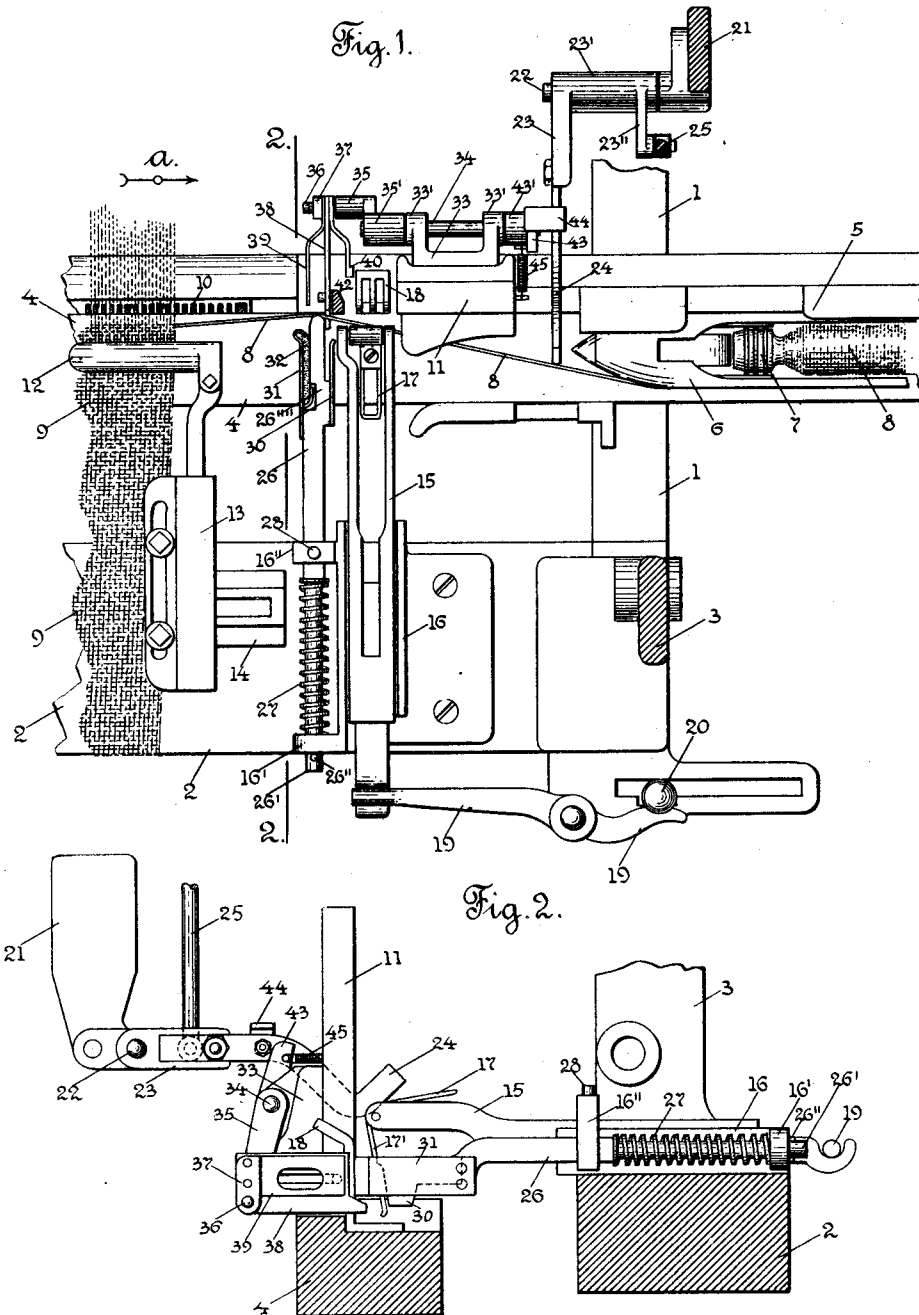


E. H. RYON.
FILLING THREAD CUTTING MECHANISM FOR WEFT REPLENISHING LOOMS.
APPLICATION FILED JAN. 12, 1911.

1,034,932. Patented Aug. 6, 1912.

3 SHEETS—SHEET 1.



Witnesses
M. Bredt.
M. Haas.

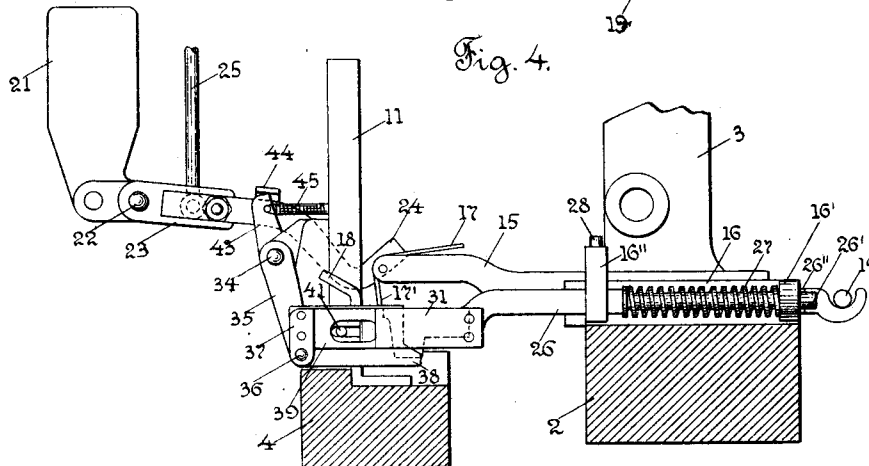
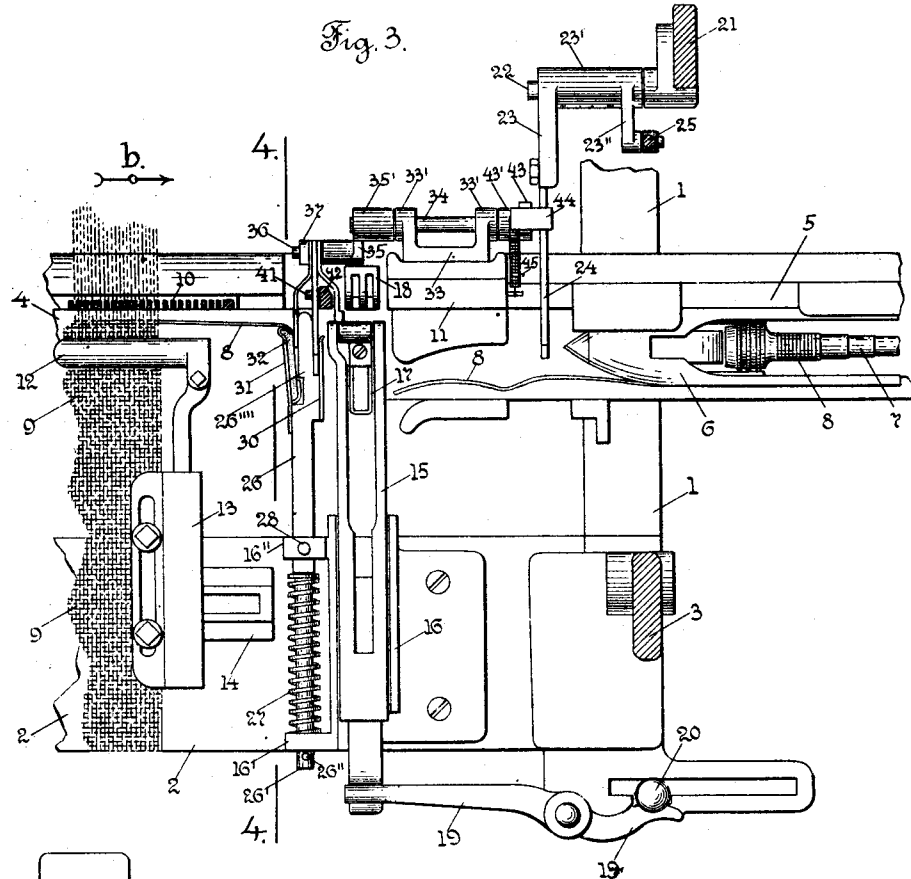
Inventor
Eppa H. Ryon.
By *John C. Dewey*
Attorney.

E. H. RYON.
FILLING THREAD CUTTING MECHANISM FOR WEFT REPLENISHING LOOMS.
APPLICATION FILED JAN. 12, 1911.

1,034,932.

Patented Aug. 6, 1912.

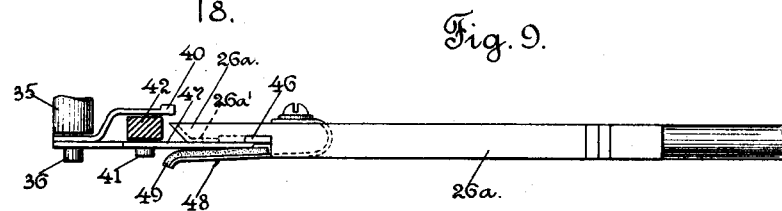
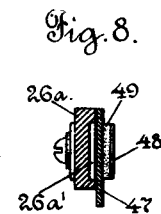
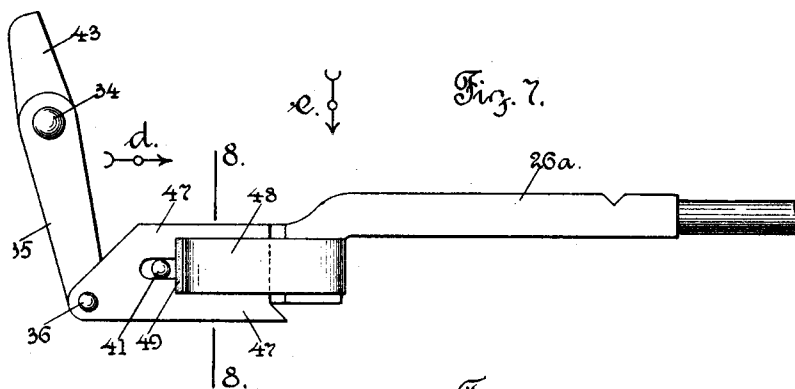
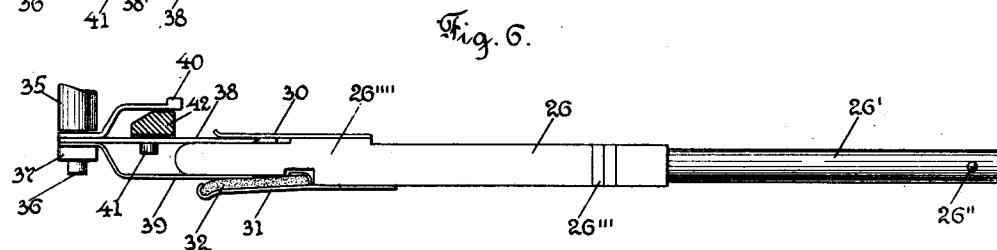
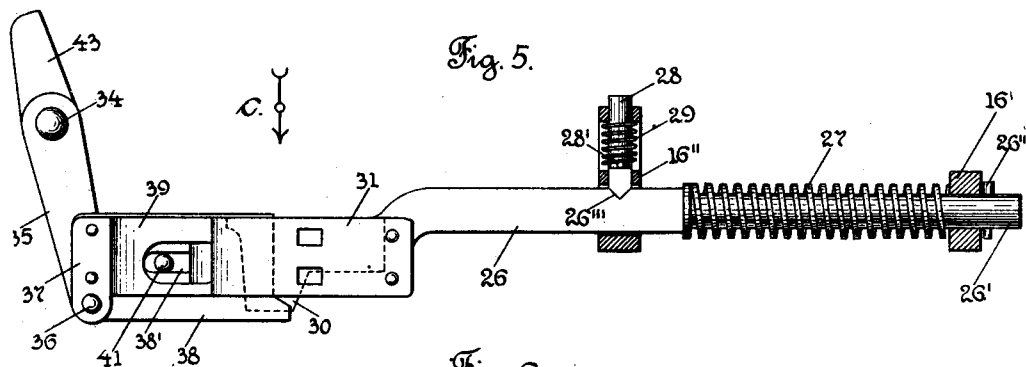
3 SHEETS—SHEET 2.



Witnesses
M. Bredt.
W. Kasse

Inventor
Eppa H. Ryon.
By *John C. Dewey*
Attorney.

E. H. RYON.
FILLING THREAD CUTTING MECHANISM FOR WEFT REPLENISHING LOOMS.
 APPLICATION FILED JAN. 12, 1911.
1,034,932. **Patented Aug. 6, 1912**
 3 SHEETS—SHEET 3.



Witnesses
 M. Bredt.
 W. H. H. H.

Inventor
 Eppa H. Ryon.
 By *John C. Dewey*
 Attorney.

UNITED STATES PATENT OFFICE.

EPHA H. RYON, OF WALTHAM, MASSACHUSETTS, ASSIGNOR TO CROMPTON & KNOWLES LOOM WORKS, A CORPORATION OF MASSACHUSETTS.

FILLING-THREAD-CUTTING MECHANISM FOR WEFT-REPLENISHING LOOMS.

1,034,932.

Specification of Letters Patent.

Patented Aug. 6, 1912.

Application filed January 12, 1911. Serial No. 602,200.

To all whom it may concern:

Be it known that I, EPHA H. RYON, a citizen of the United States, residing at Waltham, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Filling-Thread-Cutting Mechanism for Weft-Replenishing Looms, of which the following is a specification.

My invention relates to a filling thread cutting mechanism for weft replenishing looms which have a magazine for bobbins or filling carriers, and transferring mechanism to transfer a bobbin from the magazine into the active shuttle on the practical or substantial exhaustion of filling on the bobbin in said shuttle.

My filling thread cutting mechanism is adapted to cut the filling thread on the substantially exhausted bobbin which is to be removed from the active shuttle, and to hold the end of the cut filling thread, which leads from the cutter to the edge or selvage of the woven fabric.

The object of my invention is to provide a filling thread cutting mechanism of improved construction, adapted to be applied to and used on looms of the class referred to, and connected with and operated through the operation of some part of the transferring mechanism.

My invention consists in certain novel features of construction of my improvements as will be hereinafter fully described.

I have only shown in the drawings a detached portion of a loom of the class referred to, with my filling thread cutting mechanism applied thereto, sufficient to enable those skilled in the art to understand the construction and operation thereof.

Referring to the drawings:—Figure 1 is a plan view of a detached portion of a weft replenishing loom at the magazine end, and my improvements applied thereto; the magazine, and the transferring mechanism are not shown. Fig. 2 is a section, on line 2, 2, Fig. 1, looking in the direction of arrow *a*, same figure. Fig. 3 corresponds to Fig. 1, but shows the cutting mechanism in its operative position. Fig. 4 is a section, on line 4, 4, Fig. 3, looking in the direction of arrow *b*, same figure. Fig. 5 shows, on an enlarged scale, the cutting mechanism shown in Fig. 4, detached. Fig. 6 is a plan view of the cutting mechanism, looking in

the direction of arrow *c*, Fig. 5. Fig. 7 shows a modified construction of the cutting mechanism. Fig. 8 is a section, on line 8, 8, Fig. 7, looking in the direction of arrow *d*, same figure, and, Fig. 9 is a plan view of the cutting mechanism shown in Fig. 7, looking in the direction of arrow *e*, same figure.

In the accompanying drawings, 1 is a portion of the loom side or end frame, 2 is the breast beam, and 3 a stand mounted thereon, and forming a support for the magazine, not shown.

4 is the lay beam, 5 a part of a stationary shuttle box on the end of the lay beam, 6 a part of a shuttle, and 7 a bobbin, having filling 8 thereon, which leads from the shuttle 6 to the selvage or edge of the woven fabric 9.

10 is the reed, and 11 is the upper portion of the lay sword, not shown.

12 is a temple of any usual construction, which is adjustably fastened with its stand 13 to the temple rail 14, mounted on the breast beam 2.

15 is the filling fork slide, which is loosely mounted in a guide plate 16 secured to the breast beam 2. The filling fork slide 15 has pivotally mounted, at its inner end, the filling fork 17, having the downwardly extending prong 17', to be engaged by filling thread on the forward movement of the lay, to tilt or raise said fork 17, as shown in Fig. 1, and move it out of the path of an operating lever or weft hammer, not shown. On the failure of filling, the prong 17' of the filling fork 17 enters the spaces in the grate 18 carried on the lay, see Fig. 2, and the filling fork 17 will extend in the path of and be engaged by a weft hammer, not shown, and the slide 15 will be moved outwardly to operate a lever 19 and the shipper arm 20, to stop the loom in the usual and well known way.

A stand 21 of the magazine, not shown, has at its lower end a stud 22, on which is loosely mounted the hub 23' of an arm 23, which has secured thereto the forwardly extending curved lever or shuttle feeler 24. A second arm 23'' on the hub 23' has pivotally connected thereto the lower end of an upwardly extending connector 25, which, through the operation of the transferring mechanism, not shown, upon the substantial exhaustion of filling in the active shuttle, moves downwardly the shuttle feeler 24, as shown in Fig. 4

All of the above mentioned parts may be of any usual and well known construction.

I will now describe my improvements in filling thread cutting mechanism.

The guide plate 16 of the filling fork slide 17 has in this instance, on one side thereof, two lugs 16' and 16'', which form bearings for a horizontally extending and longitudinally moving bar 26. The outer portion 26' of the bar 26 is in this instance of circular shape, and is guided at its outer end in an opening in the lug 16'. A helically coiled expansion spring 27 encircles the circular portion 26', and bears at one end against the lug 16', and at its other end against the square shaped end of the bar 26. The spring 27 acts to move the bar 26 inwardly and toward the lay. A pin 26'', extends transversely through the outer end of the bar 26, and limits the inward movement of said bar. A pin 28, see Fig. 5, is held in the upper part of the lug 16'', and has its inner end of wedge shape to enter a V shape groove 26''' in the bar 26. A helically coiled contraction spring 29 encircles the pin 28, and bears at one end against the upper end of the recess or opening in the lug 16'', and at its lower end against a pin 28' in the pin 28. The spring 29 acts to yieldingly move inwardly the pin 28 and cause it to act as a holding device for the bar 26, and also act as a give-way, in case a shuttle should accidentally engage the bar 26, when the lay moves to its forward position. The bar 26 has at its inner end the enlarged head portion 26''', provided on one side with a knife blade 30, see Fig. 6, and at its opposite side with a spring blade 31, both of which in this instance are riveted to the head portion 26'''. The spring blade 31 is provided at its free end with leather, felt, or other suitable material 32, upon its inner side, which forms a holding or clamping device for the end of the filling thread 8, which leads from the selvage of the woven fabric 9 to the cutter, as shown in Fig. 3.

Secured to the upper part of the lay sword 11 and to the rear side thereof, is a stand 33, see Figs. 1 and 2, which has bearings 33' for a horizontal shaft 34. The inner end of the shaft 34 has secured thereon the hub 35' of a downwardly extending arm or lever 35; the lower end of the lever 35 has a stud 36 thereon, see Fig. 5, on which is pivotally mounted an upwardly extending block or plate 37, which has in this instance suitably riveted thereon, three forwardly extending blades. These blades consist in this instance of the center or cutter blades 38, the push blade 39, and the blade 40, see Fig. 6. The blade 40 is adapted, on its forward movement, to engage the prong 17' of the filling fork 17, to tilt or raise said fork. The cutter blade 38 has an elongated slot 38' therein, see Fig. 5, into which extends a

pin 41 on the grate bar 42, to form a guide for the cutter. On the other end of the shaft 34 is secured the hub 43' of an upwardly extending finger 43, which on the forward movement of the lay, moves into the path of a lug or projection 44, which in this instance is secured to the shuttle feeler lever 24.

On the substantial exhaustion of the bobbin in the active shuttle, the operation of the weft replenishing mechanism, not shown, moves downwardly the shuttle feeler lever 24, as shown in Fig. 4. The projection 44 on the lever 24 extends in the path of the finger 43, and on the forward movement of the lay, said finger 43 is operated, and moves from the position shown in Fig. 2, to the position shown in Fig. 4. The lever 35 is operated and moves the cutter blade 38 from the position shown in Fig. 1 to the position shown in Fig. 3, to cut the end of the filling which leads from the cutter to the shuttle. At the same time the blade 39 pushes the end of the filling 8, which leads to the woven fabric 9, into the clamping device 31, to hold said end of the filling 8. The blade 40, which extends in this instance in the path of the prong 17' of the filling fork 17, will raise said fork to prevent the loom from being stopped. The filling thread being cut before it reaches the filling fork, on the forward beat of the lay, cannot operate to tilt the fork.

A helically coiled contraction spring 45 is attached at one end, in this instance to a stud on the upper portion 11 of the lay sword, see Fig. 3, and at its other end is connected to the lever 43, and acts on the rearward motion of the lay, to move the lever 35, and blades 38, 39, and 40 to their inoperative position, shown in Figs. 1, and 2.

In Figs. 7, 8, and 9 is shown a modified construction of the thread cutting mechanism, which consists of a bar 26^a, having the knife blade 46 fastened thereon, which, through engagement with the cutting blade 47, severs the filling thread. The clamp consists of a spring blade 48 provided with flexible material 49, which is adapted, through engagement with the bar 26^a, to hold the end of the filling thread which leads to the fabric. The bar 26^a is recessed upon its inner surface, as shown at 26^{a'} in Fig. 8, and by broken lines 26^{a'} in Fig. 9, to allow the filling thread, preparatory to being cut, to enter said recess, and move up to the blade 46 to be cut by said blade in connection with the movable blade 47.

It will be understood that the details of construction of my improvements may be varied if desired.

I have shown in this instance my improvements connected with and operated by the shuttle feeler lever or arm, connected with the transfer mechanism, but if preferred my mechanism may be connected

with and operated by some other part of the transfer mechanism.

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

1. In a filling thread cutting mechanism for weft replenishing looms, a normally stationary cutter on the breast beam, a normally stationary clamp on the breast beam, to hold one end of a severed filling, and a movable member on the lay, and means to cause said movable member to cooperate with said stationary cutter, and with said clamp, to cut the filling, and push one of the ends thereof into the clamp, to be held by said clamp.

2. In a filling thread cutting mechanism for weft replenishing looms, a cutter blade arranged on and movable with the lay, a normally stationary cutter blade on the breast beam to cooperate with said first mentioned blade, a clamp adjacent said blade on the breast beam, a push blade connected to and movable with said first mentioned cutter blade, and means to cause the cooperation of said cutter blades to cut the filling, and the cooperation of said push blade and said clamp to push one end of the severed ends of the filling into a position to be held by said clamp.

3. In a filling thread cutting mechanism for weft replenishing looms, a cutter blade arranged on and movable with the lay, a normally stationary cutter blade on the breast beam, to cooperate with said first mentioned blade, a clamp adjacent said blade on the breast beam, a push blade connected to and movable with said first mentioned cutter blade, and means to cause the cooperation of said cutter blades to cut the filling, and the cooperation of said push blade and said clamp to push one end of the severed ends of the filling into a position to be held by said clamp, and means, connected with said movable blades, to operate against the filling fork of a stop motion device, and said fork.

4. In a filling thread cutting mechanism for weft replenishing looms, a cutter blade arranged on and movable with the lay, a

push blade connected to and movable with said cutter blade, a third blade to cooperate with said blades, to engage and operate the filling fork of the stop motion mechanism, a second cutter blade carried on a longitudinally moving bar to cooperate with the first mentioned cutter blade, and said longitudinally moving bar, and a spring blade thereon, provided with material to form a clamping device for one end of the severed thread, in connection with said push blade.

5. In a filling thread cutting mechanism for weft replenishing looms, a cutter blade arranged on and movable with the lay, a push blade connected to and movable with said cutter blade, a third blade to cooperate with said blades, to engage and operate the filling fork of the stop motion mechanism, a second cutter blade carried on a longitudinally movable bar to cooperate with the first mentioned cutter blade, and said longitudinally moving bar, and a spring blade thereon provided with material to form a clamping device for one end of the severed thread, in connection with said push blade, and a locking pin for yieldingly holding said longitudinally moving rod in position.

6. In a filling thread cutting mechanism for weft replenishing looms, a cutter blade arranged on and movable with the lay, a push blade connected to and movable with said cutter blade, a third blade to cooperate with said blades, to engage and operate the filling fork of the stop motion mechanism, a second cutter blade carried on a longitudinally moving bar to cooperate with the first mentioned cutter blade, and said longitudinally moving bar, and a spring blade thereon, provided with material to form a clamping device for one end of the severed thread in connection with said push blade, and means connected with the weft replenishing mechanism, to cause the operation of the thread cutting mechanism, when the bobbin is substantially exhausted.

EPPA H. RYON.

Witnesses:

JOHN C. DEWEY,
M. HAAS.