaws provided



on their inner faces with upright notches to  
engage annular rings on the head of a filling-  
carrier when inserted between the jaws, for-  
wardly-inclined cam-surfaces on said jaws be-  
5 hind the notches, and rearwardly-inclined cam-  
surfaces on the jaws in front of the notches,  
one or the other of the pairs of cam-surfaces  
coöperating with the head of an incoming  
filling-carrier if the notched portions of the  
10 jaws are improperly positioned, to cause lon-

gitudinal movement of the shuttle and thereby  
properly position the jaws.

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

WILLIAM C. TROMBLY.

Witnesses:

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GRACE CROWLEY.