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E. S. STIMPSON.

TIP SUPPORT FOR AUTOMATIC FILLING REPLENISHING LOOMS.

APPLICATION FILED OCT. 17, 1902.

NO MODEL.

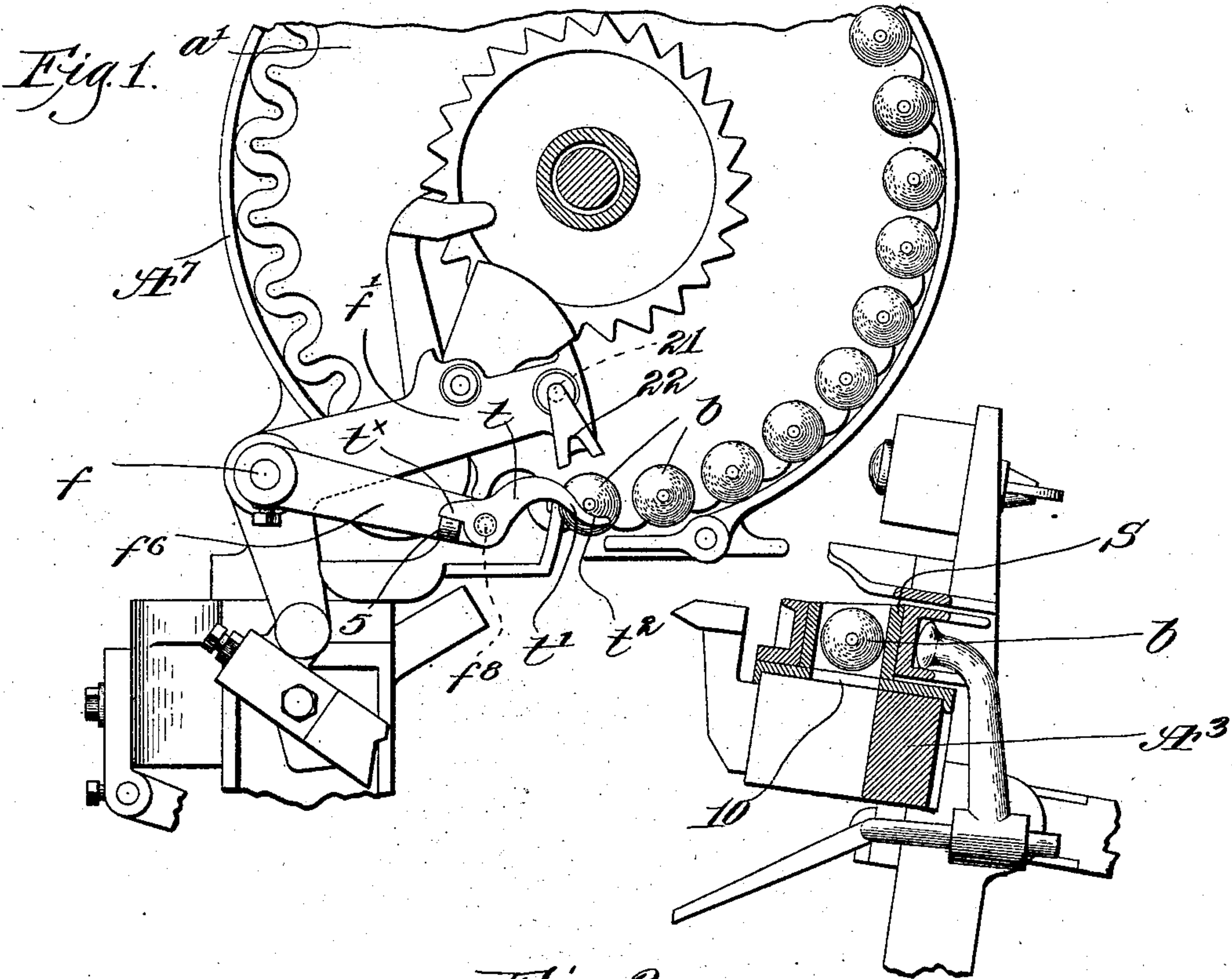


Fig. 2.

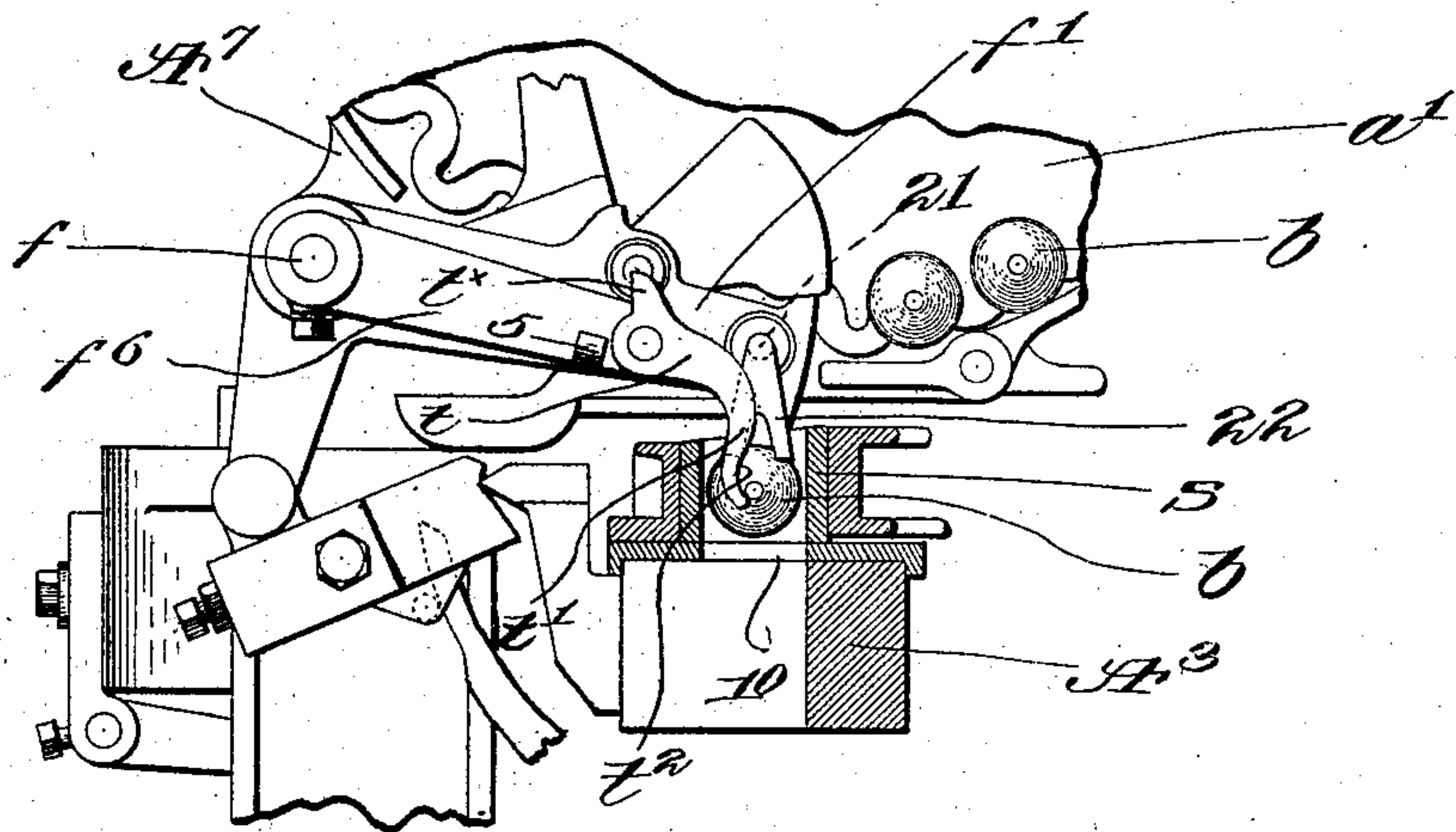
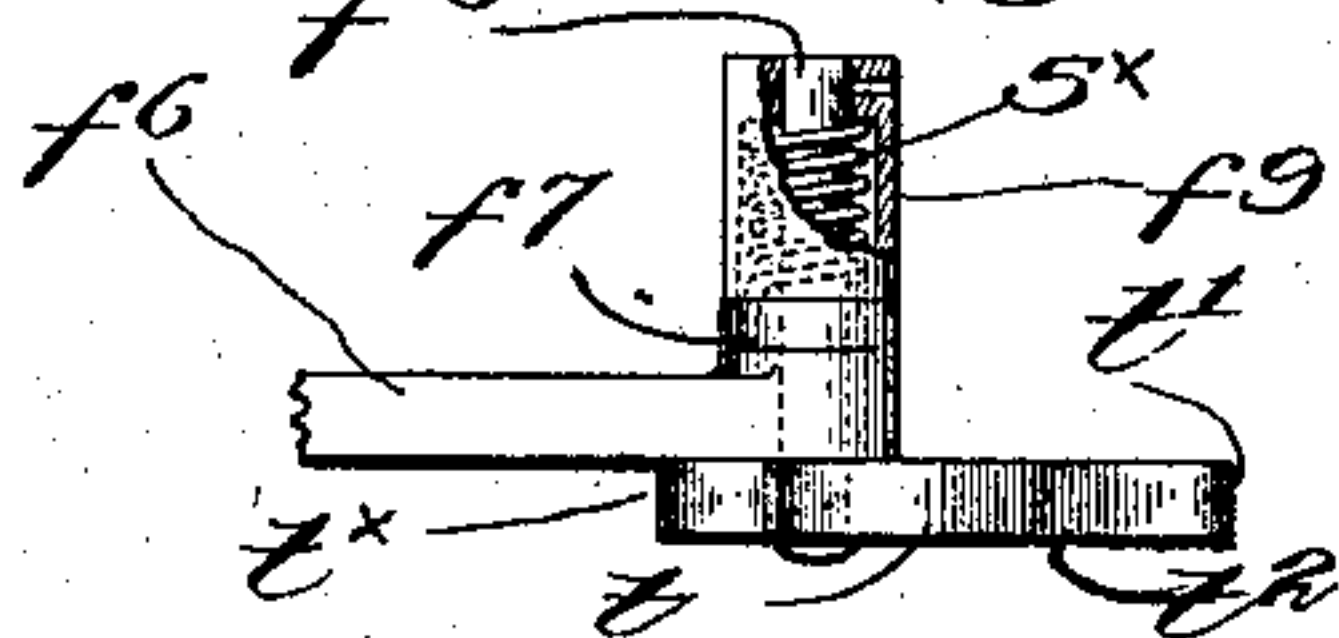


Fig. 3.



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UNITED STATES PATENT OFFICE.

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TIP-SUPPORT FOR AUTOMATIC FILLING-REPLENISHING LOOMS.

SPECIFICATION forming part of Letters Patent No. 720,189, dated February 10, 1903.

Application filed October 17, 1902. Serial No. 127,683. (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 Tip-Supports for 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.

In automatic filling-replenishing looms of the type wherein a fresh supply of filling is transferred from a hopper or feeder to the running shuttle, as in the well-known "Northrop" loom—such, for instance, as shown in United States Patent No. 529,940, dated November 27, 1894—the base of the filling-carrier is engaged by the transferrer, while the tip is engaged and forced down into the shuttle by a downturned lateral arm on the transferrer. Such looms are also provided with means to support and guide the tip of the filling-carrier, this support being made as a yieldingly-controlled straight finger which is pivotally mounted on a fixed arm and extends underneath the tip of the filling-carrier, and as the latter is inserted in the shuttle the tip-support also enters the shuttle, guiding and directing the tip and preventing improper movement thereof. Owing to various circumstances, such as the small fraction of a second permissible for filling replenishing, the varying looseness or lost motion between the operative parts of the loom, and for other reasons, this tip-support in actual practice will at times strike the side wall of the shuttle, tending to splinter or break it. To prevent such an occurrence, the shuttle is frequently cut away or recessed in the part which is nearest the tip-support, and even then the latter will sometimes hit the shuttle and cause damage.

My present invention relates particularly to looms of the type hereinbefore referred to; and it has for its object the production of a novel tip-support so constructed and arranged that it freely enters and leaves the shuttle-chamber under all conditions without contacting at all with the shuttle-body, my novel tip-support also serving to more effectively guide

and support the tip of the filling-carrier during transfer thereof.

By means of my novel invention the shuttle is left untouched by the tip-support and it does not require any trimming, cutting away, or recessing of its side wall, so that the full strength of the shuttle is preserved.

Figure 1 of the drawings represents in transverse section a sufficient portion of an automatic filling-replenishing loom to be understood with one form of my present invention, the section being taken between the plates or disks which substantially compose the feeder, the replenishing mechanism being in normal position. Fig. 2 is a detail of some of the parts illustrated in Fig. 1, but showing the fresh filling-carrier just inserted in the shuttle and with the tip-support therein entirely free from contact with any part of the shuttle; and Fig. 3 is a top or plan view, partly broken out, of the tip-support and the end of the arm on which it is pivotally mounted.

Referring to Figs. 1 and 2, the lay A^3 , slotted at 10 below one of the shuttle-boxes, the shuttle S , constructed to automatically thread itself when a fresh filling-carrier is transferred thereto, the stand A^7 , on which is mounted the rotatable feeder, comprising two parallel disks, only one of which, as a' , is herein shown, to sustain a series of filling-carriers b , the transferrer f' , fulcrumed at f and adapted to engage the base or head of the filling-carrier, and the laterally-extended arm 21 on the transferrer, having the downturned end 22 to depress the tip of the filling-carrier, and the means for effecting the movement of the feeder and the transferrer may be and are all of well-known construction and are substantially as shown in United States Patent No. 664,790, dated December 25, 1900. An arm f^6 is rigidly secured to the stud f and extends rearwardly to sustain the tip-support, which latter is herein shown of novel construction and which will now be described. On its inner side the arm has a boss f^7 , Fig. 3, through which is extended a short shaft f^8 , having rigidly attached to its outer end the tip-support, the inner end of the shaft being surrounded by a spring s^x , one end of which is

attached to the boss f^7 , while its other end is secured to a sleeve f^9 , pinned on the shaft and surrounding the spring.

The tip-support is shown as a curved member comprising a body portion t and a downturned or curved end t' substantially at right angles to the body portion, the latter being secured to the shaft f^8 and rearwardly extended.

10 The winding of the spring s^x is such that it normally maintains the tip-support in the position shown in Fig. 1, with an ear t^x on the body portion resting against a stop-lug 5 on the arm f^6 , and the extremity of the end t' of the tip-support is then extended beneath the tip of the filling-carrier next to be transferred from the feeder.

To assist in guiding and supporting the tip of the filling-carrier during transfer to the shuttle-chamber, I prefer to make a concavity, as t^2 , in the end t' near its extremity, and by reference to Fig. 1 it will be seen that I have provided such concavity by making the upper edge of the end t' on a convexo-concave curve.

Generally speaking, the tip-support is substantially \neg -shaped in side elevation, as shown in Figs. 1 and 2, so that when it is swung down on its fulcrum the end t' will enter the chamber of the shuttle in an upright position in a substantially vertical path, as shown in Fig. 2, clearing the side wall of the chamber and leaving a substantial clearance between it and such side wall. At this time the body t of the tip-support projects over the top of such side wall and at a considerable distance above it, so that under no circumstances can the tip-support engage or come in contact with any part of the shuttle.

40 It will be understood by those skilled in the art that the downward swing of the tip-support is effected by the transfer of the filling-carrier from the feeder to the shuttle, the tip of the filling-carrier sliding over the upper edge of the end t' of the tip-support from the relative position shown in Fig. 1 to that shown in Fig. 2.

Immediately upon the insertion of the filling-carrier into the shuttle the lay begins its backward movement, and the extremity of the tip-support is thereupon released by the tip of the filling-carrier, the spring s^x instantly retracting the tip-support from the shuttle-chamber.

55 No damage can be inflicted upon the shuttle by my novel tip-support, nor does the shuttle have to be filed or cut away to afford a clearance therefor, as is frequently necessary when employing a straight tip-support, such as is shown in the patent hereinbefore referred to.

My invention is not restricted to the precise structure of the tip-support as herein shown and described, as minor features of its shape and construction may be changed or modified without departing from the spirit and scope of my invention.

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

1. The combination, with a feeder, and a transferrer to transfer a filling-carrier therefrom into a shuttle, of a yieldingly-controlled, rocking tip-support to extend beneath and guide the tip of the filling-carrier into position in the shuttle-chamber, the free end of the tip-support being downturned to enter the shuttle-chamber in a substantially vertical path at the time of transfer.

2. The combination, with a feeder, and a transferrer to transfer a filling-carrier therefrom into a shuttle, of a yieldingly-controlled, rocking tip-support to extend beneath and guide the tip of the filling-carrier into position in the shuttle-chamber, the free end of the tip-support being substantially at right angles to the body portion thereof, to enter the shuttle-chamber in upright position at the time of transfer.

3. The combination, with a feeder, and a transferrer to transfer a filling-carrier therefrom into a shuttle, of a yieldingly-controlled, rocking tip-support to extend beneath and guide the tip of the filling-carrier into position in the shuttle-chamber, the tip-support being downwardly curved in the direction of its length between its free end and fulcrum, to enter the shuttle-chamber at the time of transfer clear of its side wall.

4. The combination, with a feeder, and a transferrer to transfer a filling-carrier therefrom into a shuttle, of a yieldingly-controlled tip-support mounted on a fixed fulcrum and having its free end downwardly turned or curved to enter the shuttle-chamber clear of its side wall at the time of transfer and to extend beneath and guide the tip of the filling-carrier into position in the shuttle-chamber.

5. In a filling-replenishing loom, a feeder for the filling-carriers, a cooperating transferrer, and a yieldingly-controlled, rocking tip-support extended rearwardly from its fulcrum and downcurved at its free end, the latter extending beneath the tip of the filling-carrier during transfer thereof and guiding it into position in the chamber of a shuttle, the curvature of the tip-support causing it to enter the shuttle-chamber in a substantially vertical path clear of the side walls of the chamber.

6. The combination, with a feeder, and a transferrer to transfer a filling-carrier therefrom into a shuttle, of a yieldingly-controlled, substantially \neg -shaped tip-support mounted on a fixed fulcrum, and having a concavity in its free end, to support and guide the tip of a filling-carrier, the downturned end of the tip-support overhanging and clearing the side wall of the chamber of a shuttle and entering the chamber in upright position at the time of transfer.

7. In a loom provided with automatic filling-replenishing mechanism, a rocking tip-support having a downcurved free end, to ex-

5 tend beneath the tip of a filling-carrier next to be inserted in the shuttle and to guide and position the tip in the shuttle-chamber at the time of transfer, the free end of the tip-support at such time descending into the shuttle-chamber in a substantially vertical path and clearing the side wall thereof.

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 WARREN WOOD.