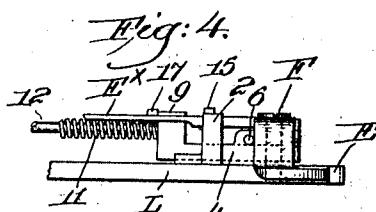
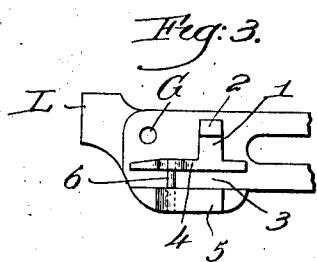
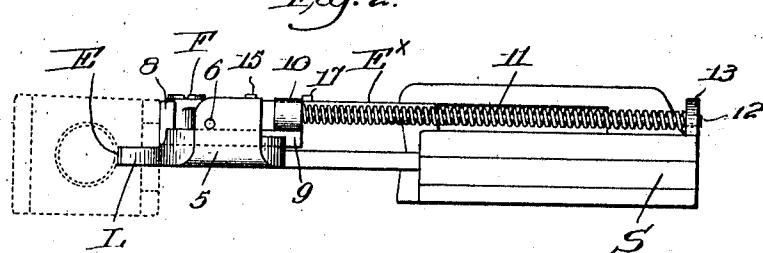
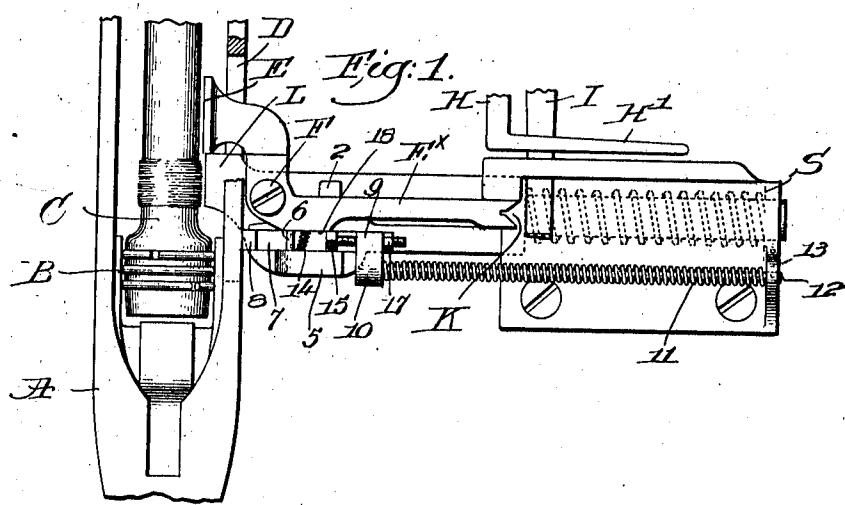


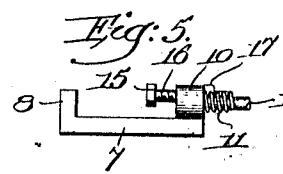
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FILLING FEELER FOR LOOMS.  
APPLICATION FILED APR. 29, 1910.

970,644.

Patented Sept. 20, 1910.



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# UNITED STATES PATENT OFFICE.

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## FILLING-FEELER FOR LOOMS.

970,644.

Specification of Letters Patent. Patented Sept. 20, 1910.

Application filed April 29, 1910. Serial No. 558,318.

To all whom it may concern:

Be it known that I, JOSHUA ROBINSON, a citizen of the United States, and resident of Lawrence, county of Essex, State of Massachusetts, have invented an Improvement in Filling-Feelers 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 automatic filling replenishing looms wherein the running filling is replenished prior to the complete exhaustion of the filling in the working shuttle, the feeler mechanism comprehending a feeler and a feeler-lock to prevent functional movement of the feeler until filling replenishment is called for, such a structure being shown and described in United States Patent No. 911,672 granted February 9, 1909 to Northrop.

A feeler-governor is provided, so related to the feeler that the latter prevents impingement of the governor upon the filling in the shuttle until such filling is exhausted to a certain extent, after which a bunter forming part of the feeler-lock impinges upon the side wall of the shuttle and the lock proper is moved to unlock the feeler so that its functional movement will be effected when the desired exhaustion of filling is reached.

My present invention has for its object the production of certain novel structural features in a feeler mechanism of the character above referred to, whereby the feeler-lock is made adjustable to provide for shuttles of different widths, for filling-carriers having various diameters for the barrel portions thereof, to take up wear, etc.

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 top plan view of a filling feeder embodying one form of my present invention, the adjacent end of a shuttle and filling-carrier or bobbin therein being shown, the filling being shown as exhausted to such a point that the feeler is about to be unlocked; Fig. 2 is an outer side elevation of the feeler mechanism shown in Fig. 1, with the shuttle and filling-carrier indicated by dotted lines; Fig. 3 is a top plan view of the rear end of the feeler-governor, with the

feeler and feeler-lock omitted; Fig. 4 is an inner side elevation of the feeler mechanism which is adjacent the shuttle; Fig. 5 is a side view of the feeler-lock as a whole, detached from the other parts of the mechanism.

In Fig. 1 the shuttle A of suitable character, and supposed to be boxed at the feeling side of the loom, has spring-jaws B to grasp the head of the removable filling-carrier or bobbin C, the side wall of the shuttle toward the front of the loom having an elongated slot D through which the feeler can enter the shuttle.

The feeler E, pivoted to swing horizontally on a vertical stud F screwed into the hole G, Fig. 3, in the body of the feeler-governor L, the beveled notch K in the forward end of the long arm E<sup>x</sup> of the feeler, to cooperate with the upturned finger J on the controller I, and the transmitter H having at its outer end a bent part H', in practice provided with a cam-slot (not shown) through which the controller is extended, may be and are all substantially as in the Northrop patent referred to.

As provided for in the Northrop patent the feeler-support is mounted to slide back and forth on a suitable support S, in practice mounted on a fixed part of the loom, the rear end of the feeler and feeler-governor entering the shuttle through the slot D as the lay beats up on alternate picks, to touch the filling at different places lengthwise of the bobbin.

Herein the casting constituting the feeler-governor L has formed upon it a transverse, horizontal rest 1 extended beneath and to sustain the long feeler arm E<sup>x</sup>, the inner end of the rest being raised to form a fixed stop 2 for the inner longitudinal edge of said arm, and a longitudinal guide-way 3, Fig. 3, is formed on the feeler-governor between the opposite walls 4, 5, a pin 6 crossing the guide-way and being fixedly held in said walls. In this guideway the feeler-lock as a whole is mounted to slide longitudinally, and herein I have shown such feeler-lock as an elongated body 7, Fig. 5, upturned at its rear end at 8 to form a bunter, and at its front end the body is upturned at 9 and laterally enlarged to form a stop 10. The pin 6 extends across the top of the body 7 and holds the latter down upon the bottom of the guideway 3, and the spring 11 which en-

circles the guide-rod 12 normally acts to retain the feeler-lock in its operative position, said guide-rod being fixed in the stop 10 and sliding through an ear 13 on the support S, 5 Figs. 1 and 2. At such time the stop 10 abuts against the front end of wall 5 and the bunter 8 is retained in proper position to co-operate with the shuttle-wall when the requisite exhaustion of filling permits. A spring 10 14, Fig. 1, between the wall 5 and the arm E<sup>x</sup> restores the feeler E to normal position, substantially as in the Northrop patent.

Herein the lock proper is the polygonal head 15 of a screw-stud 16 which is in 15 threaded engagement with the part 9 of the body 7, the front end of the stud having a check-nut 17 thereon which is set up against the adjacent face of the part 9, and the head 15 is conveniently made hexagonal, one of 20 its faces slidably engaging the inner side of the wall 5 while its opposite face engages the straight edge or heel 18 on the feeler.

So long as the lock member 15 is in engagement with the heel 18 of the feeler E 25 the latter cannot be swung on its pivot F to perform its movement, but when forward movement of the feeler-lock as a whole carries the lock member 15 beyond said heel, or to the right, Fig. 1, the feeler will be unlocked and can perform its functional movement. As the member 15 slides forward or back it will be kept from rotation by its engagement with the inner side of wall 5, but the check-nut 17 is employed as an additional precaution, so that under no circumstances can said member 15 rotate accidentally.

The bunter 8 cannot touch the shuttle until a material exhaustion of the filling is effected, as will be apparent, but when the shuttle wall engages the bunter before the feeler-governor L impinges on the remaining filling the feeler-block will be moved forward and the lock member 15 will be carried 40 out of engagement with the heel 18, thereby releasing or unlocking the feeler. When such exhaustion of filling occurs the bobbin in front of the projecting end of the feeler E is bare of filling, as shown in Fig. 1, and 45 the feeler will impinge upon the bobbin before the projecting end of the feeler-governor L impinges upon the remaining filling N, Fig. 1, so that if the feeler is unlocked it can swing on its pivot F, performing its functional movement to effect co-operation between the finger J of the controller and the notch K of the feeler arm E<sup>x</sup>. This co-operation causes the controller I to be swung forward and the transmitter 50 H to be rocked when the feeler-governor and feeler are moved forward bodily, as in the Northrop patent, to effect replenishment of filling in well-known manner.

Referring to Fig. 1 it will be seen that by 55 moving forward the feeler-lock far enough

for the lock member 15 to clear the wall, and by loosening check-nut 17, the stud 16 can be revolved to move its head or lock member 15 toward or away from the bunter 8. The nearer said member 15 is set or adjusted toward the bunter the greater will have to be the forward movement of the feeler-lock as a whole to cause said member 15 to clear the heel 18 and unlock the feeler, and the farther away said member is adjusted from the bunter the less will be the bodily forward movement of the feeler-lock to enable the lock-member 15 to release the feeler. By such adjustment, therefore, the unlocking of the feeler is retarded or hastened, according to circumstances, and changes in the width of shuttles or diameter of bobbins are accommodated by the adjustment described.

It will be understood that when functional movement of the feeler has been effected the lay on its back stroke disengages the feeler and bobbin, and the spring 14 returns the feeler to normal position while spring 11 returns the feeler-lock to normal 90 position, with the lock-member 15 in locking engagement with the heel 18 of the feeler. At such time the lug 2 serves as a back-stop for the feeler, and the engagement of the stop 10 with the wall 5 limits the rearward movement of the feeler-lock upon and with relation to the feeler-governor. The rest 1 serves as a support for the long arm E<sup>x</sup> of the feeler and prevents any tendency to bend or twist it when the feeler is operating, and also relieves the pivot F of some strain at such time.

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

1. A loom having, in combination, a feeler adapted to enter the shuttle and co-operate with the filling therein, a feeler-governor, and a feeler-lock slidably mounted thereon, including a bunter to engage and be moved by the shuttle-wall, and a lock member adjustable independently of the bunter and normally co-operating with the feeler to lock it from functional movement, shuttle-induced movement of the bunter effecting movement of the lock member to unlock the feeler.

2. A loom having, in combination, a feeler adapted to enter the shuttle and co-operate with the filling therein, a feeler-governor, having a longitudinal guideway thereon, and a feeler-lock comprising an elongated body slidably mounted in said guideway and having upturned ends, the rear end constituting a bunter to engage and be moved by the wall of the shuttle, a lock member adjustable independently of said bunter and mounted in the upturned front end of said body and normally co-operating with the feeler to lock it from functional movement, and a spring

to return the feeler-lock bodily to normal, operative position.

3. A loom having, in combination, a feeler adapted to enter the shuttle and coöperate with the filling therein, a feeler-governor, having a longitudinal guideway thereon, and a feeler-lock comprising an elongated body slidably mounted in said guideway and having upturned ends, the rear end constituting 10 a bunter to engage and be moved by the wall of the shuttle, a polygonal lock member having a screw shank in threaded engagement with the upturned front end of said body, said lock member normally coöperating with 15 the feeler to lock it from functional movement and also being held from accidental rotation by sliding engagement with the outer wall of the guideway, and a spring to return the feeler-lock bodily to normal, 20 operative position.

4. A loom having a reciprocating feeler-governor and a feeler movable therewith and pivoted thereon to swing laterally, a feeler-lock slidably longitudinally on the feeler-governor and comprising a body having an upturned bunter fixed thereon and a lock member adjustable on the body and nor-

mally coöperating with the feeler to lock it from swinging movement, a transverse rest for the feeler, on the feeler-governor, and 30 an upturned lug on the inner end of said rest, to limit swinging movement of the feeler in one direction.

5. A loom having, in combination, a feeler adapted to enter the shuttle and coöperate with the filling therein, a reciprocating support on which the feeler is pivoted to swing laterally, a feeler-lock slidably mounted on said support and comprising a shuttle-engaging bunter and a separate lock member 40 rotatively mounted for adjustment independently of the bunter and normally coöperating with the feeler to lock it from functional movement, and a device on said support in sliding engagement with said 45 lock member to prevent accidental rotation thereof.

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

JOSHUA ROBINSON.

Witnesses:

FRED A. MORGAN,  
NEWTON P. FRYE.