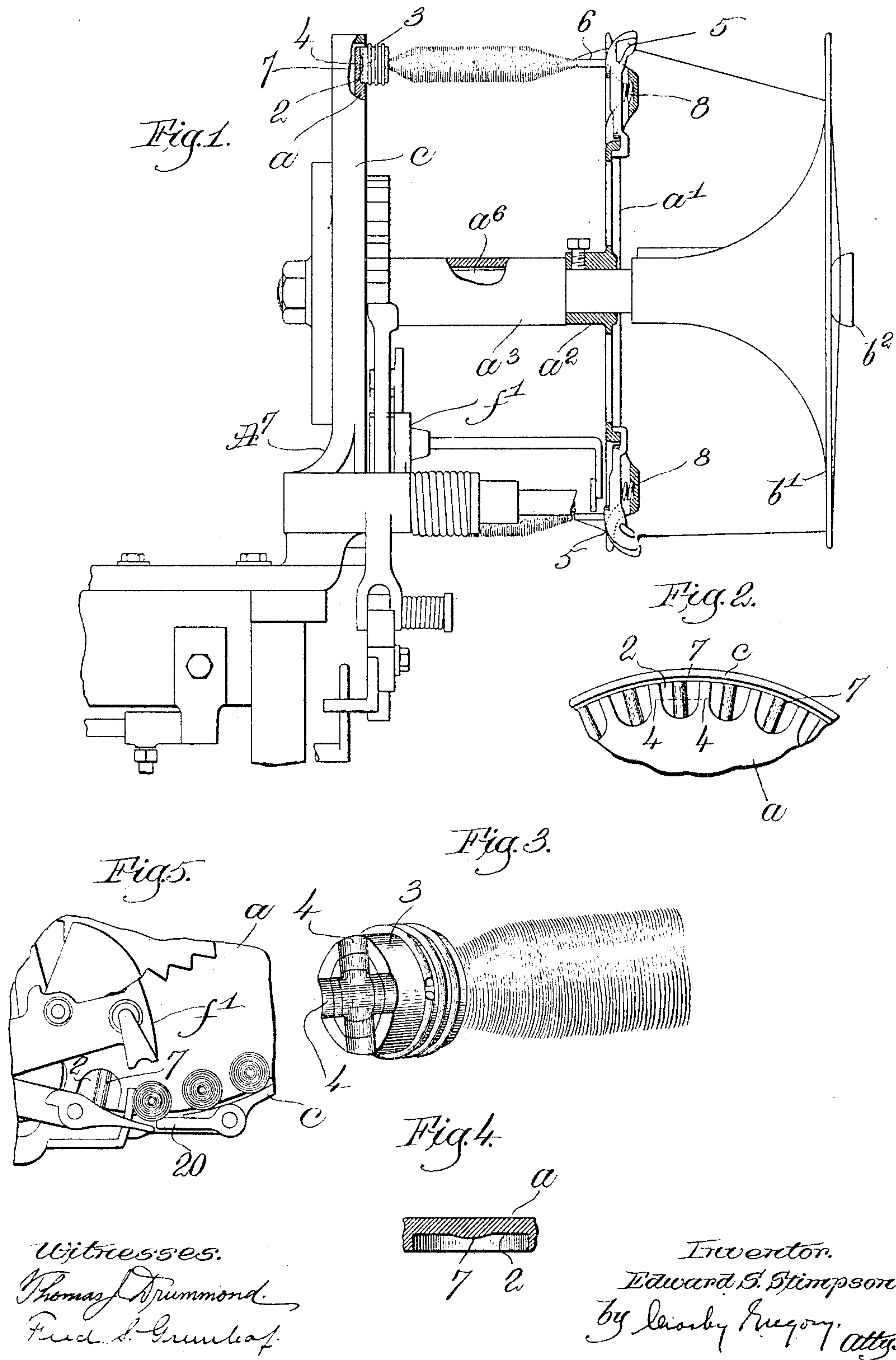


E. S. STIMPSON.  
FILLING REPLENISHING LOOM.  
APPLICATION FILED MAR. 16, 1905.





# UNITED STATES PATENT OFFICE.

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## FILLING-REPLENISHING LOOM.

No. 793,108.

Specification of Letters Patent.

Patented Sept. 12, 1905.

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*To all whom it may concern:*

Be it known that I, EDWARD S. STIMPSON, 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 characters on the drawings representing like parts.

This invention relates to looms of the Northrop type, wherein the running shuttle is provided automatically with a fresh supply of filling from a reserve contained in a filling-feeder, such a loom forming the subject-matter of United States Patent No. 529,940. The filling-carriers, either bobbins or cop-skewers, are supported at their heads and tips in a rotatable filling-feeder, which is moved when necessary to present singly the filling-carriers into position to be transferred to the shuttle. From the several filling-carriers the filling ends are led over the outer end of the feeder to an end-holder mounted on the feeder in a manner familiar to those skilled in the art and in order to operate properly the filling end of the transferred filling-carrier should be somewhat slackened to obviate any tendency to break as the replenished shuttle is picked from the replenishing shuttle-box. When running at speed, the vibration of the loom so shakes the feeder that at times there is in a tendency of the filling-carriers to rotate axially to thereby unduly tighten the filling ends or to slacken the same so much that before or during transfer the slack end will be caught and broken.

My present invention relates more particularly to the construction of the filling-feeder of an automatic loom of the type referred to; and it has for its object the production of means to prevent any axial rotation of the filling-carriers while supported in the filling-feeder, but without exerting any positive locking action and requiring no additional care in manually placing the filling-carriers therein nor interfering with their automatic transfer to the shuttle.

The 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 front elevation and partial

section of the filling-replenishing mechanism of a loom of the Northrop type referred to with one embodiment of my invention applied thereto. Fig. 2 is an outer side elevation of a portion of the inner end plate of the feeder which supports the heads of the filling-carriers. Fig. 3 is an enlarged perspective view of the head end of a filling-carrier, shown as a cop-skewer, constructed in accordance with my invention. Fig. 4 is an enlarged cross-section through one of the holding-pockets of the feeder on the line 4-4, Fig. 2; and Fig. 5 is a detail showing the lower portion of the inner end plate of the feeder and the adjacent parts.

The stand  $A^7$ , fixedly mounted on the breast-beam of the loom and having a circular flange  $c$ , the horizontal stud  $a^6$ , on which is rotatably mounted the hub  $a^3$  of the inner end plate  $a$  of the filling-feeder, provided with peripheral pockets 2 to receive the heads of the filling-carriers, the end-holding disk  $b'$  and stud  $b^2$ , Fig. 1, rotatable with the feeder, the transferrer  $f''$ , and the outer end plate  $a'$ , having its hub  $a^2$  connected with the hub  $a^3$ , may be and are all substantially as in United States Patent No. 755,252, granted to me on the 22d day of March, 1904.

The circular connected plates  $a$   $a'$  rotate together in unison and support a circularly-arranged series of filling-carriers, (herein shown as cop-skewers,) the heads 3 having their outer ends radially recessed, as shown in Fig. 3, by two intersecting and shallow diametrical grooves 4. The plate  $a'$  is provided with spring-controlled tip-holders 5, located opposite the pockets 2 to receive and support the tips 6 of the cop-skewers, as shown in Fig. 1, the tip-holders being substantially as shown in said Patent No. 755,252 and forming no part of my present invention. Intermittent rotation of the feeder is effected by well-known means to bring one after another of the filling-carriers into position to be transferred.

The back wall of each of the pockets 2 in the feeder-plate  $a$  is herein shown as provided with a slight rib or lug 7, lying radially with relation to the center of rotation of the plate, Fig. 2, and transversely convex, as best shown in Fig. 4. Each lug is of such convexity and size as to readily enter one of the shallow recesses 4 in the end of the cop-



skewer, the tip-holder spring 8, Fig. 1, acting through the tip-holder to press the head of the cop-skewer against the back of the opposite pocket. When the lug enters one of the recesses 4, it will be manifest that the skewer will be held frictionally from axial rotation, and hence the filling end cannot be either wound up or unwound, thereby obviating the objection referred to hereinbefore. As the lugs are radially located on the plate *a*, they offer no opposition to the removal of the skewer from the feeder by the transferrer *f'* when transfer is called for. The recesses 4 are shallow, and when the operative loads the feeder the skewers are placed therein without regard to the coöperation of lug and recess, for if they do coöperate at once well and good; but if not the vibration of the feeder will soon effect such coöperation, and at the outside only one-quarter of a revolution of the skewer can take place before the lug 7 enters a recess and stops further rotation.

This invention is particularly adapted for cop-skewers, as their solid heads can be readily recessed without any resulting weakness, and the lugs in the pockets are formed as a part of the feeder-plate when the latter is cast.

Any suitable tip-holding device may be used instead of the form herein shown, as the particular construction thereof has no bearing on my invention.

The filling-carrier next to be removed from the feeder rests upon the usual support and guide 20, Fig. 5, and ordinarily the vibratory motion of the feeder on its axis causes the head of the filling-carrier to rub back and forth on the support, tending to rotate axially the filling-carrier next to be removed. It will be manifest that this tendency is resisted by the invention herein set forth, but in a non-positive manner, as the rotative movement of a filling-carrier is limited to one-quarter of a turn at the most.

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

1. A filling-feeder for looms, comprising two connected plates adapted respectively to engage and support the heads and tips of a series of filling-carriers, the outer end of the head of each filling-carrier having one or more shallow radial recesses therein, and

means on the head-supporting plate of the feeder to frictionally and non-positively coöperate with a recess in each filling-carrier and prevent axial rotation of the same.

2. A filling-feeder for looms, comprising two connected plates adapted respectively to support the heads and tips of a series of filling-carriers, the outer end of the head of each filling-carrier having one or more shallow recesses therein, and lugs on the head-supporting plate of the feeder to frictionally engage such recessed ends of the filling-carriers and non-positively prevent axial rotation thereof.

3. A filling-feeder for looms, comprising two connected, rotatable plates, means on one plate to support the tips of a circularly-arranged series of filling-carriers each having a shallow radial recess in the outer end of its head, peripheral pockets on the other plate to receive the heads of the filling-carriers, and a lug in each pocket to frictionally and non-positively coöperate with the recessed end of the adjacent filling-carrier and prevent axial rotation thereof.

4. A filling-feeder for looms, comprising two connected, rotatable plates adapted respectively to engage and support the heads and tips of a circularly-arranged series of filling-carriers, the outer end of the head of each filling-carrier having two diametral, intersecting shallow recesses therein, the head-supporting plate of the feeder having peripheral pockets to receive the filling-carriers, and a radial lug on the back of each pocket to coöperate with a recess in the head of the filling-carrier therein the frictional engagement of the lug and a recess acting to prevent axial rotation thereof.

5. In a filling-feeder for looms, means to support the heads of a plurality of filling-carriers each having a shallow diametral recess in the outer end of its head, and lugs on the supporting means to frictionally coöperate with the recessed ends of the filling-carriers and prevent axial rotation thereof when the lugs and recesses register.

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

EDWARD S. STIMPSON.

Witnesses:

GEORGE OTIS DRAPER,  
ERNEST W. WOOD.