

A. E. RHOADES.
 THREAD PARTING MECHANISM FOR LOOMS.
 APPLICATION FILED JUNE 10, 1912.

1,047,448.

Patented Dec. 17, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

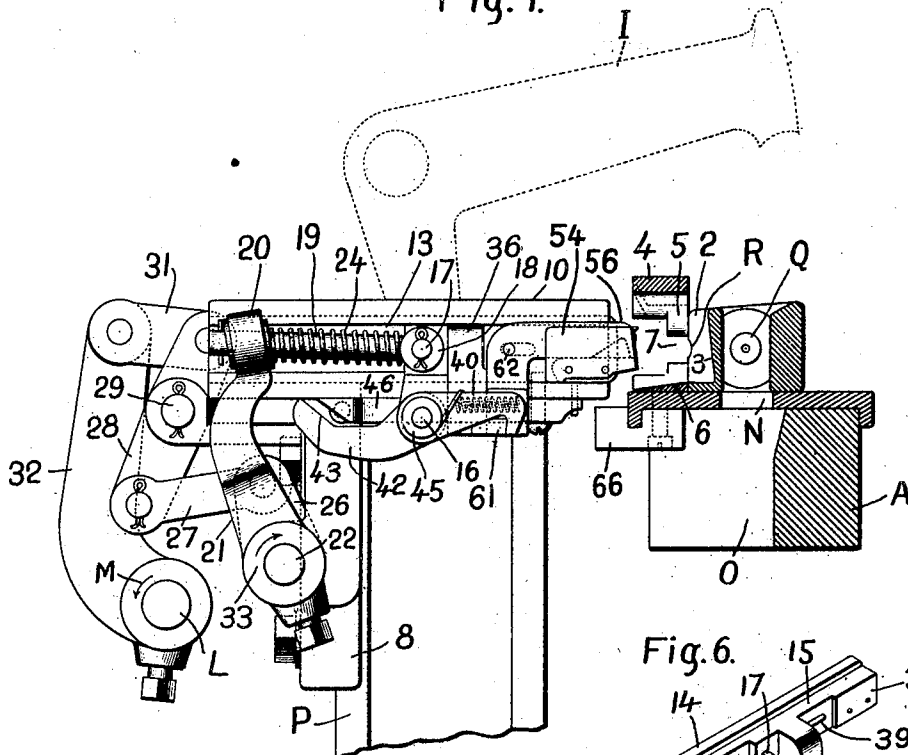
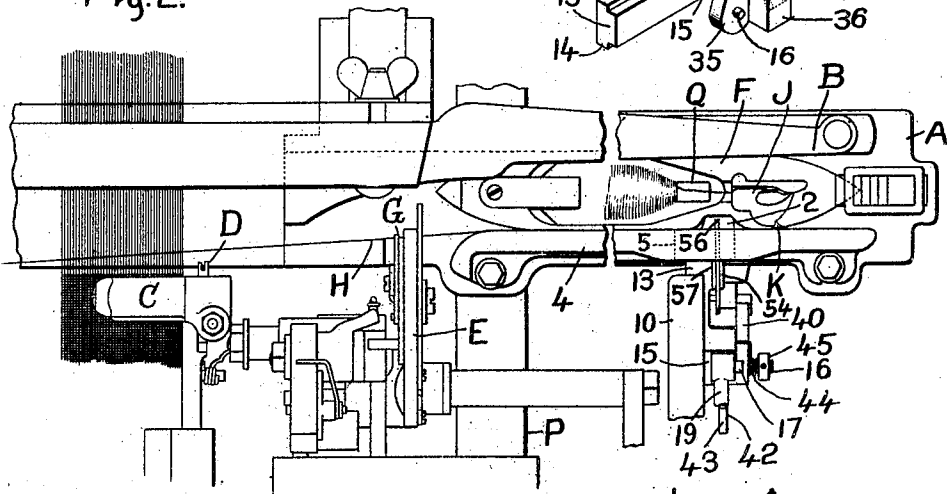


Fig. 2.



Witnesses.

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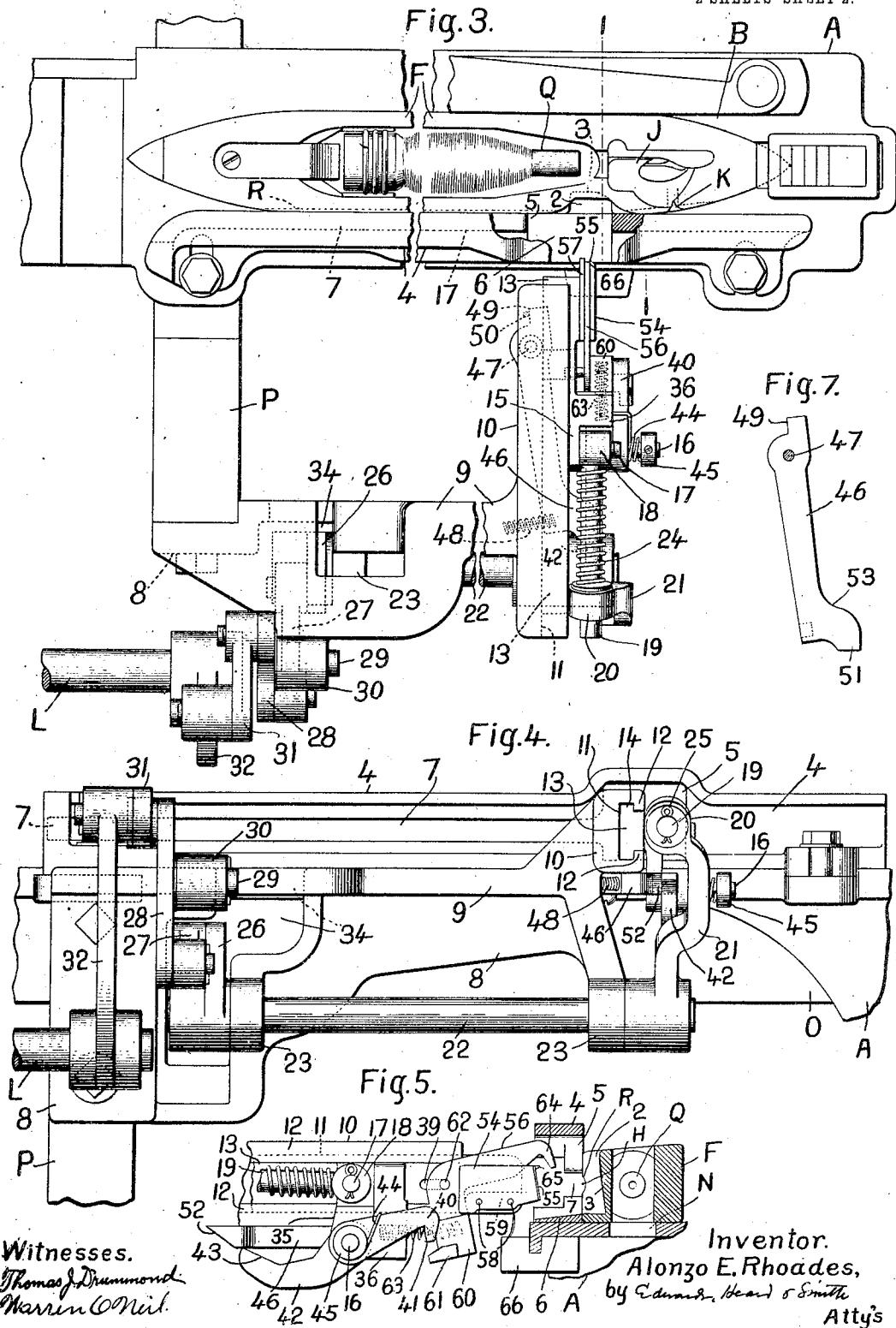
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2 SHEETS-SHEET 2.



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UNITED STATES PATENT OFFICE.

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THREAD-PARTING MECHANISM FOR LOOMS.

1,047,448.

Specification of Letters Patent.

Patented Dec. 17, 1912.

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To all whom it may concern:

Be it known that I, ALONZO E. RHOADES, a citizen of the United States, and resident of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Thread-Parting 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 automatic looms of the feeler type wherein the filling in the working shuttle is replenished by the insertion thereinto of a bobbin of fresh filling while the weaving operation continues, and it has for its object the production of novel means for parting the old filling-end when filling replenishment is effected.

It is well known to those skilled in the art that when filling replenishment is to be effected the old filling extends from the cloth to the shuttle eye and thence to the bobbin about to be ejected, and various mechanisms have been devised to part this old filling-end in such manner that the fresh or incoming filling will not be fouled or tangled with the old end.

With that object in view the old filling-end is usually parted adjacent the selvage by some form of temple thread-cutter, and at or near the inner end of the shuttle by another cutter, sometimes carried by the shuttle-feeler, and it has also been proposed to cut the filling adjacent the base of the bobbin when the shuttle has a feeler opening in its front wall, as shown in United States Patent No. 866,052 granted to Northrop September 17, 1907. These various structures perform their work well, but all of them leave a loose end of filling several inches in length, say from 6 to 10 inches, outside the shuttle, and when the bobbin is ejected this piece must be drawn backward and out of the eye in order to clear the latter. In practice this clearing is not always effected, as the loose end of filling may be caught between the shuttle and the box wall, thereby unwinding the filling from the spent bobbin as it drops from the shuttle, or the filling end will not be drawn completely through and out of the eye, with the result

that the fresh filling is apt to foul or become tangled with the old end, and may carry the latter back into the cloth, making a fault or imperfection therein.

In my present invention I have so constructed and arranged the mechanism that the old filling end is parted just outside the shuttle eye, leaving practically about an inch to be drawn back through and out of the eye by the ejected bobbin, so that the latter has barely passed out of the shuttle before the eye thereof is completely cleared. Thus there is no possibility of fouling the fresh filling, for ordinarily the latter does not enter the eye until after the movement of the shuttle from the replenishing box has begun, and there is no chance for the parted filling-end to be caught between the shuttle and the box-wall, as the latter is cut out or apertured for the positioning of the parting device and the filling when parted lies in the longitudinally grooved part of the front wall of the shuttle adjacent the eye.

In connection with the device to part the filling adjacent the shuttle eye I also use a suitable temple thread-parter, and preferably an intermediate parting device on the shuttle-feeler. Thus the old filling-end is cut or parted in three places, and one of the two pieces thus severed is held temporarily by the intermediate parter, while the other piece is held in a similar manner by the device which parts the filling adjacent the shuttle eye. Consequently there is no loose end or piece of the filling which can be carried back into the cloth by the shuttle as it is picked after replenishment of filling.

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 right hand side elevation and part section of a sufficient portion of an automatic filling replenishing loom, with my present invention applied thereto, the thread parting mechanism being shown in normal, inoperative position, and the lay, shown in section on the line 1—1. Fig. 3, is just about at front center; Fig. 2 is a top plan view, on a smaller scale, of a portion of the loom structure, the lay being broken

out to save space, and illustrating the temple and feeler thread-parting devices as well as the device for parting the filling adjacent the shuttle-eye, all parts of the filling replenishing mechanism being omitted to avoid confusion; Fig. 3 is a top plan view, broken out, of the mechanism shown in Fig. 1; Fig. 4 is a front view of the mechanism for parting the filling adjacent the shuttle eye, the outer end of the lay being broken off; Fig. 5 is a detail of a portion of the mechanism shown in Fig. 1 but with the blades open and in readiness to cooperate with and part the filling-end adjacent the eye of the shuttle as the lay advances; Fig. 6 is a perspective view of the sliding carrier on which are mounted the devices for parting the filling-end adjacent the shuttle-eye, with such devices omitted; Fig. 7 is a top plan view of the latch-releasing member shown in dotted lines, Fig. 3, to be referred to hereinafter.

The lay A, replenishing shuttle-box B thereon, the temple C having a thread-parter, partly indicated at D, Fig. 2, the shuttle-feeler E movable across the mouth of the shuttle-box when filling replenishment is called for and the shuttle F is properly boxed, the combined thread-parter and clamp G mounted on the shuttle-feeler, to part and clamp the old filling-end H, Fig. 2, at a point near the inner end of the shuttle, the transferrer I, shown in dotted lines and only in Fig. 1, to transfer the bobbins one by one from the hopper (not shown) to the shuttle F, the threading device J on the shuttle, to direct automatically the fresh thread of filling to the shuttle eye K after filling replenishment, and the controlling rock-shaft L to govern the operation of the replenishing mechanism, may be and are in general all of well known construction and operate in a familiar manner.

The rock-shaft L is turned in the direction of the arrow M, Fig. 1, when filling replenishment is called for through the operation of a usual filling-exhaustion indicating or feeler mechanism, in a known manner.

Referring to Fig. 1 the bottom of the shuttle-box B is slotted at N to permit the passage therethrough of a bobbin ejected from the shuttle, and the lay is cut away at O beneath said shuttle-box for a similar reason.

The general structure and arrangement of the temple and feeler thread-parting devices shown in Fig. 2 are substantially such as shown in my prior Patent No. 875,461 dated December 31, 1907, and they have been chosen as typical and for illustrative purposes, for my present invention is not restricted to any particular construction of either of such parting devices.

P represents a portion of the loom side, Q a bobbin in the shuttle F, and R is the

usual longitudinal groove in the outer face of the front wall of the shuttle, extending from the eye K toward the opposite end of the shuttle.

In accordance with my present invention the front wall of the shuttle F is provided with an upright recess 2 a short distance back of the eye K, the upright rear wall 3 of such recess being slightly beveled as shown in Figs. 1 and 5 to permit proper cooperation of the thread-parting members or blades with the filling end, as will be more clearly understood hereinafter.

The front wall or plate 4 of the shuttle-box B is of novel construction, it being increased in height near its outer end and provided with an opening 5 opposite to which the recess 2 of the shuttle is located at the time of filling replenishment, the bottom flange of the box-wall being beveled at 6 at the bottom of the opening 5, and the wall itself has a longitudinal slot 7 extending from the opening 5 to the inner end of the wall as shown clearly in Figs. 3 and 4, said slot being opposite the groove R in the front wall of the shuttle, when the latter is boxed.

When the old filling-end is parted adjacent the shuttle-eye the parting devices pass through the opening 5 in the box-wall and enter the recess 2 in the shuttle-wall.

Upon the loom side P at the front thereof is bolted a peculiarly shaped bracket 8 having a horizontal shelf-like top 9, said bracket as a whole extending outwardly substantially at right angles to the loom side and having secured to or forming part of it at its outer end a substantially horizontal rigid and rearwardly projecting extension 10 grooved and slotted to provide a longitudinal guideway 11 substantially T-shaped in cross section, as shown in Fig. 4, the parallel and horizontal lips 12 at the front of the guideway being separated vertically the entire length of said extension.

An elongated carrier 13, shown separately in Fig. 6 is mounted to slide in the guideway and is retained therein by the longitudinal ribs 14, the widened rear part 15 of the carrier extending laterally between the lips 12 and beyond the outer face of the extension 10, as best shown in Fig. 3. Said part 15 at its front end sustains lateral studs 16, 17, the latter and uppermost stud being embraced by the hub 18 of a link 19 extended loosely through an apertured boss 20 on the upper end of an arm 21 fixed on a rock-shaft 22 mounted in bearings 23 on the bracket 8.

A spring 24 is coiled around the link 19 between the boss 20 and the hub 18, and a cotter pin 25 or other suitable device prevents withdrawal of the front end of the link from the boss. The rock-shaft 22 carries a short rocker arm 26 pivotally con-

5 nected by a link 27 with the lower end of a
 lever 28 having a lateral pivot stud 29
 mounted to rock in a bearing 30 on the
 bracket shelf 9. Said lever 28 is pivotally
 10 connected at its upper end by a link 31 with
 an upturned arm 32 rigidly attached to the
 controlling rock-shaft L. When said rock-
 shaft is turned in the direction of the arrow
 M, when filling replenishment is called for,
 15 the arm 32 is swung frontward or to the
 left, Fig. 1, rocking the lever 28 and through
 the link 27 and rocker arm 26 the shaft 22
 is turned in the direction of the arrow 33,
 to swing the arm 21 rearward. Said arm
 20 acts then through the spring 24 to slide the
 carrier 13 rearwardly in the extension 10,
 the spring being of sufficient strength to
 cause the proper movement of the carrier,
 but preventing breakage should any undue
 resistance to such movement of the carrier
 intervene.

The bracket 8 is cut out at 34, Figs. 3
 and 4, to permit the free rearward movement
 of the rocker arm 26 at such time.

25 As best shown in Fig. 6 the lower stud 16
 projects from a depending portion 35 of the
 part 15 of the carrier, and an abutment 35
 is also formed on said part, adjacent the
 studs 16, and 17, and toward the rear end of
 30 the carrier, the widening of the part 15 at its
 rear end at 37 forming a seat for the parting
 and clamping members, as will be explained
 presently.

The abutment 36 has a spring socket 38
 35 formed in its rear upright face, and a lon-
 gitudinal slot 39 is made in the carrier be-
 tween the abutment 36 and the seat 37. The
 stud 16 has mounted upon it the hub of a
 rearwardly extended latch 40 having a
 40 downturned hooked end 41, said latch being
 laterally offset from a frontwardly extended
 tail 42 secured to or forming a part of the
 latch and having a beveled face 43, the latch
 being depressed by a suitable spring 44
 45 wound around the stud 16 and attached at
 one end to a collar 45 pinned to the stud,
 the other end of the spring being bent over
 the top of the latch as shown in Figs. 1,
 3 and 5.

50 The tail of the latch is arranged to co-
 operate with a releasing or tripping member
 46 shown separately in Fig. 7, and pivoted
 on a vertical stud 47 depending from the
 bottom of the extension 10 so that the re-
 55 leasing member will swing beneath the same
 in a substantially horizontal path, a spring
 48, see dotted lines Fig. 3 and full lines
 Fig. 4, being seated in a socket in the front
 end of the member 46 and bearing against a
 60 part of the bracket 8 acting to maintain the
 said released member normally in the posi-
 tion shown in Fig. 3 with its heel 49 against
 a stop pin 50 on the extension 10.

The front end of the member 46 is pro-
 65 longed at 51, and beveled on its under face

at 52, and the rear end of the prolongation
 51 is rounded in at 53, Fig. 7, to the width
 of the main part of said member.

When the parts are in the position shown
 in Figs. 1 and 3, that is, with the carrier 13
 70 and its adjuncts retracted, the latch tail 42
 extends beneath the front end of the releas-
 ing member 46 with the cam face 43 beneath
 and forward of the beveled face 52. When
 the arm 21 is swung to the right, Fig. 1, and
 75 the carrier is moved rearward the latch and
 its tail are moved bodily with the carrier
 and the cam face 43 wipes over the face 52
 of the releasing member depressing the tail
 and lifting the latch into the position shown
 in Fig. 5, and the latch remains in such
 80 lifted position until additional rearward
 movement of the carrier moves the extrem-
 ity of the tail rearward beyond the part 53
 of the releasing member. Thereupon, the
 85 latch spring 44 operates to depress the latch
 and elevate the tail thereof. Thereafter on
 the frontward or return movement of the
 carrier 13 the latch tail wipes against the
 convex portion 53 and pushes the member 46
 90 to the left, viewing Fig. 3, until the latch
 tail can move past the extension 51. Imme-
 diately thereafter the spring 48 expands and
 returns the releasing member to the position
 shown in Figs. 1 and 3, and the latch and
 95 its tail occupy the position relative thereto,
 shown clearly in Fig. 1. The member 46
 thus acts to release or render inoperative the
 latch on the rearward movement of the car-
 rier, and the latch tail operates on the front-
 100 ward or return movement of the carrier to
 swing the releasing member to one side un-
 til after the latch tail and latch have re-
 assumed their normal position with the latch
 operative, as will be explained.

105 The parting and clamping members com-
 prise a fixed blade 54 having its upright
 rear edge 55 sharpened, a cooperating mov-
 able blade 56 and a clamping blade 57, the
 movable blade 56 being interposed between
 110 the blades 54 and 57, and cooperating with
 the former to cut or to part the old filling
 end, and cooperating with the blade 57 to
 clamp or hold the inner end of the parted
 filling.

115 The blades 54, 57 are set upright in paral-
 lelism, and are attached to the seat 37 by
 suitable rivets 58, a spacing member 59 be-
 ing interposed between the lower portions
 of the said blades to separate them suffi-
 120 ciently for the proper movement of the blade
 56 between them. The blade 56 is substan-
 tially L-shaped, the depending portion there-
 of having an attached and thickened heel
 60 provided with a laterally extended keeper
 125 61, said blade having a rigidly attached pin
 62 extended laterally from its inner side to
 enter the slide 39 in the carrier 13.

The heel 60 is socketed to receive one end
 of a spring 63, the other end of the spring 130

being seated in the socket 38 in the carrier abutment 36. This spring tends to throw the movable blade 56 into the position shown in Fig. 5 when the spring is free to act, and at such time the fulcrum stud 62 is in the rear end of the slot 39, and the heel 60 bears against the bottom of the carrier. The rear end of the blade 56 is downturned or hooked as at 64, and when the blade is unlatched said hooked end is elevated above the level of the filling end H when the shuttle is in the box B. The clamping member or blade 57 has at the top of its rear edge an overhanging prong 65 which tends to prevent any accidental lifting of the filling end above the top of the blade 54. Under normal conditions the hooked end 41 of the latch 40 drops over and engages the rear face of the keeper 61, and maintains the movable blade 56 in the position shown in Fig. 1, with said blade drawn inward between the blades 54, 57, and with the heel 60 against the upright rear face of the abutment 36, the stud 62 being held at the inner end of the slot 39. At this time the downturned hooked end 64 of the movable blade is drawn in between the rear ends of the blades 54, 57. This hooding or protecting of the hooked end of the movable blade prevents any accidental engagement with the filling prior to the time the parting device is brought into operation.

The parts being in the position shown in Figs. 1 and 3 if replenishment of filling is called for, the rock-shaft L is turned in the direction of the arrow M, Fig. 1, and through the intervening connections the carrier 13 is moved rearward and as it reaches the position shown in Fig. 5, the releasing member 46 acts upon the latch tail to raise the latch and disengage the moved end 41 thereof from the keeper 61. The spring 63 immediately expands and the movable blade 56 is moved rearward and is also swung on the stud 62 as a center into the position shown in Fig. 5, to meet the advancing lay. As the lay beats up with the shuttle in the replenishing box B the parting devices are in readiness to operate. The carrier 13 continues its rearward movement somewhat beyond the position shown in Fig. 5, and the lay moves forward so that the parting blades pass through the opening 5 in the front box wall, and the hooked end 64 of the blade 56 passes over or above the filling-end H, and just about this time a bunter 66 on the lay engages the heel 60 and pushes the latter forward to thereby depress the hooked end of the blade 56 over the filling end. This action is permitted by the socket or recess 2 in the front wall of the shuttle for by reason of this recess the hooked end 64 of the blade can pass over and down behind the filling-end adjacent the shuttle-eye, and as the lay completes its forward movement the bunter 66 still acting against the heel 60 moves

the blade 56 forward bodily to the position shown in Fig. 1. As the hooked end of the blade 56 is moved forward it is drawn in between the fixed blades 55, 57 and the filling-end, is severed by the sharp edge 55 of the blade 54, while the inner end of the filling is nipped or held between the clamping blade 57 and the adjacent face of the movable blade 56.

It should be stated that as soon as the latch tail 42 is disengaged from the underside of the releasing member 46 the spring 44 causes the latch hook 41 to drop onto the top of the keeper 61, and when the bunter 66 swings the blade 56 and then moves it forward the latch hook 41 will drop behind the keeper as soon as the movable blade reaches the position shown in Fig. 1, thus re-locking that blade and holding it in that position as the lay goes back. Then when the carrier and the parts mounted thereon are bodily moved forward to the normal position illustrated in Fig. 1, the parting and clamping devices at the rear end of the carrier are moved far enough forward to be out of the way of the lay on successive forward beats until filling replenishment is again called for.

It will be understood that the movable blade 56 is swung down and moved forward by the action of the bunter 66 while the carrier 13 is in its rearward position, and the latching of the movable blade in its closed or inoperative position is effected at that time. By arranging the latch tail so that it will push the releasing member 46 to one side as the carrier is moved frontward to its normal position, I obviate any possibility of accidentally unlatching the blade 56 for the pressure of the latch tail against the releasing member, on the forward or return movement of the carrier, is exerted in a lateral direction, and hence there is no tendency to rock the latch on its fulcrum stud 16.

By an inspection of Figs. 2 and 3, it will be seen that the old filling end is parted by the blades 54, 56, adjacent the shuttle eye K, in practice about one inch therefrom, so that there is a very short length of filling to pull backward through the eye when the bobbin is ejected from the shuttle. This piece of filling is so short that in practice the ejected bobbin has barely cleared the shuttle before the eye thereof is completely cleared of the old filling.

In Fig. 2 the parts are shown just before the filling end is parted, the bunter 66 approaching the heel 60 as the lay beats up and the downturned hook 41 of the latch is resting on the top of the keeper 61. If for any reason the shuttle recess 2 should not be positioned properly opposite the parting devices no damage will be done because any other part of the shuttle would engage the

projecting end of the movable blade, and would slide the latter forward on the beat up of the lay, and if necessary the spring 24 would yield to permit a forward movement of the carrier and its adjuncts.

The blade 56 is a combined parting and clamping member, as will be manifest, and the piece of filling between the thread parter G on the shuttle-feeler E and the members 56, 57 will be held between the two last named members when they are returned to the position shown in Fig. 1, and out of the way of the flying shuttle.

When the movable blade is unlocked again this piece of filling will be released as the blades 56, 57 separate, and it will fall to the floor.

The beveling of the wall 3 of the shuttle recess 2 permits perfect freedom of movement of the blade 56 as it is swung downward to hook over and engage the filling-end prior to parting the same.

The beveled bottom 6 of the opening 5 in the front wall of the replenishing box B provides necessary clearance for the rear end of the carrier 13 at the time the parting and clamping devices are brought into operation.

If the shuttle is not properly boxed for filling replenishment that fact will be indicated by the shuttle-feeler in well known manner, and through suitable and usual mechanism the operation of the replenishing mechanism will be prevented.

The parting devices adjacent the eye of the shuttle will not operate at such time to part the old filling-end because the recess 2 of the shuttle will not be brought into position opposite said parting devices unless the shuttle is properly boxed for replenishment. Thus the parting of the old filling-end adjacent the eye of the shuttle will not be effected unless filling replenishment is brought about.

My invention is not restricted to the precise construction and arrangement herein shown and described, as the same may be modified in various details of construction and arrangement by those skilled in the art without departing from the spirit and scope of my invention as set forth in the claims hereunto annexed.

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

1. In a loom provided with automatic filling replenishing mechanism, a shuttle having its front wall recessed adjacent the delivery eye, and means operatively positioned by or through said mechanism when replenishment is called for to enter such recess and engage and part the old filling-end adjacent the delivery eye.

2. In a loom provided with automatic filling replenishing mechanism, a shuttle hav-

ing its front wall recessed adjacent the delivery eye, means, including cooperating blades one of which is movable with and also relatively to the other, to enter the recess and engage and part the old filling-end adjacent the eye when the shuttle is boxed for replenishment, connections between said means and the replenishing mechanism to position the former for operation when actuation of the latter is called for, and a moving member of the loom to effect at such time the relative movement of the parting blades to part the filling.

3. In a loom provided with mechanism to replenish automatically the filling in the working shuttle, means to cooperate with and part the old filling-end outside the front wall of the shuttle and immediately adjacent the eye of the shuttle when the latter is boxed for replenishment, connections between said means and the replenishing mechanism, to move said means into operative position only when replenishment is called for; the lay, and a member movable therewith to effect the actuation of said parting means when operatively positioned.

4. In a loom provided with mechanism to replenish automatically the filling in the working shuttle, means to cooperate with and part the old filling-end outside the front wall of the shuttle and immediately adjacent the eye of the shuttle when the latter is boxed for replenishment, a fixed support for and on which the parting means is slidable bodily and rearward into, and forward out of operative position, connections between the replenishing mechanism and said means to move the same on the support into operative position when replenishment is called for, and a moving member of the loom to effect the actuation of such parting means when the same is positioned operatively.

5. In a loom provided with automatic filling replenishing mechanism, a lay having a replenishing shuttle-box apertured near its outer end, means to enter the aperture of the shuttle-box and to part the old filling adjacent the shuttle eye and outside the shuttle when the latter is in said box at the replenishing side of the loom, and connections between said means and the replenishing mechanism to position the former for operation when actuation of the latter is effected, actuation of the parting means when so positioned being effected by or through the lay on the beat up.

6. In a loom provided with automatic filling replenishing mechanism, a lay having a shuttle-box thereon at the replenishing side of the loom; the front wall of the box being apertured near its outer end, parting means for the old filling end, bodily movable into position to pass through the apertured box wall and part the old filling adjacent the eye of the shuttle, connections between the

replenishing mechanism and the parting means to effect such positioning of the latter when replenishment of filling is to be effected, and a movable member of the parting means actuated by or through the lay to engage and effect the parting of the filling when said means is positioned for operation.

7. In a loom provided with automatic filling replenishing mechanism, a lay having a shuttle-box provided with a front wall apertured near its outer end, a shuttle having adjacent its eye a recess adapted to register with the aperture when the shuttle is boxed for replenishment, means to pass through the aperture in the box wall and into the recess, to engage and part the old filling-end adjacent the shuttle eye, and mechanism to effect bodily movement of the parting means into position to operate when filling replenishment is called for, the actuation of said means being effected by movement of the lay.

8. In a loom provided with automatic filling replenishing mechanism, a lay having a shuttle-box provided with a front wall apertured near its outer end, a shuttle having adjacent its eye a recess adapted to register with the aperture when the shuttle is boxed for replenishment, a fixed guideway opposite the aperture of said box-wall, a carrier movable longitudinally in said guideway and provided with a fixed blade and a movable blade, means to move said carrier rearward when replenishment is called for, to position the blades for action within the aperture, closure of the blades upon the old filling-end within the recess of the shuttle being effected by or through movement of the lay, and a device to effect opening of the blades as the carrier is moved into operative position.

9. In an automatic filling replenishing loom, a shuttle having a delivery eye and a recess in its front wall adjacent thereto, means to part the old filling-end adjacent the cloth when the filling is replenished, other means to enter the recess in the shuttle wall and part such filling-end adjacent the eye of the shuttle when the latter is boxed for replenishment, and mechanism to cause said second-named means to operate when filling replenishment is called for and the shuttle is properly boxed.

10. In an automatic filling replenishing loom, a shuttle having a delivery eye, means to part the old filling-end adjacent the cloth when the filling is replenished, other means to part such filling-end adjacent the eye of the shuttle when the latter is boxed for replenishment, mechanism to cause said second-named means to operate when filling replenishment is called for and the shuttle is properly boxed, and means to part the old

filling-end at a point near the mouth of the replenishing shuttle-box.

11. In an automatic filling replenishing loom, a shuttle having a delivery eye, means to part the old filling-end adjacent the cloth when the filling is replenished, other means to part such filling-end adjacent the eye of the shuttle when the latter is boxed for replenishment, mechanism to cause said second-named means to operate when filling replenishment is called for and the shuttle is properly boxed, and means to part the old filling-end at a point near the mouth of the replenishing shuttle-box, said second and third-named means each having provision for clamping the parted filling at the side toward the cloth.

12. In a loom provided with automatic filling replenishing mechanism, in combination, a carrier having parting and clamping members fixed thereon and laterally separated, a combined parting and clamping member between them and mounted to rock and slide on the carrier, a spring latch on the latter to cooperate with and retain said movable member in closed position, a spring to open said member when released, a fixed support on which the carrier is slidably mounted, located opposite the replenishing shuttle-box and near its outer end, connections between the carrier and the replenishing mechanism, to move the carrier and the clamping and parting members thereon to operative position when replenishment is called for, means to disengage the latch from the movable parting and clamping member when the carrier is moved to operative position, and a moving member of the loom to cooperate with and cause the unlatched member to engage the old filling-end adjacent the eye of the shuttle and part the same, the inner portion of said parted end being clamped by the movable member and the fixed clamping member when the carrier is returned to inoperative position, the operative movement of the combined clamping and parting member restoring it to the control of the latch.

13. In a loom provided with automatic filling replenishing mechanism, a lay, and a replenishing shuttle-box thereon having an aperture in its front wall near its outer end, in combination, means to part the old filling-end adjacent the cloth, separate means to enter the aperture in the box wall and part such filling-end immediately adjacent the delivery eye of the shuttle when the latter is properly boxed for replenishment, devices to operatively position such separate means when filling replenishment is called for, and a moving member of the loom to effect the actuation of such means when operatively positioned.

14. In a loom provided with automatic

filling replenishing mechanism, a lay, and a replenishing shuttle-box having an aperture in its front wall near its outer end, in combination, means to part the old filling-end adjacent the cloth, separate means to enter the aperture in the box-wall and clamp and part such filling-end immediately adjacent the delivery eye of the shuttle when boxed at the replenishing side of the loom, devices governed by the replenishing mechanism to position for operation such separate means when replenishment is called for, and a moving member of the loom to effect the actuation of such means to clamp and part the filling-end only when the shuttle is in proper position for filling replenishment.

15. In a loom provided with automatic filling replenishing mechanism, a lay, a shuttle having a recess adjacent the eye thereof, means to enter the recess when the shuttle is at the replenishing side of the loom and part the old filling-end, devices to operatively position the parting means when the filling is to be replenished, said parting means including a rocking and slidable blade having a depending heel, the lay engaging the heel to effect the actuation of the parting means when the same is in operative position.

16. In a loom provided with automatic filling replenishing mechanism, a lay, a replenishing shuttle-box thereon having a longitudinally slotted front wall apertured near its outer end, a shuttle having a recess adjacent the delivery eye, means to pass through the aperture in the box wall and enter the recess of the shuttle when properly boxed for replenishment and to clamp and part the old filling-end, devices to position said means for operation when replenishment is called for and to retract said means thereafter, the actuation of the clamping and parting means being effected by the lay on the beat up, the filling-end being parted adjacent the eye of the shuttle and the clamped portion of the filling-end being withdrawn through the slot of the box wall, and separate means to part such filling-end near the mouth of the shuttle-box.

17. In a loom provided with automatic filling replenishing mechanism, a lay, a replenishing shuttle-box thereon having a longitudinally slotted front wall apertured near its outer end, means to part the old filling-end near the mouth of the shuttle-box, separate means to pass through the aperture in the box wall and clamp and part the old filling-end adjacent the shuttle eye, and devices to position said separate means for operation when replenishment is called for and thereafter to retract such means, the clamped piece of filling being thereby drawn through the slot of the box wall and clear of the shuttle; the lay on the beat up effecting

the actuation of the said clamping and parting means.

18. In a loom provided with automatic filling replenishing mechanism, a lay, a replenishing shuttle-box thereon having a longitudinally slotted front wall apertured near its outer end, a shuttle-feeler and means thereon to part the old filling-end when replenishment is effected, separate means to clamp and part such filling-end adjacent the shuttle eye, and devices to move the said separate means into the aperture of the box wall to operative position when replenishment is called for and thereafter to retract said means, the parting means on the shuttle-feeler parting the old filling-end when the shuttle is boxed properly for replenishment, such parted piece of filling being clamped and withdrawn through the slot of the box wall when the separate means is retracted, the actuation of such separate means being effected by or through the lay on the beat up.

19. In a loom provided with automatic filling replenishing mechanism, in combination, a fixed support at the replenishing side of the loom, a carrier movable thereon toward and from the outer end of the replenishing shuttle-box, the lay on which such box is mounted, the front wall of the box being apertured near its outer end, co-operating and relatively movable blades on the carrier, to pass through the aperture and part the old filling-end adjacent the eye of the shuttle when the shuttle is boxed for replenishment, a spring to open the blades, a spring-operated latch to maintain the blades closed, devices to move the carrier into operative position when replenishment is called for and to retract the carrier thereafter, a releasing member to render the latch inoperative when the carrier is moved to operative position, whereby the blades are opened to cooperate with the filling-end, and means to close the blades and part the filling-end, closure of the blades restoring them to the control of the latch, retractive movement of the carrier acting to reset automatically said latch releasing member.

20. In a loom provided with automatic filling replenishing mechanism, and a shuttle having a recess in its front wall adjacent the eye, in combination, relatively movable blades to enter the recess and part the old filling-end adjacent the shuttle eye, devices controlled by the replenishing mechanism to effect bodily movement of said blades into operative position when replenishment is called for and thereafter to retract the blades, means to open the blades when moved to operative position, a moving member of the loom to close the blades, and a latch to retain them closed when retracted bodily and in normal position.

21. In a loom provided with automatic

filling replenishing mechanism, and a shuttle having a recess in its front wall adjacent the eye, in combination, a lay having a replenishing shuttle-box provided with an apertured and longitudinally slotted front wall, relatively movable clamping and parting blades to pass through the aperture into the recess of the shuttle and clamp and part the old filling-end, devices to move said blades bodily into operative position when replenishment is called for and thereafter to retract them, the parted side of the filling-end being drawn through the shuttle eye when replenishment is effected while the clamped side of such filling-end is drawn through the slot of the box wall, and a device to part the filling-end near the mouth of the shuttle-box, relative movement of the blades to clamp and part the filling-end being effected by or through the lay.

22. In a loom provided with automatic filling replenishing mechanism, in combination, a shuttle having its front wall recessed adjacent the delivery eye, a lay having a replenishing shuttle-box apertured near its outer end, to register with the recess when the shuttle is boxed properly, a parting instrumentality movable into operative position through the aperture of the box wall, and yielding connections between said instrumentality and the replenishing mechanism to position the former for operation when replenishment is called for, said instrumentality being actuated by or through the lay to part the old filling-end adjacent the eye if the shuttle is boxed properly, en-

gagement of said parting instrumentality by the front wall of the shuttle when boxed improperly for replenishment preventing actuation of such instrumentality to part the filling-end.

23. In a loom provided with automatic filling replenishing mechanism, a lay having a shuttle-box provided with a front wall apertured near its outer end, a shuttle having adjacent its eye a recess adapted to register with the aperture when the shuttle is boxed for replenishment, a carrier movable toward and from the lay opposite the aperture in the box wall, a blade fixed on the carrier and having a cutting edge, a cooperating movable blade having a downturned hooked rear end, means acting when replenishment is called for to move the carrier rearward and position the blades for operation within the aperture, said movable blade having a heel to be engaged by the lay at such time, to rock the blade and cause its hooked end to engage the old filling-end in the recess of the shuttle and then to draw the filling-end against the edge of the fixed blade, to part such filling-end adjacent the shuttle eye, and a device to open the blades when the carrier is moved rearward.

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

ALONZO E. RHOADES.

Witnesses:

FRANK H. FRENCH,
E. D. OSGOOD.