

E. S. STIMPSON.
 AUTOMATIC FILLING REPLENISHING MECHANISM FOR LOOMS.
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1,019,098.

Patented Mar. 5, 1912.

Fig. 1.

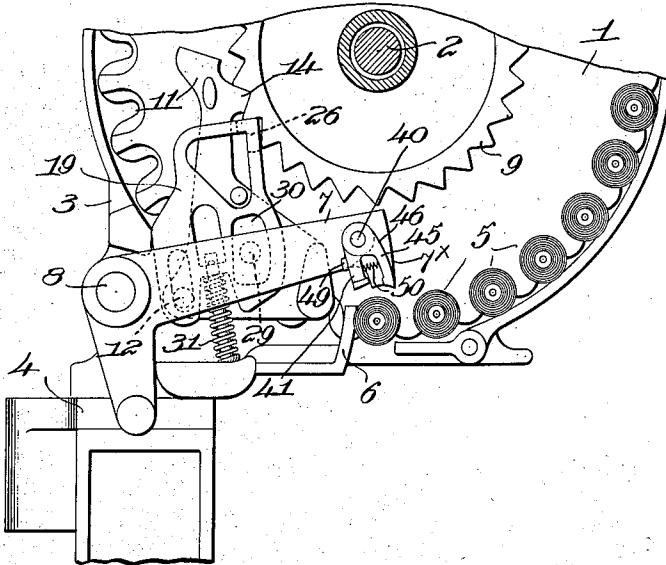


Fig. 2.

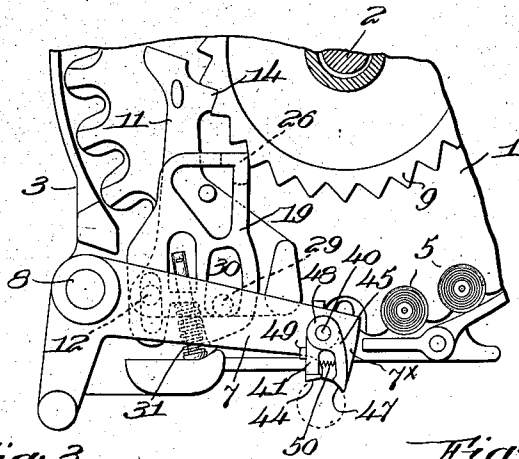


Fig. 3.

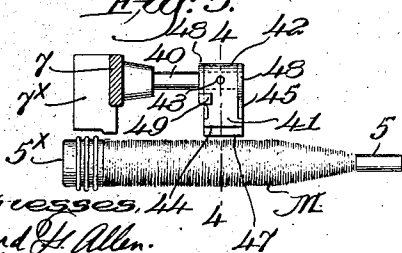
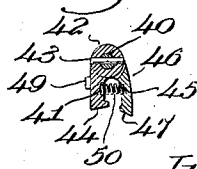


Fig. 4.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC FILLING-REPLENISHING MECHANISM FOR LOOMS.

1,019,098.

Specification of Letters Patent.

Patented Mar. 5, 1912.

Application filed December 19, 1910. Serial No. 598,154.

To all whom it may concern:

Be it known that I, EDWARD S. STIMPSON, a citizen of the United States, and resident of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Automatic Filling-Replenishing Mechanism for Looms, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates to mechanism for replenishing automatically the filling in the working shuttle of a loom of the Northrop type, and the invention has more particular reference to such mechanism used on broad looms.

In the Northrop type of loom the filling-carriers or bobbins in reserve are mounted in a feeder or hopper and they are removed therefrom one by one by a rocking transferer when filling replenishment is called for, a characteristic loom of this type forming the subject-matter of United States Patent No. 529,940 granted November 27, 1894 to Northrop. Therein the transferer is provided with means to engage the butt and tip of a filling-carrier during transfer, and when the transferer rises and returns to normal position the next carrier in the feeder is advanced to transferring position.

In looms of ordinary width, say about 30 inches, and running from 150 to 180 picks per minute the retraction of the transferer is rapid enough to clear the next carrier in the feeder, and even should there be some slight interference it could only be with the butt or tip of the carrier, and hence would not be important. Broad looms, however, are operated at a considerably lower rate of speed and the retraction of the transferer is correspondingly slower, and on such looms it has been found in practice that during retraction of the transferer the endmost filling-carrier in the feeder will be engaged and the yarn thereon abraded or at times broken. This is most frequently the case when the transferer is provided with a device to cooperate with the yarn mass on the filling-carrier during transfer, instead of cooperating with the tip thereof, as in the Northrop patent, (the yarn engaging depressor being frequently used on broad

looms) and owing to its location it is apt to impinge upon and rub or abrade the yarn on the next filling-carrier in the feeder.

My present invention has for its object the production of a transferer so constructed and arranged that even if the yarn mass on the next filling-carrier is engaged by the yarn depressing means of the transferer upon retraction of the latter no damage will be done.

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 transverse section and part side elevation of filling replenishing mechanism of the Northrop type with one form of my present invention embodied therein, the parts being shown in normal position; Fig. 2 is a similar view but showing the transferer at the end of its active or transferring stroke; Fig. 3 is a front view of the transferer in normal position ready to transfer a filling-carrier from the feeder or hopper; Fig. 4 is a sectional detail of the yarn engaging portion of the transferer on the line 4-4, Fig. 3.

The means for governing and effecting the advance or feed movement of the filling feeder herein illustrated is shown in Patent No. 823,644 granted June 19, 1906 to me and another, but it will be manifest hereinafter that my present invention is not thereby restricted to the particular form of controlling and governing means for the feeder but can be used with equal facility in connection with other suitable or well known forms of replenishing mechanism.

The filling feeder or hopper herein comprises essentially two connected and rotatable disks of which the inner one, as 1, is shown in Figs. 1 and 2, rotatably mounted on the stud 2 fixedly mounted on a stand 3 carried by the breast-beam 4 of the loom, the filling-carriers 5 being supported by their butts and tips in well known manner and sustained by the feeder in a circularly arranged series. The stop 6 for the carrier next to be transferred, the transferer 7 mounted to rock on the horizontal stud 8 and retracted to normal position by the usual spring (not shown), the butt-engaging head 7* of the transferer, the ratchet 9 fixedly

connected with disk 1, the detent-pawl 11 fulcrumed at 12 and having an operating tooth 14, the feed-pawl plate 19 provided with the feed-tooth 26 and apertured at 30 for the laterally extended lug 29 on the transferrer, and the feed spring 31, may be and are all substantially as in Patent No. 823,644 and operate as set forth therein.

When transfer takes place the head 7* engages and depresses the butt 5* of the filling-carrier, (see Fig. 3), and herein the transferrer is provided with a laterally extended arm 40 above and parallel to the longitudinal axis of the carrier, but instead of providing a tip depressor at the outer end of the arm I mount thereupon a yarn engaging device so located as to engage the yarn mass M, Fig. 3, on the filling-carrier when filling transfer is called for. This yarn engaging device comprises two depending members or fingers arranged one in front of the other, the front finger 41 having a hub 42 which receives the arm 40 and which is fixed thereupon, as by a pin 43, the flat tip 44 of said finger being of considerable length and width, see Figs. 3 and 4, and being beveled from front to rear. The rear finger 45 is slightly curved from its upper to its lower end, to present a convex rear face 46, Fig. 4, and its tip 47 is of equal length with the tip 44 but is oppositely beveled, to make a V-shaped end to the depressor, taken as a whole. At its upper end the finger 45 is bifurcated to present separated and parallel cheeks 48 which are loosely mounted on the arm 40 with the fixed hub 42 between them, as clearly shown in Fig. 3, and one of the cheeks is provided with an extension, bent over in front of the finger 41 at 49 to constitute a stop. Between the fingers I interpose a suitable but light spring 50, which normally maintains the fingers separated in proper position to cooperate with the yarn mass of a filling-carrier during transfer. Should the rear finger 45 be pressed forward the spring yields and allows the finger to swing or rock upon the arm 40, as will be manifest. Referring to Figs. 1 and 2 it will be seen that the compound depressor is arranged to engage and seat upon the yarn mass on the filling-carrier to be transferred during transfer thereof while the head 7* engages the butt, and the carrier is thereby steadied and maintained in proper position during movement thereof from the feeder to the shuttle, the V-shaped end of the depressor fitting upon the rounded body of the yarn. During transfer there is no tendency to press the fingers of the depressor together, but on the retracting stroke of the transferrer the yarn mass on the next carrier in the feeder will sometimes be advanced rapidly enough to be engaged by the convex back 46 of the finger 45, and when such finger is so impinged upon it gives or yields

and swings forward as the spring 50 is compressed, so that there is no harsh abrading or rubbing action upon the yarn of the carrier in the feeder. Consequently all tendency to injure or break such yarn is obviated and an advance of the feeder at a more rapid rate than the retractive speed of the transferrer is not objectionable. The stop 49 serves to limit the spring-induced separation of the fingers of the depressor during the normal action thereof. The convex back of the rear finger 46 decreases to a minimum the surface engagement thereof with the yarn mass on a filling-carrier in the feeder.

Various changes or modifications in details of construction and arrangement may be made by those skilled in the art without departing from the spirit and scope of my invention as set forth in the claims annexed hereto.

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

1. The combination with a rotatable feeder adapted to hold a circularly arranged series of bobbins and to advance the same one by one to transferring position, of a rocking transferrer having a butt-engaging head and a lateral arm, and a depressor comprising two members depending from the arm and adapted to engage and depress the yarn mass on the bobbin during transfer, and means acting to yieldingly maintain the rearmost member in depressing position and normally at a fixed distance from its fellow member, said member yielding if the rearmost face thereof is engaged by the yarn mass on the next bobbin in the feeder as the transferrer returns to normal position.

2. The combination with a rotatable feeder to hold a circularly arranged series of bobbins and adapted to advance the same one by one to transferring position, of a rocking transferrer having a head to engage the butt of a bobbin during transfer, a lateral arm on the transferrer, depending depressing fingers carried thereby to cooperate with the bobbin at a distance from its butt, said fingers being located one behind the other and having oppositely inclined and elongated yarn-engaging tips, and a spring to normally maintain the rearmost finger with its tip fixed in operative position relatively to the other finger but permitting the rearmost finger to yield if engaged by the next bobbin in the feeder when the transferrer returns to normal position.

3. The combination with a rotatable feeder to hold a circularly arranged series of bobbins and adapted to advance the same one by one to transferring position, of a rocking transferrer and means carried thereby to impinge upon the yarn mass on the bobbin during transfer, said means comprising a non-yielding front member, and a

spring-controlled rear member adapted to
yield if the rearmost face thereof is im-
pinged upon by the yarn mass on the next
bobbin in the feeder, the said members hav-
5 ing oppositely beveled and elongated yarn-
engaging tips normally fixed with relation
to each other during transfer.

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

EDWARD S. STIMPSON.

Witnesses:

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