

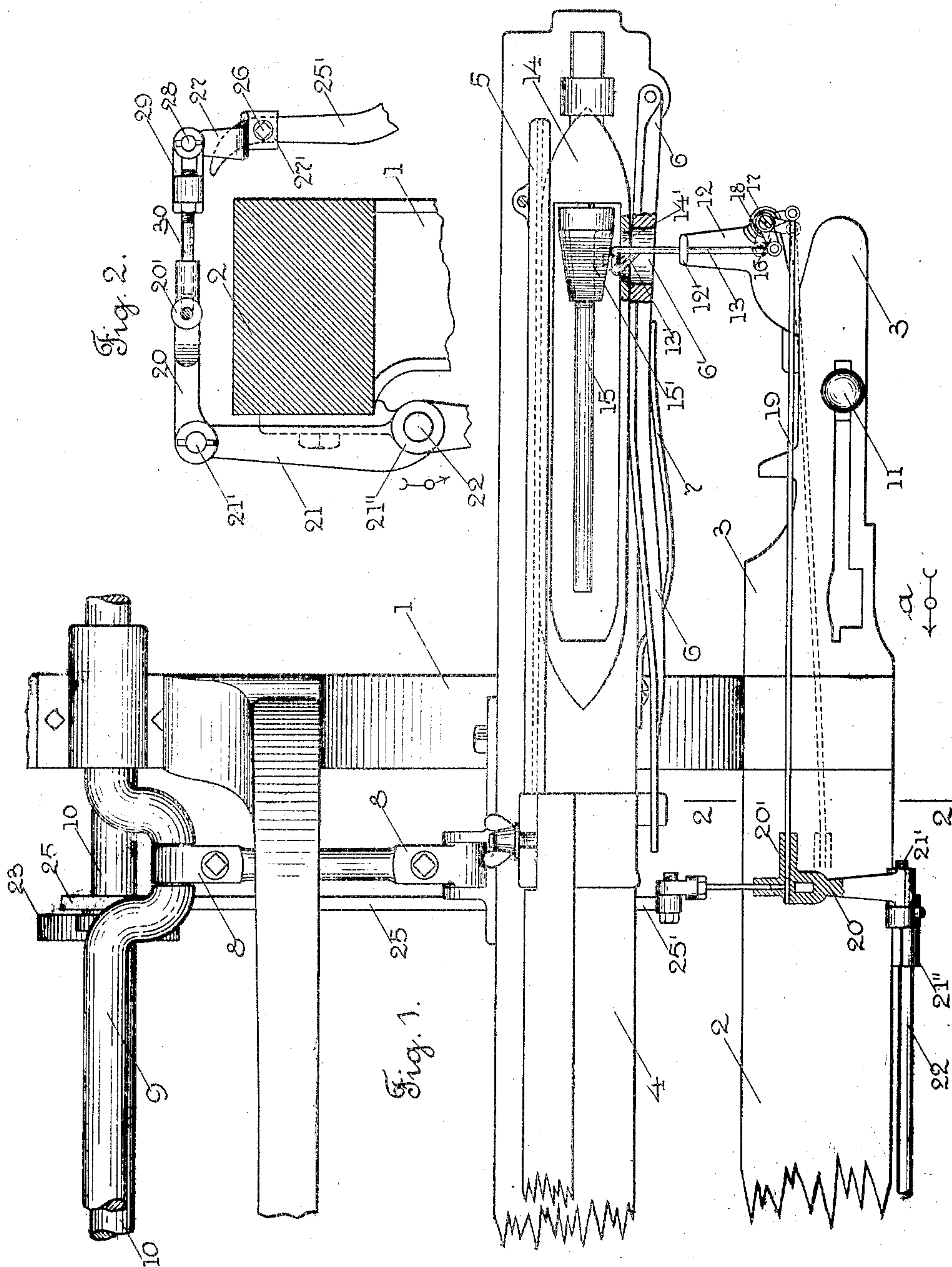
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J. T. CYR.

FILLING DETECTOR MECHANISM FOR LOOMS.

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# UNITED STATES PATENT OFFICE.

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## FILLING-DETECTOR MECHANISM FOR LOOMS.

No. 861,639.

Specification of Letters Patent.

Patented July 30, 1907.

Application filed August 19, 1905. Serial No. 274,918.

To all whom it may concern:

Be it known that I, JOSEPH T. CYR, 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 Filling-Detector Mechanism for Looms, of which the following is a specification.

My invention relates to filling detector mechanism for weft replenishing looms, and the object of my invention is to provide a very sensitive and delicate filling detector mechanism having a filling feeler or detector located preferably on the end of the loom opposite from the magazine, on which end is a single shuttle box, said filling detector or feeler being adapted to feel through an opening in the wall of the shuttle box or the binder, and into the shuttle; to engage with the filling on the bobbin, at every forward movement of the lay, and on the substantial exhaustion of filling, or exhaustion to a predetermined point, to operate mechanism to cause the weft replenishing mechanism to supply fresh filling, in the usual and well known way.

My improvements may be adapted to be applied to, and used in connection with any well known weft replenishing loom of the Northrop type, such as is shown and described in U. S. Letters Patent, No. 529,943, and in which, on the substantial exhaustion of filling in the active shuttle, a dagger is brought into position to be engaged by a bunter on the lay, to cause the operation of the transferrer, and the supply of fresh filling from the magazine, in the usual and well known way.

I have only shown in the drawing, a detached portion of the end of a loom on which is the stationary shuttle box, opposite from the magazine end of the loom, with my improvements applied thereto, sufficient to enable those skilled in the art to understand the construction and operation thereof.

Referring to the drawing:—Figure 1 is a plan view of the breast-beam, the lay, and the shuttle box, on the right hand end of the loom, with my improvements applied thereto, and shown partially in section. Fig. 2 is, on an enlarged scale, a section, on line 2, 2, Fig. 1, looking in the direction of arrow *a*, same figure.

In the accompanying drawing, 1 is a loom side or frame, 2 is one end of the breast-beam having a shipper lever guide-plate 3 extending out therefrom. 4 is the lay having a stationary shuttle box 5 thereon, provided with a shuttle binder 6, and an actuating spring 7. 8 is a crank connector to the crank shaft 9, and 10 is the bottom or cam shaft. 11 is the handle of the shipper lever. All of the above mentioned parts may be of the ordinary and well known construction.

I will now describe my improvements.

Extending inwardly from the slotted shipper lever plate 3 is a stand 12, which has at its inner end an upward projection 12' forming a guide for a longitudinally moving filling detector or feeler 13, which consists in this instance of a piece of wire preferably bent into the shape shown at its inner end 13', which end, on the forward beat of the lay, is adapted to enter an opening 6' through the shuttle binder 6, and an opening 14' in the shuttle 14, to engage the filling 15' on the bobbin 15. The opposite end of the filling detector or feeler 13 is pivotally connected to one arm of an angle or bell crank lever 16, pivotally mounted on a stud 17 fast on the stand 12.

A light spirally coiled watch or leaf spring 18 is in this instance attached to the angle lever 16, and acts to move inwardly the feeler 13. The opposite end of the angle lever 16 has pivotally attached thereto the outer end of a wire rod 19. The inner end of the wire rod 19 is supported and movable longitudinally in a side extension 20' on an arm 20, which is pivotally mounted at its outer end on a pin 21' on an upright arm 21, which has a hub 21'' fast on a rock shaft 22, mounted in suitable bearings at the rear of the breast-beam. The opposite end of the rock shaft 22 carries a dagger, not shown, which is adapted to be moved into the path of a bunter carried on the lay, by the rocking of the shaft 22, in the usual and well known way.

When the dagger on the rock shaft 22 is moved into the path of the bunter on the lay, the transferrer mechanism is operated in the usual and well known way, to supply fresh filling.

On the bottom or cam shaft 10 is fast a cam 23, on the periphery of which travels a roll 24 on a cam lever 25, suitably pivoted on a stationary part of the loom. The forward end 25' of the cam lever 25 extends upwardly, as shown in Fig. 2, and has secured thereon by a bolt 26, the foot 27' of a stand 27. The upper end of the stand 27 carries a pin 28, on which is pivotally mounted an adjustable connection 29 to a pin 30. The pin 30 extends into and has a longitudinal movement in an opening in the outer end of the arm 20, see Fig. 1.

The operation of my improvements will be readily understood by those skilled in the art.

In the normal operation of the loom, the engagement of the filling carrier or bobbin 15 with the filling detector or feeler 13, on the forward stroke of the lay, will move the filling detector 13 and the angle lever 16, against the action of the spring 18, and also move the rod 19 to draw it out of the opening in the extension 20' on the arm 20 and out of the path of the pin 30, as shown by full lines in Fig. 1.

When the filling on the filling carrier or bobbin be-



comes substantially exhausted, or exhausted to a predetermined point, so that on the forward stroke of the lay, the engagement of the bobbin with the filling detector 13 will not move forward the filling detector, as indicated by broken lines in Fig. 1, but will allow the spring 18 to hold it in its inward position, then the rod 19 will not be moved outwardly, but will extend within the opening in said extension 20' of the arm 20, and in the path of the inner end of the pin 30, so that the advancing movement of the pin 30, through the movement of the cam lever 25, will cause the end of the pin 30 to engage the end of the rod 19 extending in the path of said pin, and will move the arm 20 and also the arm 21 to rock the shaft 22 in the direction indicated by the arrow in Fig. 2. The rocking of the shaft 22 will move the dagger, not shown, at the opposite end of said shaft, into the path of the bunter on the lay, to cause the operation of the transfer mechanism to supply fresh filling, in the usual way.

It will be understood that the details of construction of my improvements may be varied if desired, and they may be adapted to be applied to any type of weft replenishing loom.

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

1. A filling detector mechanism of a loom, comprising a longitudinally moving feeler or detector, adapted to engage the filling on a bobbin on the forward stroke of the lay, an angle or bell crank lever connected with said detector, a spring to move inwardly said detector, a longitudinally moving rod connected with said angle or bell crank lever, said rod adapted to be moved into the path of a movable pin, and said movable pin, and means for moving said pin, and on the engagement of said pin with said rod to move, through intermediate connections, a rock shaft to operate the transfer mechanism, and said rock shaft.
2. A filling detector mechanism of a loom, comprising a longitudinally moving feeler or detector, adapted to engage the filling on the bobbin on the forward stroke of the lay, an angle or bell crank lever connected with said detector, a spirally coiled spring to move inwardly said detector, a longitudinally moving rod connected with said angle or bell crank lever, and adapted to be moved in the path of a movable pin, and said pin, and means for moving said pin and causing the operation of the transfer mechanism, when said pin engages said rod.

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Witnesses:

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