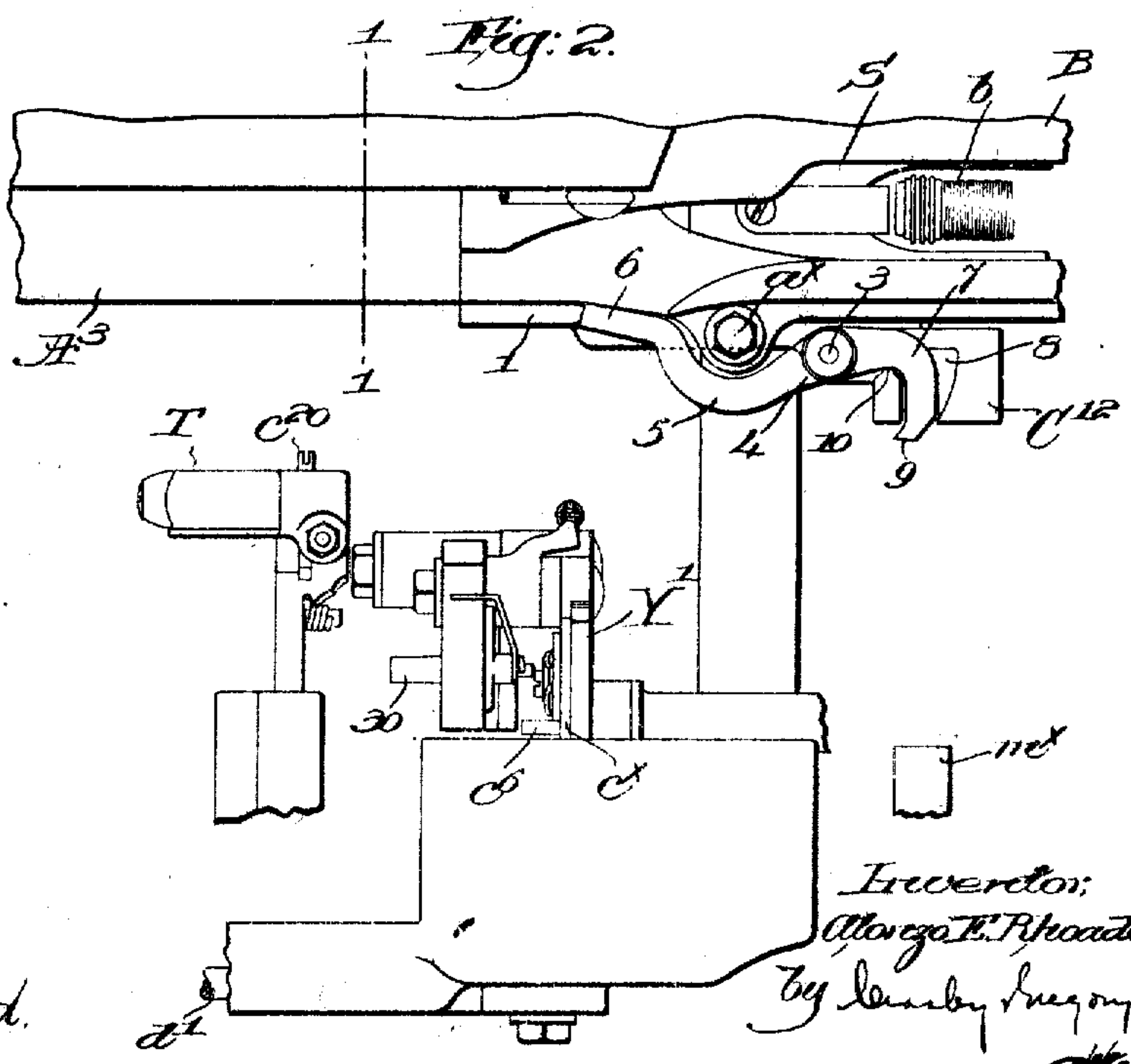
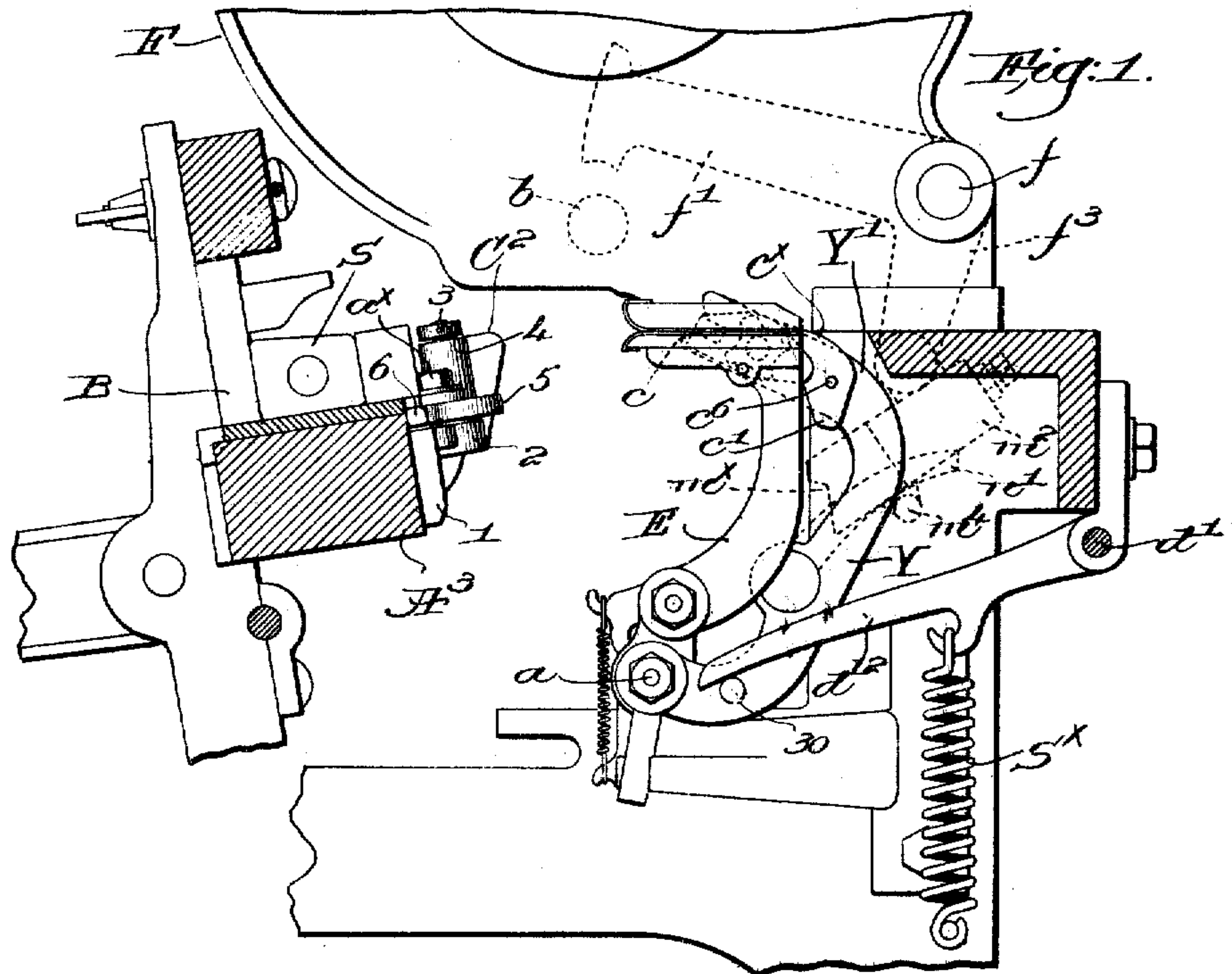


A. E. RHOADES.
 THREAD PARTING MECHANISM FOR LOOMS.
 APPLICATION FILED AUG. 11, 1908.

912,416.

Patented Feb. 16, 1909.
 2 SHEETS—SHEET 1.

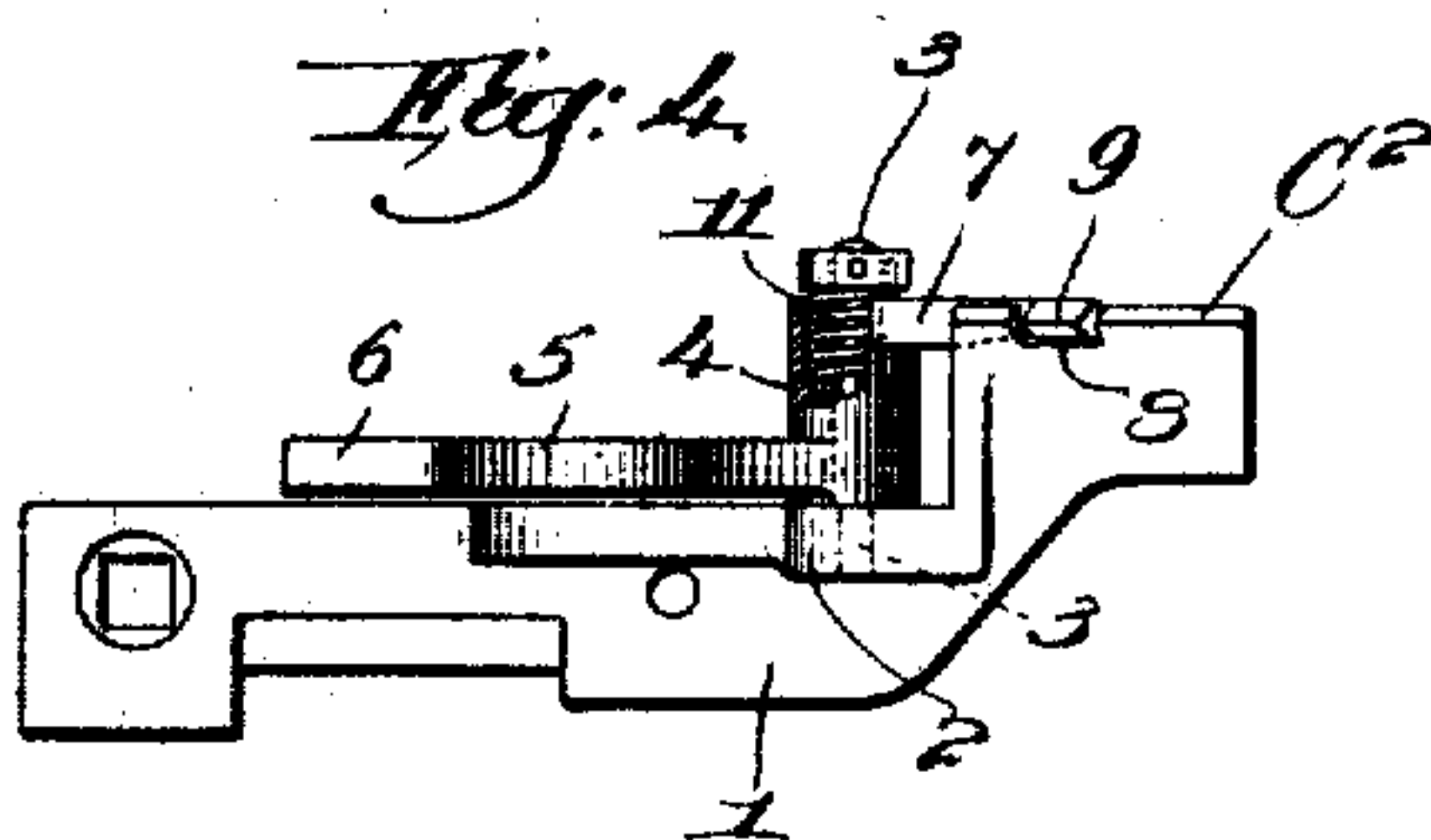
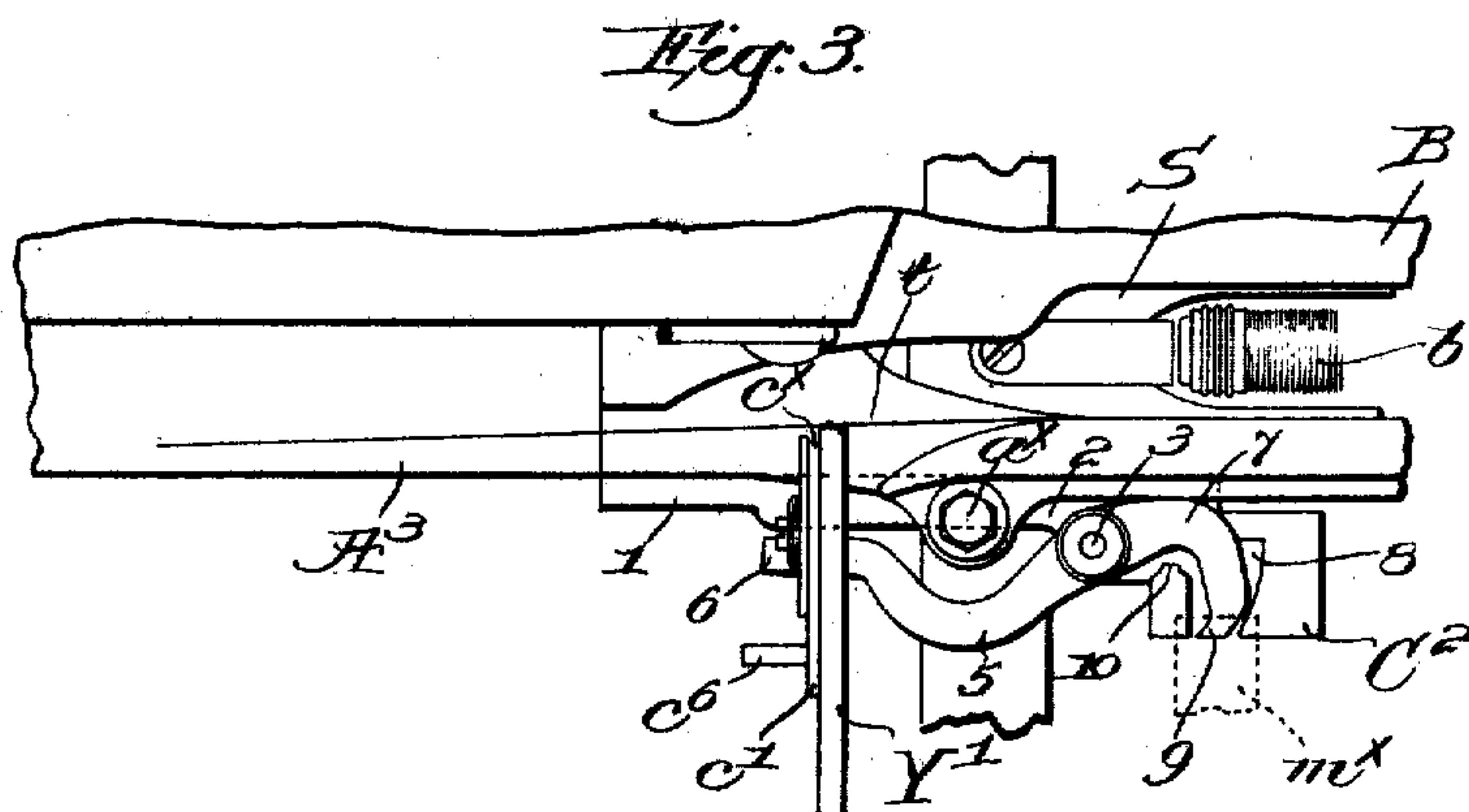


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912,416.

2 SHEETS—SHEET 2.



In witness whereof:
George E. P. Hoopes,
by Henry Gregory.

UNITED STATES PATENT OFFICE.

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THREAD-PARTING MECHANISM FOR LOOMS.

No. 912,416.

Specification of Letters Patent.

Patented Feb. 16, 1909.

Application filed August 11, 1908. Serial No. 447,967.

To all whom it may concern:

Be it known that I, ALONZO E. RHOADES, a citizen of the United States, residing at Hopedale, in the county of Worcester, in the 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.

In automatic looms of the type wherein the running filling is replenished prior to complete exhaustion the shuttle-feeler is generally provided with a device to cut the old or spent filling between the cloth and the shuttle when filling replenishment is effected, the shuttle-feeler being arranged to prevent replenishment if the shuttle is improperly boxed. A loom provided with thread-parting mechanism of the general type referred to is shown in United States Patent No. 683,423, granted September 24, 1901, to C. H. Draper, the parting device being actuated by impingement upon a fixed part of the lay. This mechanism operates satisfactorily in the great majority of cases, but there are certain peculiar conditions arising at times in the practical operation of the loom whereby the filling will be cut or parted when the replenishing mechanism has been withheld from operation. When the shuttle is so far out of position that the shuttle-feeler is squarely engaged there is no trouble, for then the thread-parting device cannot engage the filling, but sometimes the shuttle is just far enough out of position to engage the shuttle-feeler and prevent filling replenishment, and as the lay completes its forward movement the shuttle will be pushed into the box, or the feeler will slide off the nose of the shuttle. When this occurs the parting device will frequently engage and part the filling, so that there will be a fault in the cloth.

My present invention has for its object the production of novel means whereby the filling end cannot be cut (even if the shuttle-feeler does move past the shuttle into full rearward position) unless the filling-replenishing mechanism has been brought into action. That is, if the shuttle-feeler detects improper positioning of the shuttle and thereby prevents the operation of the replenishing mechanism there can be no operation of the thread-parting device even

should it be operatively positioned by a subsequent movement of the shuttle-feeler. To effect this result, in the present embodiment of my invention, I provide an actuator for the thread-parter, said actuator being normally inoperative, and by suitable means the actuator is operatively positioned only when certain members or parts are caused to cooperate to effect the operation of the replenishing mechanism. If the shuttle is improperly boxed said parts are withheld from cooperation and hence the actuator remains inoperative and the thread-parter cannot be operated, no matter what happens to the shuttle-feeler.

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 of a portion of a loom provided with automatic filling-replenishing mechanism, and thread-parting means, substantially as in the Draper patent referred to, and embodying one form of my present invention, the view being taken on the line 1—1, Fig. 2, looking toward the right. Fig. 2 is a top plan view of a portion of the apparatus shown in Fig. 1, and clearly illustrating the actuator for the thread-parter, in its normal, inoperative position. Fig. 3 is a detail in plan showing the actuator in its operative position and about to act upon the thread-parter. Fig. 4 is a detail in front elevation, and partly broken out, of the actuator and adjacent parts.

Referring to Fig. 1 the lay A^3 , filling-replenishing mechanism comprising a filling-feeder or hopper F in which the filling-carriers or bobbins b are held in reserve, the transferrer f' fulcrumed at f and having a depending leg f^3 ; the notched dog m^x on the usual spring-controlled arm m^2 carried by said leg and provided with a lateral lug m^4 ; the rock-shaft d' which controls the operation of the replenishing mechanism, the arm d^{12} fast on said rock-shaft and normally depressed by the spring S^x , said arm engaging a lug 30 on the swinging support Y , fulcrumed at a and bent rearwardly at its upper end at Y' ; to constitute a shuttle-feeler; and the finger n' carried by the support Y and engaging the lug m^4 , may be and are all substantially as shown and described in the Draper patent referred to and operate as

therein set forth. The arm E supports a thread-catcher, as in said patent, but forming no part of my invention, and the shuttle-feeler carries a thread-parter comprising
 5 a fixed cutting blade c , and a movable blade and clamp combined, indicated at c^x , fulcrumed on the shuttle-feeler, and having at its front end a depending heel c' provided with a setting pin c^n , all as in the patent referred to, the rearward movement of the
 10 shuttle-feeler, when replenishment is called for, acting to open the blades by the setting pin c^n so that the filling-end t , Fig. 3, can enter the notched end of the feeler Y' between the blades.

When the rock-shaft d' is turned to elevate the arm d^{12} , as will be the case when the running filling is exhausted to a predetermined extent, the shuttle-feeler swings
 20 rearward and across the mouth of the replenishing shuttle-box B if the shuttle S is properly boxed therein. At such time the finger n' permits the dog m^x to be swung upward into position to engage the bunter
 25 C^{12} on the lay, as the latter beats up, to cause filling replenishment. If the shuttle is improperly boxed, however, the feeler Y' will be engaged and held from its rearward movement and the finger n' will hold the
 30 dog m^x down out of the bunter path.

Heretofore the heel c' of the movable blade c^x of the thread-parter has been engaged by the lay or a part fixedly secured thereto, so that the thread-parter would be
 35 operated inevitably if the shuttle-feeler should slip off and part the end of the shuttle, even though improper positioning of the shuttle had prevented replenishment of filling. In my present invention I have provided novel and normally inoperative means
 40 for actuating the thread-parter, as will be explained.

Referring to Fig. 4 the bunter C^2 is formed as part of a bracket 1 which is bolted
 45 to the front of the lay, said bracket having a shelf-like portion 2 sustaining an upright, fixed pin 3 on which is fulcrumed the sleeve-hub 4 of an actuator 5 shown as curved to clear the box-plate bolt a^x and flattened at
 50 its extremity at 6, and adapted to swing toward and from the front of the lay. The hub 4 has extended from it opposite to the actuator a short, forwardly bent arm 7 which enters and is movable in a recess 8
 55 formed in the bunter, said arm being preferably beveled at its front end, as at 9.

Normally the arm 7 is held against a stop lug 10 on the bunter, Fig. 2, by the action of a spring 11, Fig. 4, coiled around the pin 3
 60 and at one end secured thereto, the other end of the spring being attached to the hub 4, whereby the actuator will be held normally in inoperative position, as shown in Fig. 2, with its extremity 6 adjacent the
 65 front of the lay, and the beveled end of the

arm 7 projected in advance of the lip of the bunter.

The part 6 of the actuator extends across the path of the heel c' of the movable parting blade, but normally can not engage the
 70 heel even if the shuttle-feeler moves back its full distance, but when the dog m^x is positioned to cooperate with the bunter C^2 said dog will first engage the projecting beveled end 9 of the arm 7 and will turn the hub 4
 75 on its pivot far enough to swing the actuator forward into operative position, Fig. 3, before the dog actually engages the bunter. Now the part 6 of the actuator will engage the heel c' and operate the movable
 80 blade c^x as the lay completes its forward beat, and the filling-end t , Fig. 3 will be parted near the shuttle, the cutting near the cloth being effected by a cutter c^{20} Fig. 2, on the temple T, in well known manner. So
 85 long as the dog engages the arm 7 the actuator 5 will remain in its operative position, to actuate the thread-parter.

Suppose that replenishment is called for, but the shuttle is not properly in the box B.
 90 This is detected by the feeler Y' , and the dog m^x cannot engage either the arm 7 of the actuator or the bunter C^{12} , so that the spring 11 retains the actuator inoperative. Even should the feeler slip past the shuttle,
 95 after preventing replenishment of filling, the thread-parter cannot be operated, for the part 6 of the actuator is in its inoperative position and hence cannot engage the heel of the movable cutting blade c^x .
 100

I have shown for convenience one form of thread-parting mechanism, but it will be understood that so far as my invention is concerned other suitable forms may be used provided the construction is such that the
 105 same can be actuated by the operatively-positioned actuator in accordance with my present invention.

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

1. An automatic filling-replenishing loom in which the filling is replenished before complete exhaustion having, in combination, a shuttle-feeler, a device mounted thereon to
 115 part the spent filling, an actuator for said device mounted on the lay and means to move said actuator relatively to the lay and into operative position only when the filling-replenishing mechanism is brought into ac-
 120 tion.

2. In a loom, filling-replenishing mechanism, means to effect its operation, including a bunter and a dog to cooperate therewith before complete exhaustion of the filling, a
 125 shuttle-feeler to prevent cooperation of the dog and bunter when the shuttle is improperly boxed, a device to part the spent filling, a normally inoperative actuator for said device, and means to operatively posi-
 130

tion the actuator by or through the dog when the latter is positioned to cooperate with the bunter.

3. An automatic filling-replenishing loom 5 in which the filling is replenished before complete exhaustion having, in combination, a thread-parter to part the spent filling, a normally inoperative actuator therefor, a shuttle-feeler, means, including a dog the 10 position whereof is controlled by said shuttle-feeler, to bring the filling-replenishing mechanism into action when the shuttle is properly boxed, and means to operatively position the actuator by said dog when in its 15 active position.

4. An automatic filling-replenishing loom having, in combination, a shuttle-feeler movable automatically into feeling position when replenishment is called for, a thread-cutter 20 mounted on the feeler and moved thereby into operative position when the shuttle is boxed properly, a normally inoperative actuator for the thread-cutter, pivotally mounted on the lay, and means to swing the actuator 25 into operative position only when the replenishing mechanism is to operate.

5. In a loom, in combination, a lay, mechanism to replenish the filling automatically before complete exhaustion, a thread-cutter 30 mounted independently of the lay and movable automatically into position to cut the spent filling when replenishment is called for, an actuator for the thread-cutter, movable with and also relatively to the lay and 35 normally inoperative, and means to effect movement of the actuator relatively to the lay into operative position with relation to the operatively positioned thread-cutter only when the filling-replenishing mechanism is 40 brought into action.

6. In a loom, in combination, mechanism to replenish automatically the running shuttle with filling, means, including a dog, to effect the operation of said mechanism, a 45 shuttle-feeler to prevent the operation of the dog when the shuttle is improperly positioned for replenishment, a device on the feeler to part the spent filling at the replenishing side of the loom, and means to 50 actuate said device, said means being op-

eratively positioned by the dog when the latter is to cause filling replenishment.

7. In a loom, in combination, mechanism to replenish automatically the running shuttle with filling, a shuttle-feeler, means, including a member controlled by said feeler, 55 to effect the operation of said mechanism only when the shuttle is properly positioned for replenishment, a thread-parter to part the spent filling at the replenishing side of 60 the loom, and normally inoperative means to actuate the thread-parter and rendered operative by said member when the latter is to cause the actuation of the replenishing mechanism. 65

8. In a loom provided with mechanism to replenish automatically the filling, the lay having a recessed bunter, means, including a dog to engage the bunter, to effect the actuation of said mechanism, an actuator pivotally 70 mounted on the lay and having an arm extended forward of the bunter in the recess thereof, a spring to normally retain the actuator inactive, a shuttle-feeler to prevent co-operation of the dog and bunter when the 75 shuttle is improperly positioned for replenishment, and a device on the shuttle-feeler to part the spent filling, the dog when operatively positioned engaging the actuator-arm before engaging the bunter and thereby 80 by positioning the actuator to effect the operation of the parting device.

9. In a loom, in combination, mechanism to replenish automatically the running filling, a shuttle-feeler, a thread-parter thereon to part the old filling at the replenishing side of the loom, a normally inoperative actuator for the thread-parter, 85 and a member controlled as to its position by said feeler to effect the operation of the replenishing mechanism and also to operatively position said actuator when the shuttle is properly positioned for replenishment. 90

In testimony whereof, I have signed my name to this specification, in the presence of 95 two subscribing witnesses.

ALONZO E. RHOADES.

Witnesses:

JOHN A. CAFFEY,

EDWARD DANA OSGOOD.