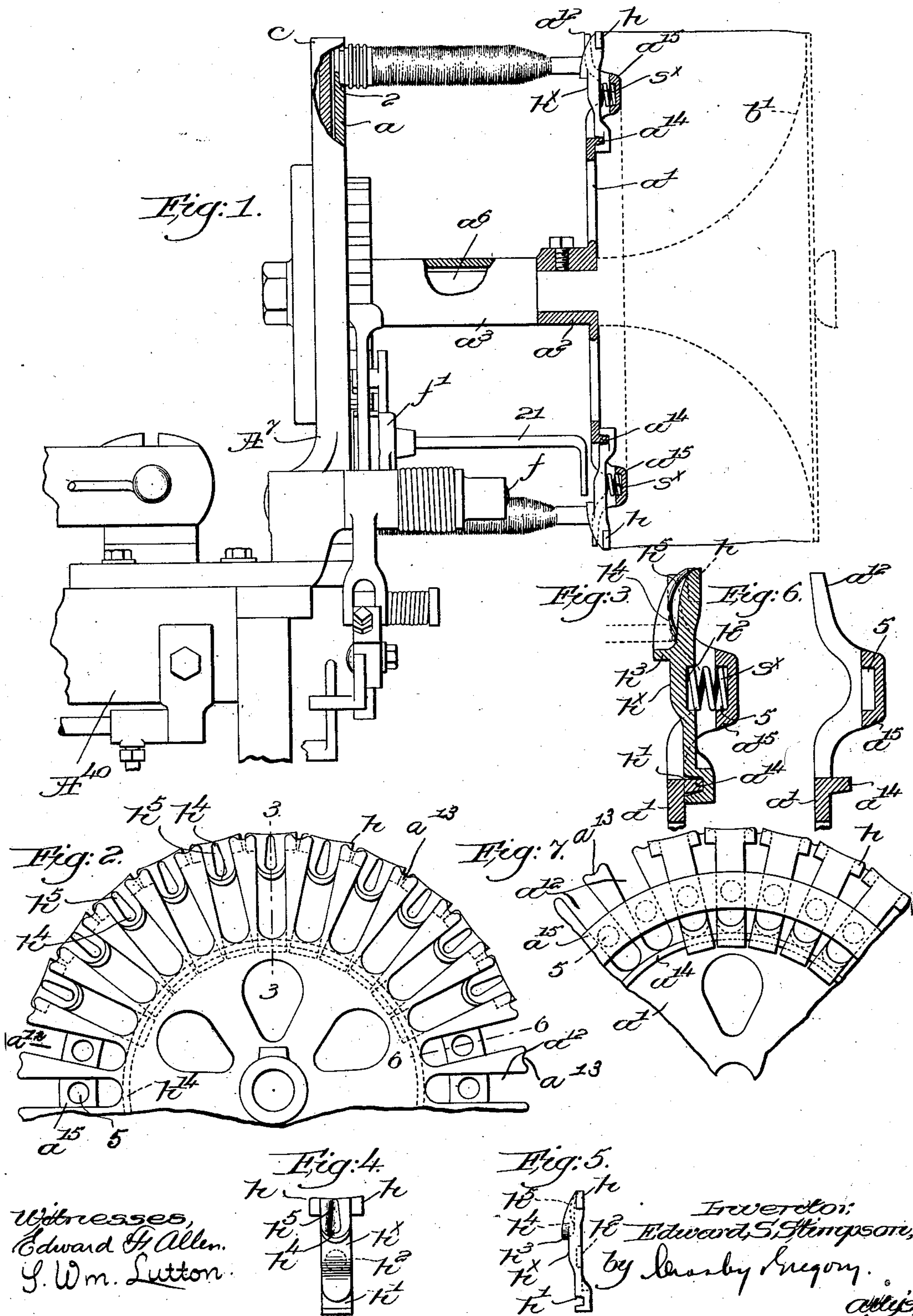


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E. S. STIMPSON.
FILLING FEEDER FOR AUTOMATIC LOOMS.
APPLICATION FILED OCT. 15, 1903.

NO MODEL.



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UNITED STATES PATENT OFFICE.

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FILLING-FEEDER FOR AUTOMATIC LOOMS.

SPECIFICATION forming part of Letters Patent No. 755,252, dated March 22, 1904.

Application filed October 15, 1903. Serial No. 177,132. (No model.)

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 Filling-Feeders for Automatic 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 has for its object the production of an improved, efficient, and simple filling feeder or hopper for automatic looms of the Northrop type, such a loom forming the subject-matter of United States Patent No. 529,940. As well known to those skilled in the art, the bobbins or cop-skewers, frequently termed "filling-carriers," are therein shown held in reserve (pending transfer to the running shuttle) in a hopper or filling-feeder which is rotated intermittingly to bring the filling-carriers one by one into transferring position. The feeder comprises, essentially, two connected ends, usually circular disks or plates, rotatably mounted on a fixed stud, and one of the plates is shown in said patent as having a series of circularly-arranged pockets to receive the heads of the filling-carriers, while the other plate is provided with oppositely-located radially-extended flat springs which engage and hold in position the tips of the filling-carriers. The flat springs must be made rather stiff to properly retain the filling-carriers in place, so that the latter must be inserted with quite a push, and owing to the pointed tips of cop-skewers it has been found somewhat difficult to always retain them properly in position by such springs. So, too, the springs had to be fastened to the plate by screws or equivalent devices, increasing the cost of manufacture and the number of parts.

In my present invention I have provided a feeder for holding properly and securely and with equal facility either bobbins or cop-skewers. The construction of the apparatus has been simplified and cheapened, and I have obviated the use of screws or other fasteners to retain the tip-holders in position. I have also

eliminated the flat or leaf springs heretofore used and employ coiled or spiral springs, which exert a regular and even tension on the filling-carriers, which latter can be placed with greater ease in the filling-carrier and as readily removed at the proper time by the transferer.

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 front elevation and partial section of the filling-replenishing mechanism of a loom of the Northrop type with a filling-feeder embodying one form of my present invention, the filling-end holder being shown in dotted lines. Fig. 2 is a partial inner side elevation of the end or plate of the feeder which supports the tips of the filling-carriers, some of the tip-holders being omitted. Fig. 3 is an enlarged sectional detail on the line 3 3, Fig. 2. Fig. 4 is a face view, and Fig. 5 a side view, of one of the tip-holders. Fig. 6 is a sectional detail of the end plate on the line 6 6, Fig. 2; and Fig. 7 is a detail of a portion of the outer side of the plate shown in Fig. 2.

Referring to Fig. 1, the plate or end a of the filling-feeder, the stand A^7 , mounted on the breast-beam A^{40} and having a circular flange c and a horizontal stud a^6 , the hub a^3 of the plate a , secured to the other end or plate of the feeder, to be described, the filling-end holder b' , rotatable with the feeder, the transferer f' , mounted to rock on the stud f , and the tip-depressing arm 21 may be and are substantially as in Northrop looms of the type referred to. The plate a is provided with a series of peripheral or circularly-arranged pockets 2, Fig. 1, as in Patent No. 529,940, to receive the heads of the bobbins or cop-skewer, one of the pockets being shown in section, Fig. 1. The plate a' is also circular and is mounted to rotate on the stud a^6 , its hub a^2 being rigidly secured to the hub of the plate a , so that the two plates will rotate in unison. Inasmuch as the means to rotate the feeder intermittingly is well known and forms no part of my invention, it is not herein

described. The plate a' is best shown in Fig. 2 as having a series of radial opening a^{12} equal in number to and opposite the pockets 2, the openings extending inward from the periphery of the plate, the edge thereof between the openings having shallow notches a^{13} . On its outer side an annular lip or rib a^{14} is formed on the plate adjacent the inner ends of the openings, Figs. 2, 3, 6, and 7, and a series of spring-seats a^{15} span the openings between their ends, being formed integral with and on the outer side of the plate. Each seat on its inner face has a depression or socket 5, shown herein as circular, to receive one end of a spiral spring s^x , Fig. 3. A tip-holder is mounted in each of the openings a^{12} , and it is arranged to hold with equal facility the blunt tip of a bobbin or the rather sharp-pointed tip of a cop-skewer, as will be described.

Referring to Figs. 2 to 5, inclusive, each holder is made as a casting comprising an elongated body h^x just wide enough to move freely between the sides of one of the openings a^{12} , the outer end of the body having lateral ears or lugs h . At its opposite or inner end the body is shaped to present a deep transverse groove h' , having its sides slightly flared, as best shown in Figs. 3 and 5, to receive and rock on the flange or rib a^{14} as a fulcrum. When the holder is so positioned on the plate, the ears h extend laterally adjacent the outer face of the plate at each side of the slot-like opening a^{12} , so that while the holder can rock outward its inward movement is limited by engagement of the ears with the plate. A circular recess h^2 is formed in the back of the holder opposite the recess 5 in the spring-seat, and the spiral spring s^x at its free end enters said recess h^2 , thereby maintaining the holder pressed inward. By reference to Fig. 3 it will be seen that the holder is inserted under the spring-seat a^{15} , and the flared walls of the groove h' permit slight rocking movement of the holder on the flange a^{14} , which latter also prevents movement of the holder radially of the plate a' . Thus without screws, bolts, or similar fastenings the tip-holders are retained in position on the plate. The holder is thickened at its outer "end" or "head," as it may be termed, as at h^3 , and the face of this portion is recessed or hollowed out to form a substantially U-shaped seat h^4 , with the opening thereof turned toward the outer end of the holder. The side walls of the seat are of such curvature that the relatively large and blunt tip end of a bobbin will readily enter therein and be supported thereby, the bottom of the seat resting against the end of the bobbin when the latter is inserted in the feeder. At such time the head of the bobbin is seated in a pocket 2 of the plate a , and its tip rests in the seat a^4 , the bobbin when inserted pushing the holder outward against the stress of the spring s^x . Thus the bobbin is yieldingly

but accurately held in place in the feeder, while its removal by the transferrer at the proper time is effected without obstacle. By using a coiled spring, as herein shown, with a tip-holder intermediate the spring and filling-carrier a comparatively light spring can be used, so that the labor of inserting filling-carriers is reduced to a minimum. The spring-seat a^{15} limits the outward rocking movement of the holder on its fulcrum a^{14} , as will be manifest. The tip of a cop-skewer is sharp or pointed and of small diameter, so that it could not be held accurately by the large bobbin-tip seat a^4 , and accordingly I have made a narrow longitudinal socket or seat h^5 in the bottom of the seat a^4 to receive the tip of a cop-skewer. The top of the holder is made convex on its face, as shown, to facilitate the insertion of filling-carriers to the feeder. As shown in Fig. 2, the ends of adjacent ears h approach each other opposite the shallow notches a^{13} of the plate a' and serve to form guides for the filling ends as they are led from the filling-carriers to the filling-end holder b' . No deep notches or crevices are presented, however, in which the filling ends are liable to catch, and unless it is desired to arrange such ends in a very accurate manner they can be carried over the periphery of the plate a' without the exercise of any particular care.

My invention is not restricted to the precise construction and arrangement herein shown and described, as the same is only one practical embodiment of my invention, and it can be varied or modified in different particulars by those skilled in the art without departing from the spirit and scope of the invention.

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

1. A filling-feeder comprising a plate adapted to sustain the heads of a series of filling-carriers, a connected plate, tip-holders movably mounted thereon to engage and sustain the tips of the filling-carriers, and springs to maintain the tip-holders in operative position.

2. A filling-feeder comprising a plate adapted to sustain the heads of a series of filling-carriers, a connected plate, a corresponding series of rocking tip-holders mounted thereon, and springs to maintain the tip-holders in operative position and in yielding engagement with the filling-carriers.

3. A filling-feeder comprising a plate adapted to sustain the heads of a circularly-arranged series of bobbins or cop-skewers, a parallel and connected plate, a series of rocking holders mounted thereon and adapted to receive and hold the tips of bobbins or cop-skewers, and springs to individually act upon and maintain said holders in operative position.

4. A filling-feeder comprising a plate adapted to sustain the heads of a series of filling-carriers, a connected plate, having openings opposite the filling-carriers, tip-holders mov-

ably mounted on the plate within the openings, and springs to individually maintain the tip-holders in yielding engagement with the filling-carriers.

5 5. A filling-feeder comprising a plate adapted to sustain the heads of a circularly-arranged series of filling-carriers, a parallel connected plate having a corresponding series of openings, spring-seats on the plate, tip-holders
10 mounted to rock in the openings of the said plate, and coiled springs interposed between the backs of the tip-holders and the seats and fixedly sustained by the latter, to yieldingly maintain the tip-holders in operative position.

15 6. A filling-feeder comprising a plate having a series of circularly-arranged pockets to receive the heads of the filling-carriers, a parallel and connected plate, a corresponding series of tip-holders mounted to rock thereon,
20 each holder having its face shaped to receive the tip of a filling-carrier, and springs to press the tip-holders toward the head-supporting plate.

25 7. A filling-feeder comprising two connected, parallel and circular plates, one of said plates having circularly-arranged means to hold the heads of a series of filling-carriers, inwardly-rocking and oppositely-located tip-holders mounted on the other plate, each holder
30 having its face recessed to receive the tip of a filling-carrier, and springs to normally press the tip-holders inward to thereby yieldingly retain the filling-carriers in position.

35 8. A filling-feeder comprising two connected, parallel and circular plates, one of said plates having circularly-arranged means to hold the heads of a series of filling-carriers, inwardly-rocking and oppositely-located tip-

holders mounted on the other plate, each tip-holder having a substantially U-shaped recess 40 and a central, radial socket in its face, and springs to yieldingly maintain the tip-holders in operative position.

9. A filling-feeder comprising two connected, parallel and circular plates, one of said 45 plates having circularly-arranged means to hold the heads of a series of filling-carriers, the other plate having opposite radial openings, spring-seats on the outer face of the plate and spanning each opening, a series of 50 tip-holders mounted in and adapted to rock at the inner ends of the openings, lateral ears on each holder, to engage the plate, and limit inward movement of the holder, and a spring interposed between the back of each holder 55 and the adjacent spring-seat.

10. A filling-feeder comprising two connected and parallel circular ends, one of said ends having a series of circularly-arranged pockets to receive the heads of the bobbins or cop- 60 skewers, the other end of the feeder having oppositely-arranged openings, and a spring-controlled tip-holder mounted in each opening, each tip-holder having on its face a U-shaped seat to receive the tip of a bobbin, the 65 seat being provided with an elongated radial socket within it, to receive the tip of a cop-skewer.

In testimony whereof I have signed my name to this specification in the presence of two sub- 70 scribing witnesses.

EDWARD S. STIMPSON.

Witnesses:

GEORGE OTIS DRAPER,
ERNEST W. WOOD.