J. REGAN.

ELECTRIC WARP STOP MOTION.

APPLICATION FILED MAR. 18, 1909.

939,924.

Patented Nov. 9, 1909.

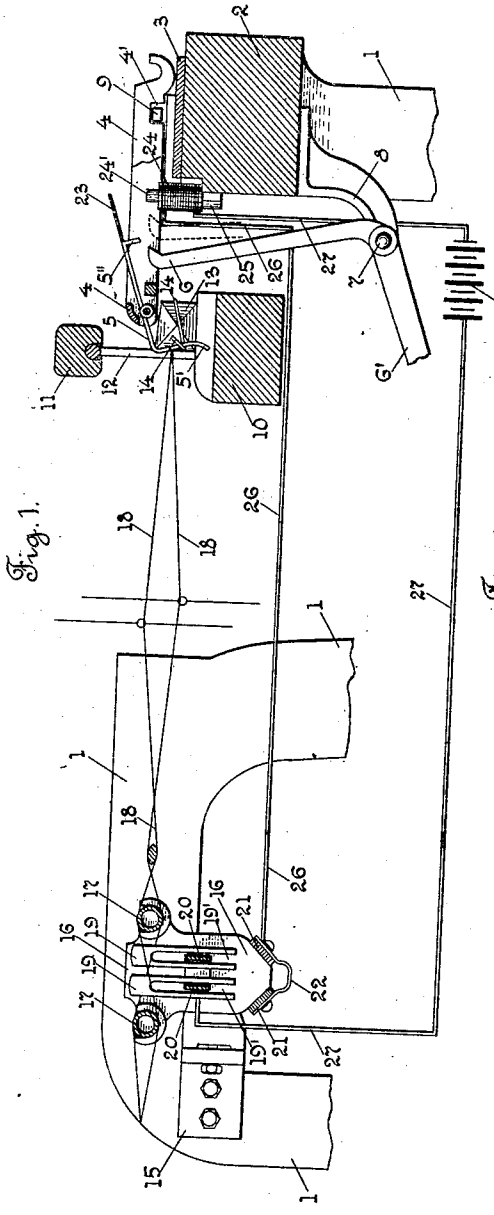

Fig. 1.

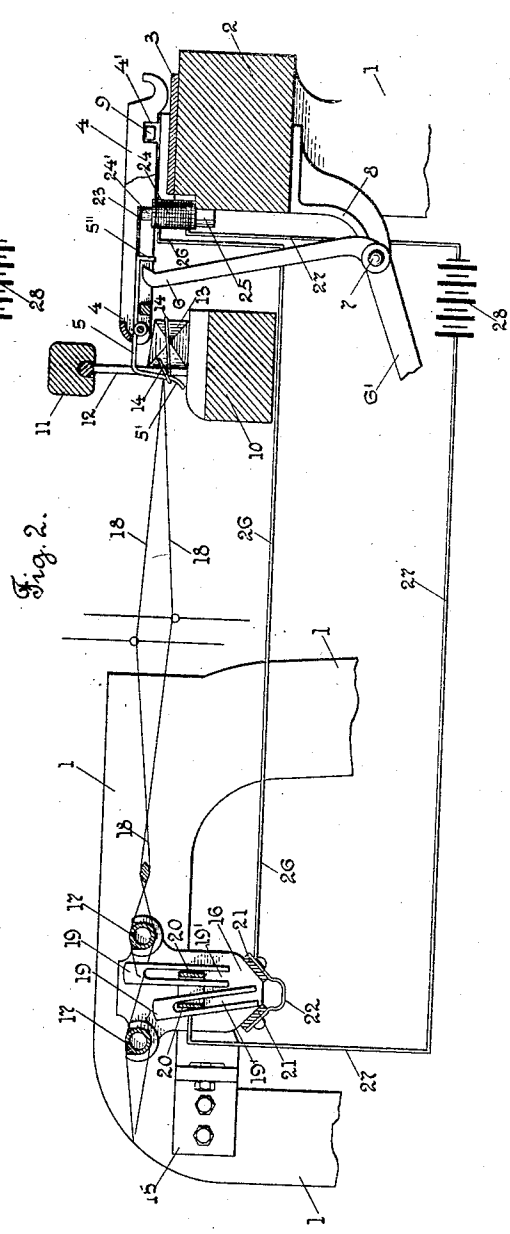

Fig. 2.

Witnesses

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ELECTRIC WARP STOP-MOTION.

939,924. Specification of Letters Patent. Patented Nov. 9, 1909.

Application filed March 18, 1909. Serial No. 484,189.

To all whom it may concern:

Be it known that I, JOHN REGAN, a citizen of the United States, residing at New Bedford, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Electric Warp Stop-Motions, of which the following is a specification.

My invention relates to electric warp stop motions provided with a battery, an electric circuit, an electro-magnet on said circuit, a magnetic member for said magnet, and drop devices suspended on warp threads. When a warp thread breaks, the drop device thereon falls and closes the circuit, to energize the magnet to attract and hold the magnetic member, and cause the operation of mechanism to stop the loom.

My invention consists in certain novel features of construction of my improvements in warp stop motions of the class referred to, as will be hereinafter fully described.

I have only shown in the drawing, portions of a loom, and an electric warp stop motion, and a filling stop motion of any usual construction, with my improvements combined therewith, sufficient to enable those skilled in the art, to understand the construction and operation thereof.

Referring to the drawing:—Figure 1 is a transverse sectional view of some parts of a loom, and my improvements applied thereto, and, Fig. 2 corresponds to Fig. 1, but shows some of the parts shown in Fig. 1, in a different position.

In the accompanying drawing, 1 is a detached portion of a loom side or end frame, 2 is the breast-beam, 3 is a plate mounted on the breast-beam, 4 is the filling fork slide, and 5 the filling fork, pivotally mounted on said slide at its inner end, and having the downwardly extending prong 5′ to be engaged by the filling on the forward movement of the lay, to tilt or raise said fork, as shown in Fig. 1, and carry the downwardly extending lug or projection 5″ thereon, out of the path of the upper end of the weft hammer 6, which is pivotally mounted on a stud 7 carried on a stand 8, secured to the breast-beam 2. The end 6′ of the weft hammer 6 is engaged and operated by a cam, not shown, on the bottom shaft of the loom, not shown. The weft hammer or lever 6 is operated every second pick of the loom, and is moved from the position shown by full lines in Fig. 1, to the position shown by broken lines. The filling fork slide 4 has a slot 4′ therein, into which extends the end of a shipper lever 9.

10 is the lay beam, 11 the hand-rail, 12 the reed, 13 the shuttle, and 14 the filling.

In case there is no filling 14 laid by the shuttle in front of the reed, to engage the forked end 5′ of the fork 5, and tilt or raise the same, as shown in Fig. 1, then the projection 5″ on the filling fork 5 will extend in the path of and be engaged by the weft hammer 6, and the slide 4 will be moved outwardly to move the shipper lever 9 and stop the loom, in the usual and well known way.

The electric warp stop motion to be used in connection with my improvements may be of any ordinary and well known construction. I have shown in the drawing parts of a well known type of electric warp stop motion.

15 is a bracket or support secured to the loom side.

16 is an end frame secured to the bracket 15.

17 are two transverse rods for supporting the warp threads 18, which are divided into two sets, which cross each other between said rods 17. On the lower warp thread of each set is mounted a drop device, 19, having in this instance open end slots 19′.

20 are two terminals secured at their ends on the end frame 16, and passing through the slotted portion 19′ of the drop device 19.

21 are two inclined terminals secured to the end frame 16, and connected by a wire 22.

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

I will now describe my improvements.

In this instance the filling fork 5 has upon its outer hooked end, a thin steel blade 23, which is rigidly secured to the filling fork 5. The steel blade 23 acts as a magnetic member, and extends in the path of and is adapted to engage the core 24′ of an electro-magnet 24, when the filling fork 5 is in its lowered position, see Fig. 2. The electro-magnet 24 is in this instance suitably secured on a stationary block 25 on the inner side of the breast-beam 2, and has an electric coil from which a circuit wire 26 leads to one of the terminals 21. A second circuit wire 27 leads from the coil of the electro-

magnet 24 to a battery 28, and from the battery 28 to the terminals 20, as shown in the drawing.

In the normal operation of the loom, the filling fork 5 will be raised or tilted at every forward beat of the lay, to move it out of the path of the upper end of the weft hammer 6, in the usual way, and the magnetic member 23 will be raised from engagement with the core 24′ of the electro-magnet 24, and on the rearward movement of the lay, the filling fork 5 will drop by gravity at its front end, and the magnetic member 23 thereon will rest on the top of the core 24′ of the electro-magnet 24, but as the electric current is open and the electro-magnet is not energized, there will be no attraction between the core 24′ and the magnetic member 23, so that the filling fork 5 is free to be raised by the filling, on the forward movement of the lay.

In case of the breaking of a warp thread 18, and the dropping of a drop device 19, to connect the two terminals 20 and 21, and close the circuit, as shown in Fig. 2, then the energizing of the core 24′ of the electro-magnet 24, will hold the magnetic member 23 on the filling fork 5, and retain the filling fork in its lowered position, as shown in Fig. 2, against the action of the filling on the prong 5′ on the fork 5, on the beating up of the lay, to raise the filling fork. The filling fork 5 being held in its lowered position, the projection 5″ thereon will be in the path of the upper end of the weft hammer 6, and on the forward movement of said weft hammer, the magnetic member 23 on the fork 5, will move over the upper end of the core 24′ of the electro-magnet 24, and the slide 4 with the filling fork 5, will be moved outwardly, and the lever 9 moved to stop the loom, all as will be understood by those skilled in the art.

It will be understood that the details of construction of my improvements may be varied if desired.

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

1. In a warp stop motion for looms, a filling fork having a magnetic member thereon, an electric circuit, an electro-magnet supported on a stationary part of the loom, a drop device to close the circuit and energize the electro-magnet to hold the filling fork from being moved, a weft hammer to engage the filling fork and move it to operate mechanism to stop the loom.

2. In a warp stop motion for looms, a filling fork having a magnetic member thereon, a weft hammer to move the fork on the absence of filling, an electric circuit, an electro-magnet supported on a stationary part of the loom, and under the magnetic member on said fork, and means for energizing said electro-magnet to prevent the moving of the filling fork.

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Witnesses:
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