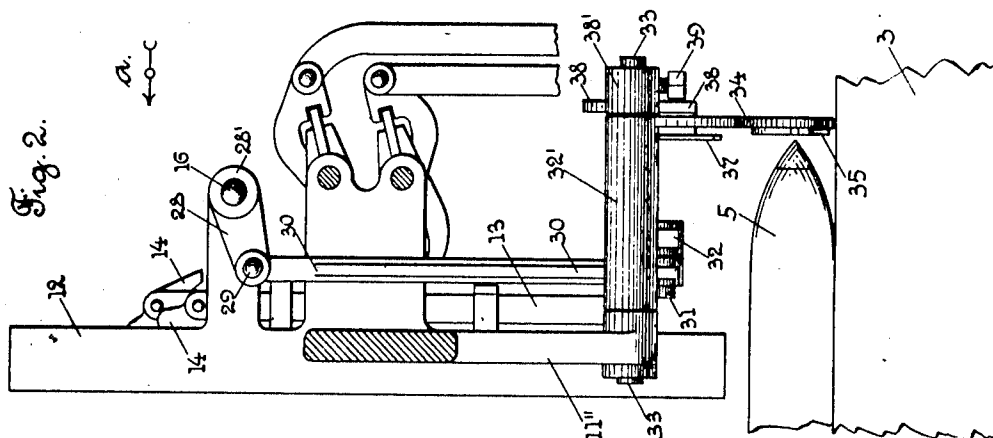
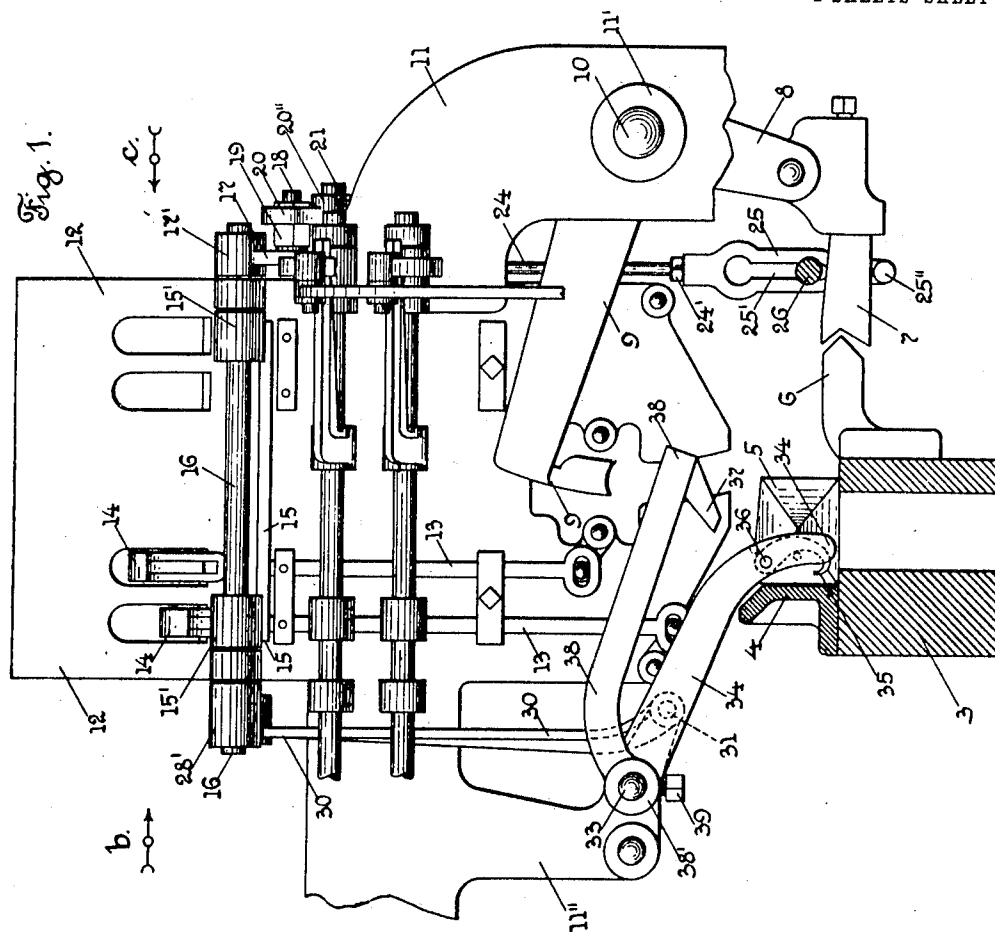


1,022,108.

2 SHEETS-SHEET 1.



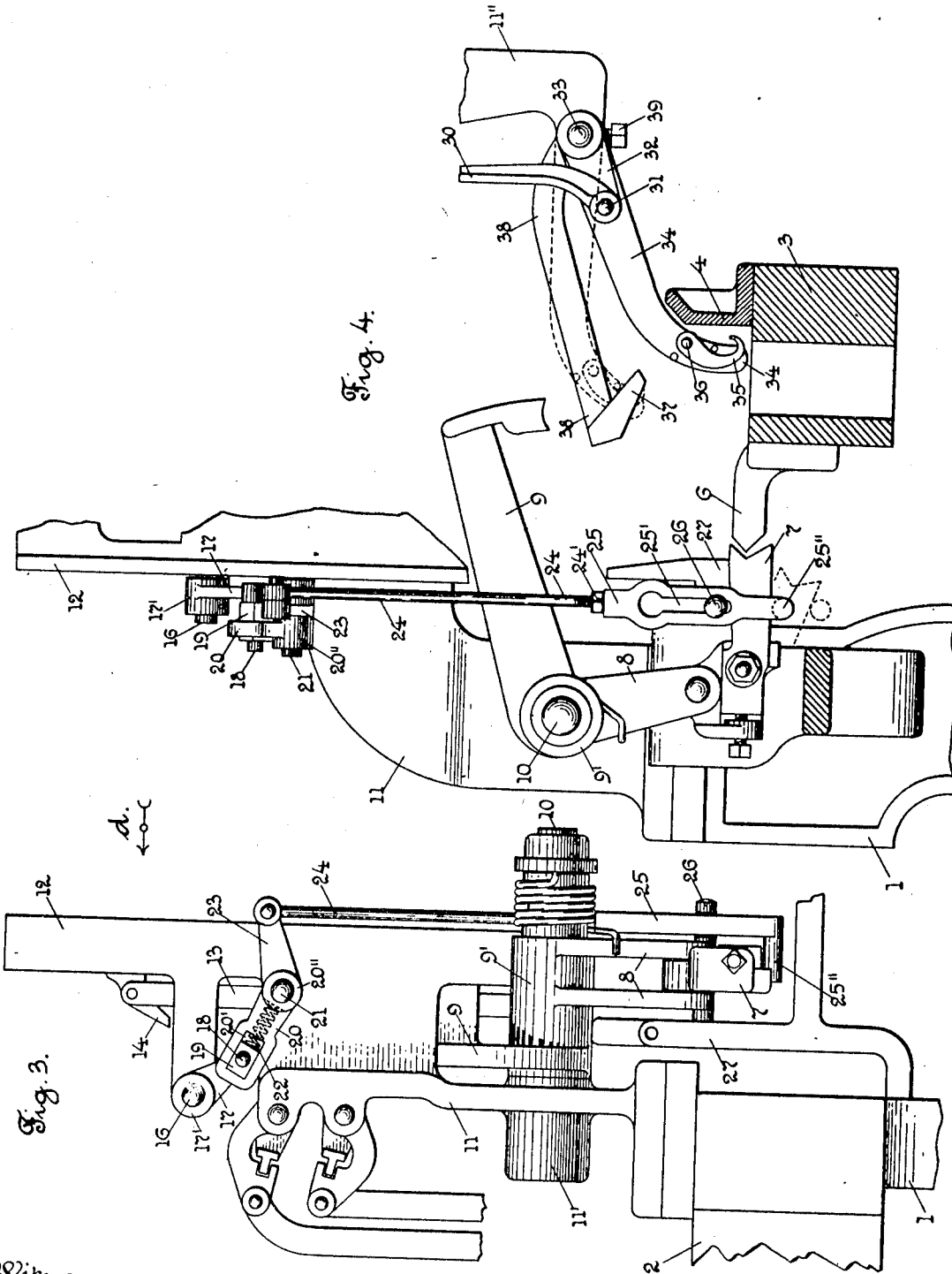
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1,022,108.

Patented Apr. 2, 1912.

2 SHEETS-SHEET 2.



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UNITED STATES PATENT OFFICE.

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WEFT-REPLENISHING LOOM.

1,022,108.

Specification of Letters Patent.

Patented Apr. 2, 1912.

Application filed February 4, 1910. Serial No. 541,959.

To all whom it may concern:

Be it known that I, EPPA H. RYON, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Weft-Replenishing Looms, of which the following is a specification.

My invention relates to a weft replenishing loom, and particularly to a shuttle feeler and thread cutting mechanism, which is preferably located above the stationary shuttle box at the magazine end of the loom.

The shuttle feeler is adapted to feel for a shuttle after it has entered the stationary shuttle box, and in case the shuttle does not occupy the required position in the box for a new bobbin to be properly transferred, the shuttle feeler will be engaged, in this instance by the inner end of the shuttle, and cause the bunter on the transfer arm to be moved to its inoperative position, so that the transfer arm will not be operated to put into operation the transferring mechanism, to transfer a new bobbin to take the place of the substantially exhausted bobbin in the active shuttle.

The object of my invention is to provide an improved shuttle feeler, and to combine therewith a thread cutting device, to cut or sever the filling on the substantially exhausted bobbin.

Heretofore shuttle feelers of the class referred to, have been located in front of the lay, and adapted to move toward the shuttle when the transfer bunter is raised, to cause a transfer of filling, and in case the shuttle is not properly boxed, the point of the shuttle protruding too far from the box to allow the proper transfer of the bobbin at the right time, the shuttle will push back the feeler and restore the transfer mechanism to its normal condition, thereby preventing said mechanism from operating. A thread cutter has been attached to and movable with the feeler.

In my improved shuttle feeler mechanism, I have pivoted the feeler lever, having a cam shaped portion, on a stationary part of the loom above the lay, and connected the same with the transfer mechanism, so that when the transfer is set for a change of filling, the free end of the feeler lever is lowered, so that the inner end of the shuttle, if prop-

erly boxed, clears the feeler but should the shuttle not be properly boxed, the inner end of the shuttle will come in contact with the cam surface of the feeler, the body of the shuttle, acting as a cam, will swing the feeler lever on its pivot, and through connections to the transfer mechanism, restore the transfer mechanism to its normal condition without the transfer of filling taking place.

In connection with my shuttle feeler I have shown and described a thread cutting device to cut the filling on the substantially exhausted bobbin; said device consists in this instance of a hook pivoted on the shuttle feeler, and a stationary cutter or blade separate from the feeler, but located adjacent thereto.

I have only shown in the drawings a detached portion of a stationary magazine, and some of the operating parts, of the type shown in U. S. Letters Patent, No. 933,492, with my improved shuttle feeler, and thread cutting device combined therewith, sufficient to enable those skilled in the art to understand the construction and operation thereof.

Referring to the drawings:—Figure 1 is an inner end view of a detached portion of a weft replenishing loom, having a stationary magazine, and other parts shown and described in said Letters Patent, No. 933,492, with my improved shuttle feeler, and thread cutting device combined therewith, and looking in the direction of arrow *a*, Fig. 2. The lay is shown in section. Fig. 2 is a rear view of some of the parts shown in Fig. 1, looking in the direction of arrow *b*, same figure. Fig. 3 is a front view of some of the parts shown in Fig. 1, looking in the direction of arrow *c*, same figure. Fig. 4 is an end view of a detached portion shown in Fig. 3, looking in the direction of arrow *d*, same figure.

In the accompanying drawings, 1 is the loom side or end frame, 2 is the breast beam, 3 the lay, 4 a stationary shuttle box with a shuttle 5 therein, 6 a bunter, secured to the front of the lay, which is adapted to engage the dagger 7, pivotally mounted on the downwardly extending arm 8 on the hub 9' of the transfer arm 9. The hub 9' is pivotally mounted on a stud 10, which extends out from a boss 11' on a stand 11 of a stationary magazine 12.

As shown and described in Letters Patent,

No. 933,492, above referred to, the upright bars 13 have weighted hooks 14 thereon, and the downward motion of a bar 13, at the left in Fig. 1, in this instance through the engagement of a hook 14 with a lever 15, having its hub 15' fast on a rock shaft 16, moves said lever and rocks said shaft 16. The outer end of the shaft 16 has secured thereon the hub 17' of an arm 17, see Fig. 3. A stud 18 on the arm 17 enters a hole in a block 19, which is adapted to loosely slide in an elongated opening 20' in a lever 20, which has its hub 20'' loosely mounted on a stud 21.

15 A helically coiled expansion spring 22 bears at one end against the block 19, and at its other end against the hub 20'' on the lever 20, and acts to hold and lock the levers 17 and 20 in their upper and lower position. 20 Extending out from the hub 20'' on the lever 20, is a second arm 23, the outer end of which is pivotally connected to a downwardly extending rod 24. The lower end of the connecting rod 24 is in this instance 25 provided with a vertically extending plate 25, which is adjustably secured on the threaded end of the rod 24 by a nut 24'. The plate 25 has an elongated opening 25', into which extends a stud 26 on a stand 27, said stud is adapted to hold and guide said plate 25 in a vertical plane. A projection 25'' extends out from the plate 25, see Fig. 3, and below the dagger 7, which, when the plate 25 is raised, causes the dagger 7 to be 35 raised from the position shown by broken lines in Fig. 4, to the position shown by full lines in said figure, so that said dagger will be in a position to be engaged by the bunter 6 carried on lay. The stud 26 secured to the 40 stand 27 limits the upward movement of the dagger 7.

All of the above mentioned parts, except the plate 25, may be of the usual and well known construction.

45 I will now describe my improved shuttle feeler and thread cutting device combined with the parts above mentioned.

The rear end of the rock shaft 16 has secured thereto the hub 28' of an arm or lever 50 28, see Fig. 2. The arm or lever 28 carries a pin or stud 29, to which is pivotally connected the upper end of the upwardly extending connector 30. The lower end of said connector 30 is pivotally connected to a 55 pin 31 on an arm 32, see Fig. 4, which has its hub 32' loosely mounted on a stud 33 on the downwardly extending arm 11'', see Fig. 2.

60 Extending out from the hub 32' and toward the front of the loom, is a second arm or lever 34, forming the shuttle feeler, and which in this instance is curved slightly downwardly, and adapted to be moved into the path of the inner end of the shuttle 5, 65 see Fig. 1, when, in this instance the dagger

7 has been raised. The engaging end of the shuttle feeler 34, is made curved or cam shaped.

On the forward movement of the lay 3, and when the shuttle 5 is not properly 70 boxed in the stationary shuttle box, the projecting end of the shuttle 5 will engage the cam shaped end of the feeler 34, and cause said feeler to be moved upwardly, and through the rotation of the hub 32' on the 75 stud 33, will move the arm 32, and through the connector 30 move the arm 28, and cause the shaft 16 to rock, and through arm 17, lever 18, arm 33, connector 24, plate 25, and pin 25'', lower the dagger 7 into the 80 position shown by broken lines, Fig. 4, and out of the path of the bunter 6, on the lay, so that the transferrer arm will not be operated by said bunter to transfer a fresh bobbin in place of the substantially ex- 85 hausted bobbin in the active shuttle.

When the shuttle 5 reaches its proper position, as shown in Fig. 1, in the stationary shuttle box, the dagger 7 is not lowered as above described, but remains in its raised 90 position, so that by the engagement of the bunter 6 with said dagger, the transferrer arm 9 will be operated to transfer a new filling into the active shuttle. On the continued forward movement of the lay, the 95 rear wall 4 of the stationary shuttle box will engage the downwardly extending end of the feeler 34, and cause it to be raised to its inoperative position, shown by broken lines in Fig. 4, and through connections to the 100 plate 25, lower said plate, to allow the dagger 7 to be lowered. On the upward movement of the feeler 34, a hook 35, which is loosely pivoted on a pin 36 on said feeler 34, will catch the filling thread on the substan- 105 tially exhausted bobbin in the active shuttle, and carry it upwardly toward a cutter blade 37, which in this instance is rigidly attached to the outer end of an arm 38, which has its hub 38' secured on the stud 33, in this 110 instance by a set screw 39, see Fig. 2. The engagement of the thread from the substantially exhausted bobbin with the cutter blade 37, will cut or sever said thread.

The operation of my improvements, from 115 the above description in connection with the drawings, will be readily understood by those skilled in the art. When the loom operates normally, and the shuttle is properly positioned in the stationary shuttle box at 120 the magazine end of the loom, so that a bobbin from the magazine may be properly transferred into said shuttle to take the place of the substantially exhausted bobbin, the feeler 34 will remain in its raised position 125 and the loom will operate in the usual way. When the filling is substantially exhausted in the active shuttle, then there is an indication by the filling detecting mechanism, not shown, for the transfer of a new bobbin into 130

the active shuttle, and then the feeler 34, through intermediate connections, is lowered into the position shown in Fig. 1. In case the shuttle is properly boxed, the transfer mechanism will be operated in the usual way to transfer a fresh bobbin from the magazine into the active shuttle, and as the lay continues its forward movement the feeler 34 is raised, and through the hook 35 thereon, carries the filling thread from the substantially exhausted bobbin into the path of the cutter blade 37, to sever said filling thread. If a shuttle is not properly boxed in the stationary shuttle box, then the downwardly extending cam shaped end of the feeler 34 will engage said shuttle, and through intermediate connections, cause the dagger 7 to be lowered, as shown by broken lines in Fig. 4, out of the path of the bunter 6 on the lay, so that the transfer mechanism will not be operated to transfer a new bobbin into the active shuttle.

It will be understood that the details of construction of my improvements may be varied if desired. Instead of having a stationary blade for cutting the filling thread, I may provide a movable, or two movable blades, or any other suitable cutting device.

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

1. In a weft replenishing loom, a magazine, a shuttle feeler, located above the lay, and having a cam surface thereon, normally above the path of the running shuttle, to cooperate with said shuttle at the magazine end of the loom, means to lower said cam surface into the path of said shuttle, which acts as a cam to engage and move said shuttle feeler when the shuttle is not properly boxed, a transfer mechanism, and connections from said feeler to said transfer mechanism, whereby the feeler is controlled by the transfer mechanism, and the transfer mechanism controlled by the feeler; when the shuttle is not properly boxed.

2. In a weft replenishing loom, a shuttle feeler, pivoted above the lay on a stationary

part of the loom, and having an inclined or cam surface thereon to be lowered into the path of and be engaged by the shuttle at the magazine end of the loom, in case said shuttle is not properly boxed, a transfer mechanism, connections from said feeler to said transfer mechanism, whereby the feeler is lowered into the path of the running shuttle, when said transfer mechanism is set for a change of bobbins, and the transfer mechanism is prevented from acting by the feeler when the shuttle is not properly boxed.

3. In a weft replenishing loom, a shuttle feeler pivotally mounted above the lay on a stationary part of the loom, and having a cam surface thereon, normally above the path of the shuttle as it enters the stationary shuttle box at the magazine end of the loom, a transfer mechanism, and connections from said feeler to said transfer mechanism, whereby the cam surface of said feeler is lowered into the path of the shuttle when the transfer mechanism is set.

4. In a weft replenishing loom, a shuttle feeler pivotally mounted above the lay, and having a hook to catch a filling thread, a cutter adjacent the feeler, connections from said feeler to some part of the transfer mechanism, and said transfer mechanism, acting to cause said feeler to be carried to a position where the filling will be severed by said cutter.

5. In a weft replenishing loom, a shuttle feeler, pivotally mounted above the lay, and having a cam surface thereon to cooperate with the shuttle in the stationary shuttle box at the magazine end of the loom in case the shuttle is not properly boxed, a cutter for the filling thread, separate from the feeler, but located adjacent thereto, means on said feeler to catch a filling thread and carry the same into a position to be severed by said cutter, when the shuttle is properly boxed and the transfer of filling takes place.

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