

No. 759,146.

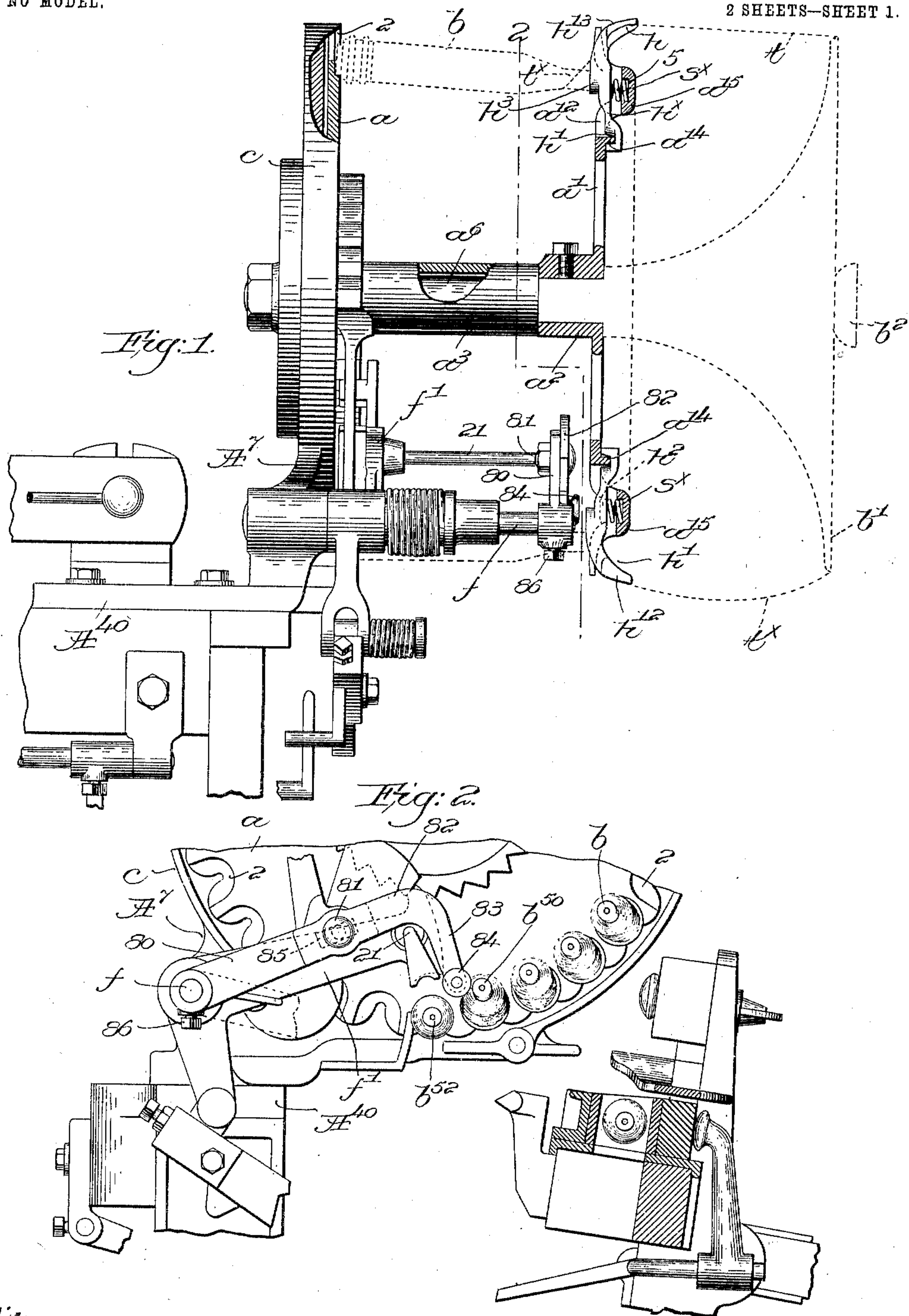
PATENTED MAY 3, 1904.

E. S. WOOD.
FILLING FEEDER FOR AUTOMATIC LOOMS.

APPLICATION FILED FEB. 17, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses,
Edward H. Allen.
Harren D. Allen.

Inventor,
Everett S. Wood,
by Crosby Gregory,
attys.

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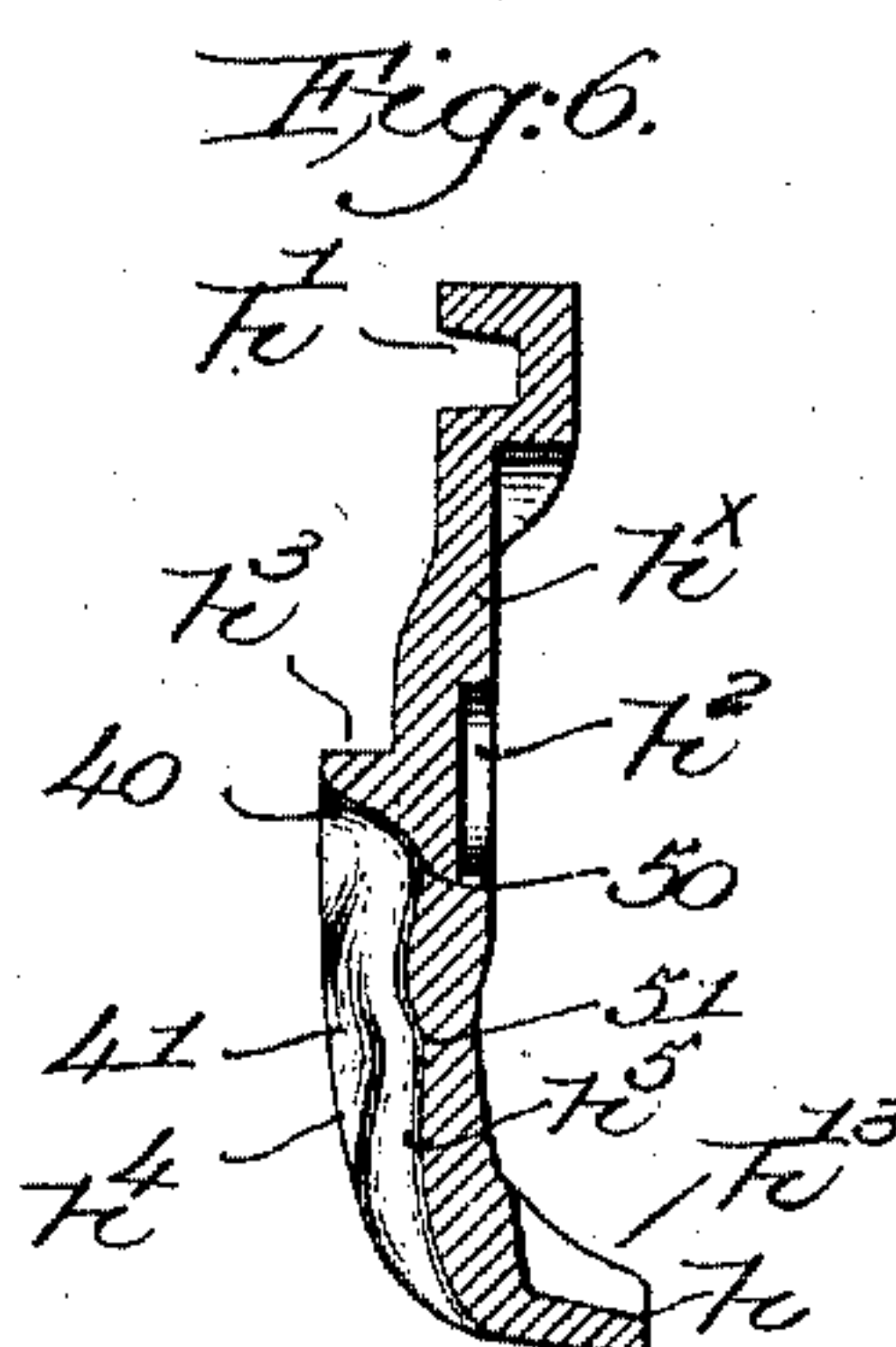
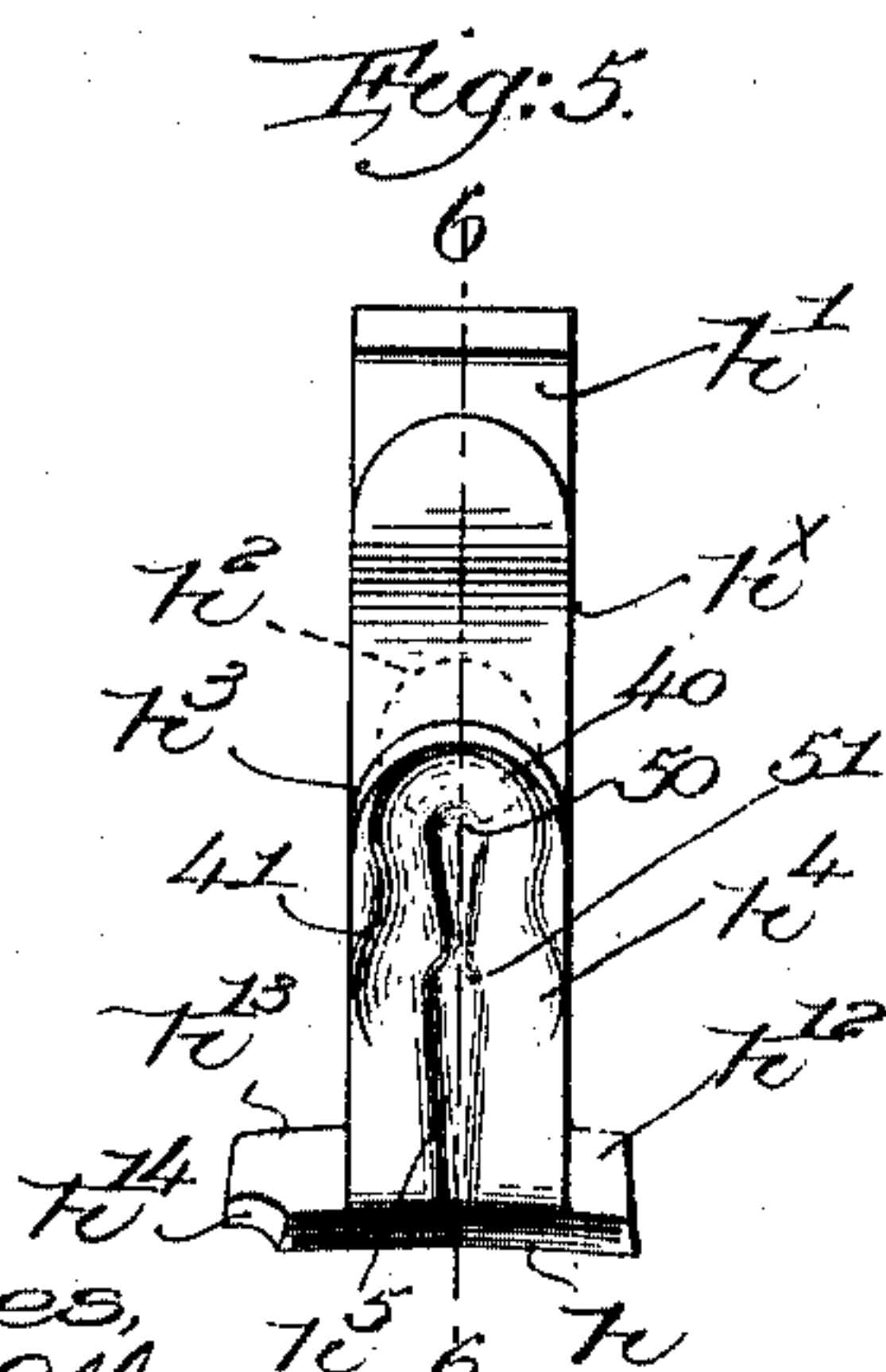
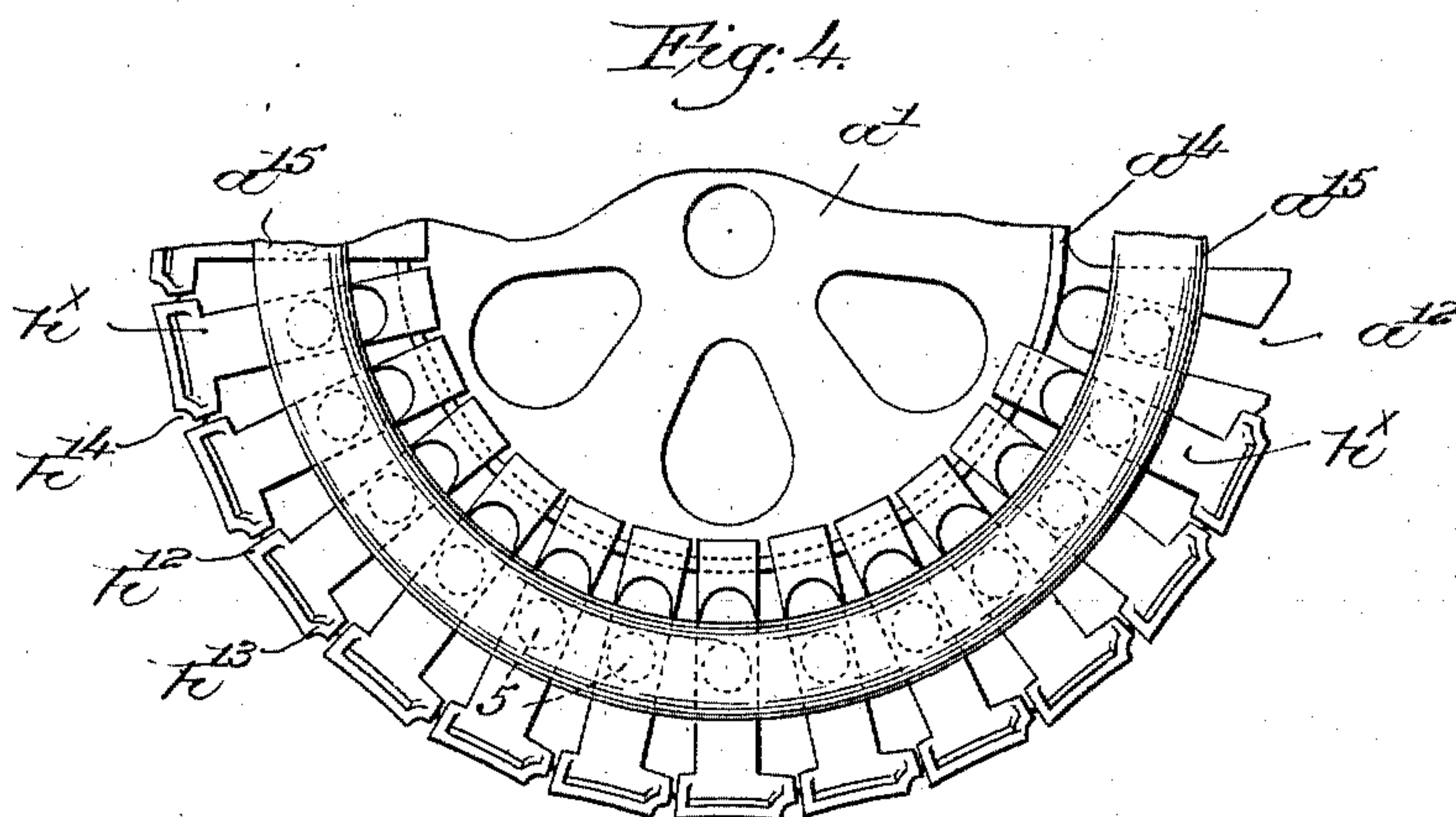
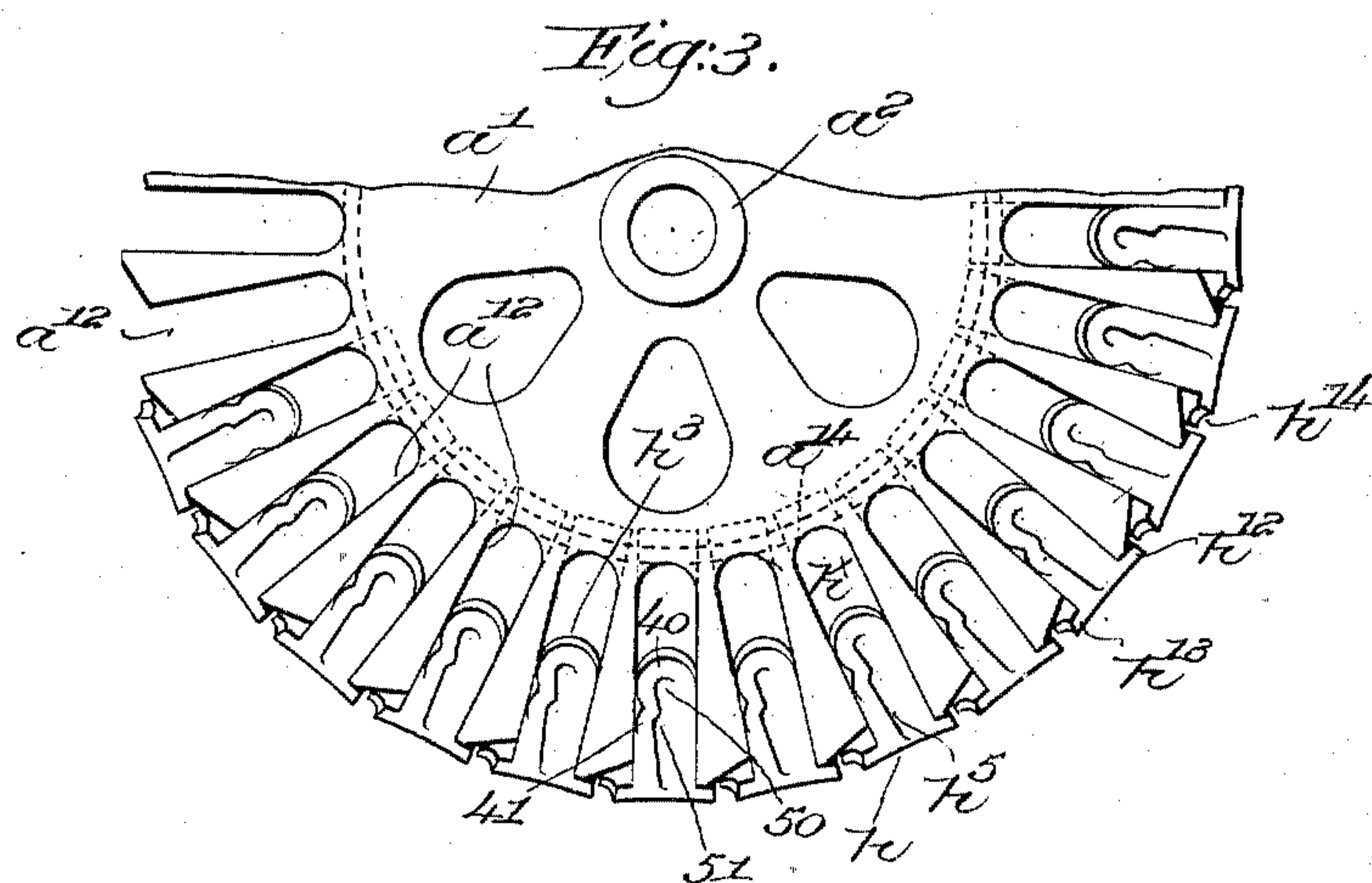
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2 SHEETS—SHEET 2.



Witnesses,
Edward F. Allen.
Harold D. Cliven

Inventor,
Everett S. Wood,
by Harry H. H. H.
attys.

UNITED STATES PATENT OFFICE.

EVERETT S. WOOD, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO
DRAPER COMPANY, OF HOPEDALE, MASSACHUSETTS, A CORPO-
RATION OF MAINE.

FILLING-FEEDER FOR AUTOMATIC LOOMS.

SPECIFICATION forming part of Letters Patent No. 759,146, dated May 3, 1904.

Application filed February 17, 1904. Serial No. 194,019. (No model.)

To all whom it may concern:

Be it known that I, EVERETT S. WOOD, 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 relates to looms wherein the running shuttle is provided automatically with fresh filling from a reserve supply contained in a filling-feeder. Such a loom is shown in United States Patent No. 529,940 and others of later date, the filling-carriers being sustained in an intermittingly-movable feeder and brought one by one into position to be transferred to the shuttle. The filling ends are made fast to a suitable holder at the outer end of the feeder, so that the filling end of a freshly-transferred filling-carrier will be held when the shuttle is first picked across the lay. It has been found in practice that some slackness of the filling end is desirable when the transfer and following pick of the shuttle take place in order to obviate breakage due to the sudden shock or strain thus brought upon the fresh filling, and various devices have been constructed to provide for such slackness of the filling end at the desired time.

This invention has for its main object the production of novel means for effecting such slackening of the filling end leading from the filling-carrier next to be transferred, the other filling ends remaining taut until slackened in their turn. In connection with such novel feature I have also provided means for holding with equal facility either bobbins or cop-skewers and in such manner that the slackening of the filling end can be readily and automatically effected.

Certain features of construction relating to the tip-holders for the filling-carriers, while shown and described herein in connection with

other parts of the mechanism, are not claimed broadly, as they are not of my invention.

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 front elevation and partial section of the filling-replenishing mechanism of a loom of the Northrop type referred to with a filling-feeder embodying one form of my present invention, the filling-end holder, of usual construction, being shown in dotted lines. Fig. 2 is a transverse sectional detail of the mechanism shown in Fig. 1 on the irregular line 2 2 thereof looking toward the left. Fig. 3 is a partial inner side elevation of the outer end plate of the feeder, showing the tip-holders mounted thereon. Fig. 4 is an outer side elevation of a portion of said end plate. Fig. 5 is an enlarged face view of one of the tip-holders; and Fig. 6 is a sectional view thereof on the line 6 6, Fig. 5.

The stand A^7 , fixedly mounted on the breast-beam A^{10} and having a circular flange c and a horizontal stud a^6 , on which is rotatably mounted the hub a^3 of the inner end plate a , the end-holding means mounted to rotate with and at the outer end of the feeder and including a disk b' and stud b^2 , the transferrer f' , mounted to rock on the stud f , and the tip-depressing arm 21 may be and are all substantially as in Northrop looms and operate in well-known manner.

The plate a is provided with peripheral pockets 2, Figs. 1 and 2, to receive the heads of the bobbins or cop-skewers, a filling-carrier b being shown in dotted lines, Fig. 1, the filling-carriers being held in the feeder in a circularly-arranged series. The plate a' is also circular, and its hub a^2 is connected with the hub a^3 , so that the plates a and a' will rotate in unison, the feeder being rotated intermittingly by well-known means which form no part of my invention and which consequently are not described herein. Said plate a' is provided with radial openings a^{12} ,

located opposite the pockets 2 and extending inward from the periphery of the plate, and on the outer side of the latter adjacent the inner ends of the openings an annular lip or rib a^{14} is formed, and spring-seats a^{15} , arranged in a circle, span the openings between their ends, being formed integral with the plate on its outer side. A circular socket 5 is formed in the inner face of each seat to receive one end of a spiral spring s^x , Fig. 1, the other end of the spring cooperating with a tip-holder movably mounted in each opening a^{12} and arranged to hold either the blunt tip of a bobbin or the sharper-pointed tip of a cop-skewer. One of the holders is shown separately in face view in Fig. 5 and in section in Fig. 6, each holder being made as a casting having an elongated body h^x , movable freely between the sides of an opening a^{12} , the inner end of the body being shaped to present a deep and slightly-flared transverse groove h' to receive and rock on the lip or rib a^{14} as a fulcrum. The outer end of the body is curved outwardly in the direction of its length at h and provided with lateral ears h^{12} h^{13} of unequal length, as herein shown, the longer ear, h^{13} , having a notch or groove h^{14} formed therein. When the holder is positioned on the plate a' , the ears extend laterally across the outer face of the plate at each side of the opening a^{12} and limit inward movement of the holder, the extension h projecting beyond the outer face of the plate. (See Fig. 1.) The holder is inserted under the corresponding spring-seat a^{15} , and the free end of the spring s^x enters a recess h^2 in the back of the holder, maintaining the latter pressed inward with its ears against the plate, while the flared walls of the groove h' permit slight rocking of the holder on the rib a^{14} , the latter positioning the holder radially on the plate a' . Thus the tip-holders are movably mounted on and retained in position on the plate without screws or bolts. The holder is thickened at h^3 , (see Fig. 6,) and the face thereof is recessed or depressed to form an elongated U-shaped seat h^4 , having its open end turned toward the outer end of the holder. This seat is so shaped to present an inner rest 40 and an outer rest 41, the rests being formed by shaping the side walls of the seat h^4 in such manner that the rather blunt tip end of a bobbin will enter either rest and be supported therein, the spring s^x pressing the bottom of the seat against the end of the bobbin when in either rest. When the bobbin is placed in the feeder, its head is seated in a pocket 2 of the plate a and its tip is pushed inward into the inner rest 40, the bobbin when thus inserted pushing the holder outward and compressing the spring s^x . By reference to Fig. 1 it will be seen that at such time the bobbin is not parallel to the axis of the feeder, but is inclined with relation thereto, the tip of the bobbin being nearer the axis. The filling end

t is led from the tip of the bobbin diagonally into the notch h^{14} in the ear h^{13} and thence over the periphery of the disk b' to the stud b^2 , around which it is wound, the filling end being thus held taut enough to prevent interference with its fellows.

In order to support the sharp or pointed tip of a cop-skewer, a longitudinal groove h^5 is made in the bottom of the seat h^4 , said groove having a pit or rest 50 at its inner end and a second pit or rest 51 nearer its outer end, each adapted to receive and support the tip of a cop-skewer. When a cop-skewer is inserted in the feeder, its tip is pushed inward into the inner rest 50, so that the tip is nearer the axis of the feeder than is its head, seated in the opposite pocket 2 of plate a , and the filling end is led off, as before described, in the guide or notch h^{14} to the holding means. In order to slacken the filling end of the filling-carrier next to be transferred to avoid undue strain on the filling when the shuttle is picked immediately following transfer, I have provided means to cause movement of such filling-carrier in and relatively to the feeder to bring the tip nearer the guide h^{14} . Such movement gives up a small portion of filling and provides the requisite slackness. To this end an arm 80 is fixedly mounted on the outer projecting end of the stud f and extended rearward, said arm having adjustably secured to it by a clamp-bolt 81 an extension 82, having a downturned end 83, Fig. 2, provided at its extremity with a lateral stud or roll 84. The arm 80 is longitudinally slotted at 85 to receive the bolt 81, so that the extension 82 can be adjusted in order to place the roll 84 in proper position. This roll is so adjusted or set that it will engage the tip end of the leading filling-carrier of the series as it is moved forward by the feeder into transferring position, and as the filling-carrier moves forward the roll will depress the tip thereof and move it away from the axis of the feeder. An inspection of Fig. 2 will make this clear, the roll 84 being shown as ready to depress the tip of the filling-carrier b^{50} when it is moved forward into the position of the filling-carrier b^{52} , the latter being ready for transfer and having already been depressed. If bobbins are used, the tip of each will be moved from the inner rest 40 to the outer rest 41 of the holder, the spring s^x yielding to permit such movement, and not only is the bobbin then brought into proper relative position to be engaged by the transferrer, but its filling end will be slackened, as shown at t^x , Fig. 1. A similar movement is effected in the case of cop-skewers, the tip of each one being moved from the inner rest 50 to the outer rest 51, with consequent slackening of its filling end. The action of the tip-holder spring causes the tip to be operated equally well whether the inner or the outer rest of the holder engages and supports the tip of the fill-

ing-carrier. Owing to the smaller size of a cop-skewer tip, the roll 84 must be adjusted to a lower position than when bobbins are used, and this can be accomplished by the adjustable connection between the extension 82 and arm 80 and by the set-screw 86, which secures the hub of the arm on the stud *f*.

My invention is not restricted to the construction herein described, for, so far as I am aware, it is broadly new to change the position of a filling-carrier in and relatively to the feeder prior to transfer therefrom, and accordingly various changes or modifications may be made without departing from the spirit and scope of my invention.

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

1. In a loom, a filling-feeder to support a plurality of filling-carriers and to move them singly into transferring position, a transferrer to remove the filling-carriers one by one from the feeder, and means to move each filling-carrier in and relatively to the feeder prior to transfer.

2. In a loom, a filling-feeder to support a plurality of filling-carriers and to move them singly into transferring position, a transferrer to remove the filling-carriers one by one from the feeder, and means to engage the tip of each filling-carrier prior to its transfer and move its tip in and relatively to the feeder, to effect slackening of the filling end of such filling-carrier.

3. In a loom, an intermittingly-movable, rotatable filling-feeder to support a plurality of circularly-arranged filling-carriers and move them singly into transferring position, a transferrer to remove the filling-carriers one by one from the feeder, and means to engage the tip of each filling-carrier prior to its transfer and move its tip outward with relation to the feeder-axis, to thereby slacken the filling end of such filling-carrier.

4. In a loom, an intermittingly-movable, rotatable filling-feeder to support a plurality of circularly-arranged filling-carriers and move them singly into transferring position, means mounted on the feeder to hold the filling ends taut, a transferrer to remove the filling-carriers one by one from the feeder, and means to automatically effect movement relatively to the feeder of the filling-carrier next to be transferred to thereby slacken its filling end.

5. In a loom, an intermittingly-movable, rotatable filling-feeder adapted to support the heads and tips of a series of circularly-arranged filling-carriers and to move them singly into transferring position, a holder movable with the feeder to hold taut the filling ends of the several filling-carriers, a transferrer to remove the latter one by one from the feeder, and means to engage the tip of the leading filling-carrier and move it relatively to the

feeder prior to transfer to slacken its filling end.

6. A filling-feeder for looms, having means to sustain the heads of a series of filling-carriers, a series of spring-controlled tip-holders movably mounted on the feeder to engage and sustain the tips of the filling-carriers, means carried by the feeder to maintain taut the filling ends, and means to engage the leading filling-carrier and change the position of the tip thereof in its tip-holder to slacken the filling end prior to transfer.

7. A rotatable filling-feeder for looms, having means to sustain the heads of a circularly-arranged series of filling-carriers, a series of spring-controlled tip-holders movably mounted on the feeder to engage and sustain the tips of the filling-carriers, said tip-holders having lateral extensions at their outer ends to support the filling ends, means rotatable with the feeder to maintain taut the filling ends led over the said extensions, and means to automatically engage the tip of a filling-carrier prior to transfer and move it outward in the tip-holder, to thereby slacken the filling end leading from said filling-carrier.

8. A filling-feeder comprising a plate adapted to sustain the heads of a circularly-arranged series of bobbins, or cop-skewers, a connected plate, a series of radially-arranged and spring-controlled, rocking tip-holders mounted thereon and adapted to receive and hold the tips of bobbins or cop-skewers, each tip-holder having its outer end extended to form a filling-end support, means at the outer end of the feeder to hold the filling ends taut over the supports, and a fixedly-mounted member to engage the leading bobbin or cop-skewer of the series and move its tip outwardly in the tip-holder to slacken the filling end prior to transfer.

9. A rotatable filling-feeder having means to sustain a circularly-arranged series of filling-carriers with their tips inclined toward the axis of the feeder, radially-extended supports, for the filling ends, means rotatable with the feeder to hold such filling ends taut over the supports, and means to act upon one after another of the filling-carriers prior to transfer and move the tips outward toward the said supports, to thereby slacken the filling end of the filling-carrier so moved.

10. A rotatable filling-feeder comprising two connected, parallel and circular plates one of which is provided with circularly-arranged means to hold the heads of a series of filling-carriers, inwardly-rocking and oppositely-located, spring-controlled tip-holders mounted on the other plate and radiating from its center, each tip-holder having in its face inner and outer seats to receive the tip of a filling-carrier, filling-end support on the outer end of each holder, means movable with the feeder to maintain the filling ends taut over said sup-

ports, the tips of the filling-carriers being sustained in the inner series of seats, a transferer to remove the filling-carriers one by one from the feeder, and means to act upon
5 the tip of a filling-carrier prior to transfer and move it outward into the outer seat of the tip-holder to thereby slacken the corresponding filling end.

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

EVERETT S. WOOD.

Witnesses:

CLARE H. DRAPER,
GEORGE OTIS DRAPER.