Sept. 21, 1937. W. E. LUNDGREN 2,093,696

FILLING END PARTING MECHANISM

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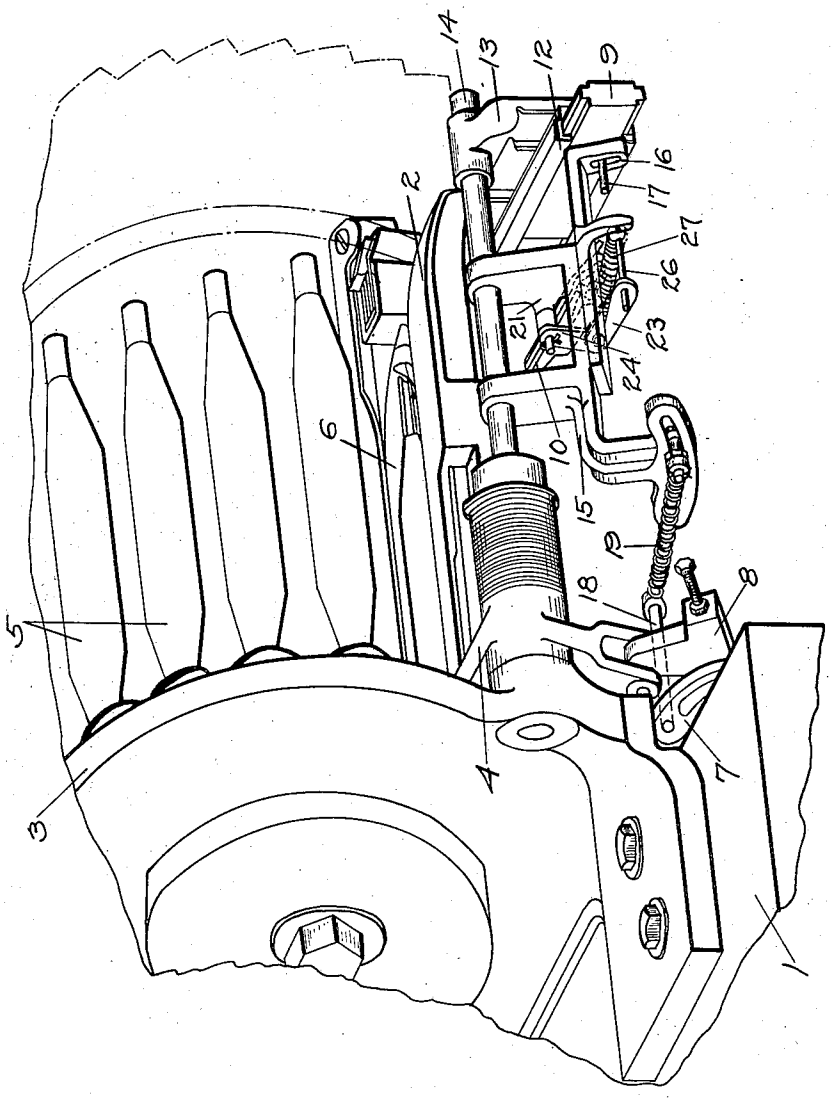


Fig. 1.

INVENTOR.
WILLIAM E. LUNDGREN.
BY Claude F. Snider
ATTORNEY.

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Fig. 2.

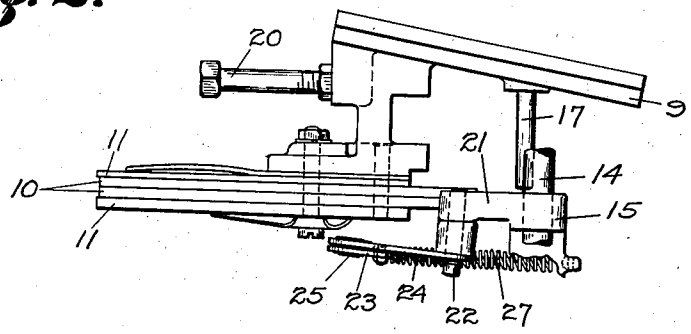


Fig. 3.

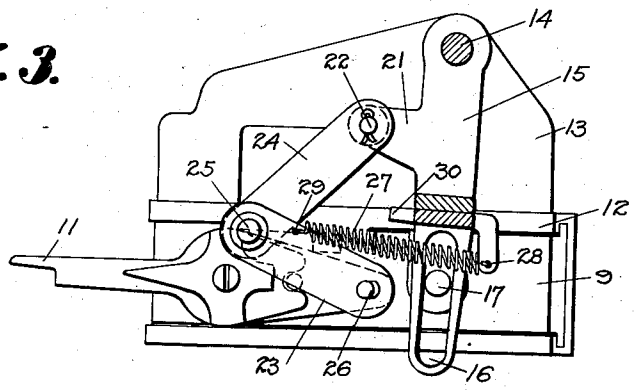
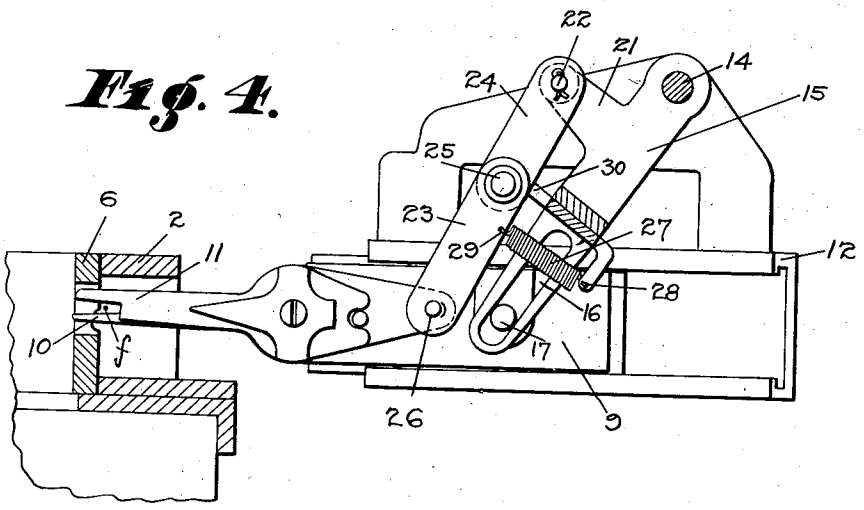


Fig. 4.



INVENTOR.
WILLIAM E. LUNDGREN.
BY Claude F. Snider
ATTORNEY.

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FILLING END PARTING MECHANISM

William E. Lundgren, Hopedale, Mass., assignor to Draper Corporation, Hopedale, Mass., a corporation of Maine

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6 Claims. (Cl. 139—263)

The present invention pertains to automatic filling replenishing looms and has more particular reference to filling end parting and clamping mechanisms for such looms.

Looms of the type mentioned commonly include a reciprocating lay having a shuttle box, bobbin transferring mechanism for automatically inserting a fresh bobbin into the shuttle in such shuttle box, and filling end parting and clamping mechanism which moves toward and away from the shuttle box at the time of transfer, and parts and clamps the outgoing filling end adjacent the shuttle. Such parting and clamping mechanism usually includes parting and clamping blades pivotally mounted on a carrier which moves toward and away from the shuttle box.

An object of the present invention is to provide an automatic filling replenishing loom having bobbin transferring mechanism, a shuttle box, a moving carrier and parting and clamping blades pivotally mounted on the carrier as aforesaid, a support relative to which the carrier moves, and a toggle joint connecting the blades with the support and arranged to open and close the blades.

The foregoing and other objects of the invention are accomplished by the construction illustrated on the accompanying drawings, of which:

Fig. 1 is a perspective view of part of a loom having the preferred embodiment of my invention applied thereto;

Fig. 2 is a plan view of the parting and clamping mechanism of Fig. 1;

Fig. 3 is a view of the same partly in section and partly in elevation, showing the parter carrier in its extreme forward position; and

Fig. 4 is a view similar to Fig. 3 but showing the parter carrier in its extreme rearward position.

The loom shown on the drawings includes a breast beam 1 at the front of the loom, a lay which reciprocates toward and away from the front of the loom and which has a shuttle box 2, and bobbin transferring mechanism including a hopper 3 and a transferrer 4. Reserve bobbins 5 are positioned in the hopper and one of these bobbins is inserted into the shuttle 6 by the transferrer 4 whenever other mechanism, not shown, determines that the filling supply in the shuttle is substantially exhausted. Such other mechanism operates to move an arm 7 rearwardly whenever transfer is to be effected, and this arm positions the usual pivoted dog 8 on the transferrer 4 to cause transfer in the manner well known in the art.

Filling end parting and clamping mechanism is mounted in front of the shuttle box 2 for movement toward and away from the shuttle box. Such mechanism may include a carrier 9 having parting and clamping blades 10 pivotally mounted thereon. The pivotally mounted blades 10 may cooperate with blades 11 which are fixed on the carrier 9. This carrier 9 is mounted in a guide 12 for sliding movement forwardly and rearwardly of the loom. The guide 12 is formed in a bracket 13 which is fixed on the stud 14 on which the transferrer 4 is pivoted.

In the embodiment shown, the carrier 9 and the parting and clamping blades are moved rearwardly toward the shuttle box and then forwardly at the time of transfer. Means for so moving the carrier may comprise a carrier-actuating member 15 which is pivotally suspended on the stud 14 for movement forwardly and rearwardly of the loom. The member 15 has a lost-motion connection with the carrier 9, the member having a slot 16 in which is engaged a pin 17 fixed to the carrier 9. The member 15 is moved rearwardly by the arm 7 which has a pin 18 fixed therein. A spring 19 connects the pin 18 with the member 15. The carrier 9 and member 15 are started to move forwardly by the front of the shuttle box 2 striking screw 20 on the carrier 9, and forward movement of the arm 7, which occurs just after the transfer, will complete such forward movement of the carrier and member.

The filling end parting and clamping mechanism as thus far described is preferably substantially the same as in patent to H. H. Burdett, No. 1,883,532, granted Oct. 18, 1932.

It will be noted that the member 15 moves in a given path to move the carrier 9 in a relatively different path. More specifically, the member 15 swings forwardly and rearwardly about the axis of the stud 14, while the carrier moves rectilinearly substantially horizontally. I provide a support, such as an arm 21 having a pin 22 therein, relative to which the carrier 9 moves. Since the member 15 and carrier 9 move in relatively different paths the carrier will move relative to the support even though as shown, the latter is formed on the member 15. Means comprising a pair of links 23, 24 connect the movable blades 10 with the pin 22 for opening and closing the blades when the carrier is moved along the guide 12.

The links 23, 24 are pivotally connected together by any suitable means such as the rivet 25. The upper end of the upper link 24 is pivoted on the support or pin 22. The lower end of the lower link 23 is pivoted on a pin 26 which is fixed in the forward ends of the movable blades 10. A coiled tension spring 27 has one end secured to the member 15 at 28 and its other end secured to the link 23 at 29. The spring 27 urges the links 23, 24 forwardly, the extent of the forward movement being limited by a stop 30 on the member 15. The links 23, 24 and stop 30 comprise a toggle joint which is constructed and arranged to open the parting and clamping

blades as the carrier and blades are moved rearwardly to filling receiving position, and to close the blades as the carrier and blades move forwardly.

The filling replenishing mechanism is idle during the normal operation of the loom. At such time, the arm 7, member 15, carrier 9 and the blades 10, 11 are stationary in their forwardmost positions as shown by Figs. 1 and 3, and the movable blades 10 are closed. When the carrier 9 is in this position, the distance from pin 26 on the blades 10 to the support 22 is materially less than the combined lengths of the links 23, 24, wherefore the links are out of axial alignment. The spring 27 acts on the links in the direction to hold the blades 10 closed.

Upon call for filling replenishment, the arm 7 moves rearwardly and the spring 19 pulls the carrier-actuating member 15 rearwardly toward the shuttle box 2. The member 15 acts through lost-motion connection 17, 16 to move the carrier 9 rearwardly toward the position represented by Fig. 4. It will be noted that as the member 15 and carrier 9 move rearwardly toward the shuttle box, pin 26 moves relatively farther away from the support 22, permitting the links 23, 24 to move into axial alignment. The parts are so constructed and arranged that the links 23, 24 are in axial alignment when the carrier 9 is at its rearwardmost position and the blades 10 are open. Thus, the parting and clamping blades will be opened by the links 23, 24 as the carrier and blades are moved rearwardly. This rearward position of the parts is a filling-receiving position because, as shown by Fig. 4, the parting and clamping blades are in a position to receive the outgoing filling end *f*.

When the parts have been moved rearwardly to filling-receiving position as just described, the shuttle box, or some part thereon, strikes the screw 20 and starts the carrier 9 and member 15 forwardly. It will be apparent that, upon such forward movement, the stop 30 will cause the link 23, 24 to move rearwardly out of axial alignment, and that the blades 10 will be closed, to thereby part and clamp the filling end *f*. Thereupon, the arm 7 returns to its forward position and thereby returns the member 15 and carrier 9 to the position of Figs. 1 and 3.

It is thought that the advantages of the construction as thus described will be obvious and need not be enumerated.

Having fully disclosed the preferred embodiment of my invention, I claim:

1. In a filling end parting and clamping mechanism for filling replenishing looms, a carrier, parting and clamping blades pivotally mounted on said carrier, a carrier actuating member moving forwardly and rearwardly of the loom in a given path and having a lost-motion connection with said carrier for moving the latter forwardly and rearwardly along a path relatively different from that of the member, and a toggle joint connecting said blades with said member for opening the blades as said member and carrier move rearwardly and closing the blades as the member and carrier move forwardly.

2. In an automatic filling replenishing loom, the combination of bobbin transferring mechanism, a shuttle box, a carrier in front of said shuttle box, filling end parting and clamping blades pivotally mounted on said carrier, a carrier actuating member moving rearwardly and then forwardly in a given path at the time of transfer, said member having lost-motion connection with said carrier for moving the latter toward and away from said shuttle box along a relatively different path, and a toggle joint connecting said blades with said member for opening the blades as said carrier moves toward said shuttle box and closing the blades as the carrier moves away from the shuttle box.

3. In an automatic filling replenishing loom, the combination of bobbin transferring mechanism, a shuttle box, a carrier in front of said shuttle box, a guide supporting said carrier for movement toward and away from said shuttle box in a given path, parting and clamping blades pivotally mounted on said carrier, a carrier actuating member moving in a relatively different path and having lost-motion connection with said carrier for moving the latter along the first said path at the time of transfer, and a toggle joint connecting said blades with said member for opening and closing the blades as said carrier moves respectively toward and away from said shuttle box.

4. In an automatic filling replenishing loom, the combination of bobbin transferring mechanism, a shuttle box, a carrier in front of said shuttle box, filling end parting and clamping blades pivotally mounted on said carrier, means for moving said carrier and blades first toward and then away from said shuttle box at the time of transfer, a support relative to which said carrier so moves, and a toggle joint connecting said blades with said support for opening and closing the blades as said carrier moves respectively toward and away from said shuttle box.

5. In a filling end parting and clamping mechanism for filling replenishing looms, a carrier, parting and clamping blades pivotally mounted on said carrier, a guide supporting said carrier and blades for sliding movement toward and away from filling receiving position, means for moving said carrier and blades first toward and then away from said position at the time of transfer, a support relative to which said carrier so moves, pivotally connected links one of which is pivoted to said blades and the other of which is pivoted to said support, said links being constructed and arranged to move into axial alignment and to thereby open said blades as said carrier moves toward said shuttle box, and means for moving said links out of alignment as said carrier moves away from said shuttle box.

6. In an automatic filling replenishing loom, the combination of bobbin transferring mechanism, a shuttle box, a carrier in front of said shuttle box, filling end parting and clamping blades pivotally mounted on said carrier, a guide supporting said carrier and blades for sliding movement toward and away from said shuttle box, means for moving said carrier and blades first toward and then away from said shuttle box at the time of transfer, a support relative to which said carrier so moves, and a toggle joint connecting said blades with said support for opening the blades as said carrier moves toward said shuttle box, said toggle joint comprising pivotally connected links constructed and arranged to move substantially into axial alignment in opening said blades and being movable out of alignment as said carrier moves away from said shuttle box.

WILLIAM E. LUNDGREN.