J. REGAN.

WARP STOP MOTION FOR LOOMS.

APPLICATION FILED DEC. 23, 1909.

1,067,063. Patented July 8, 1913.

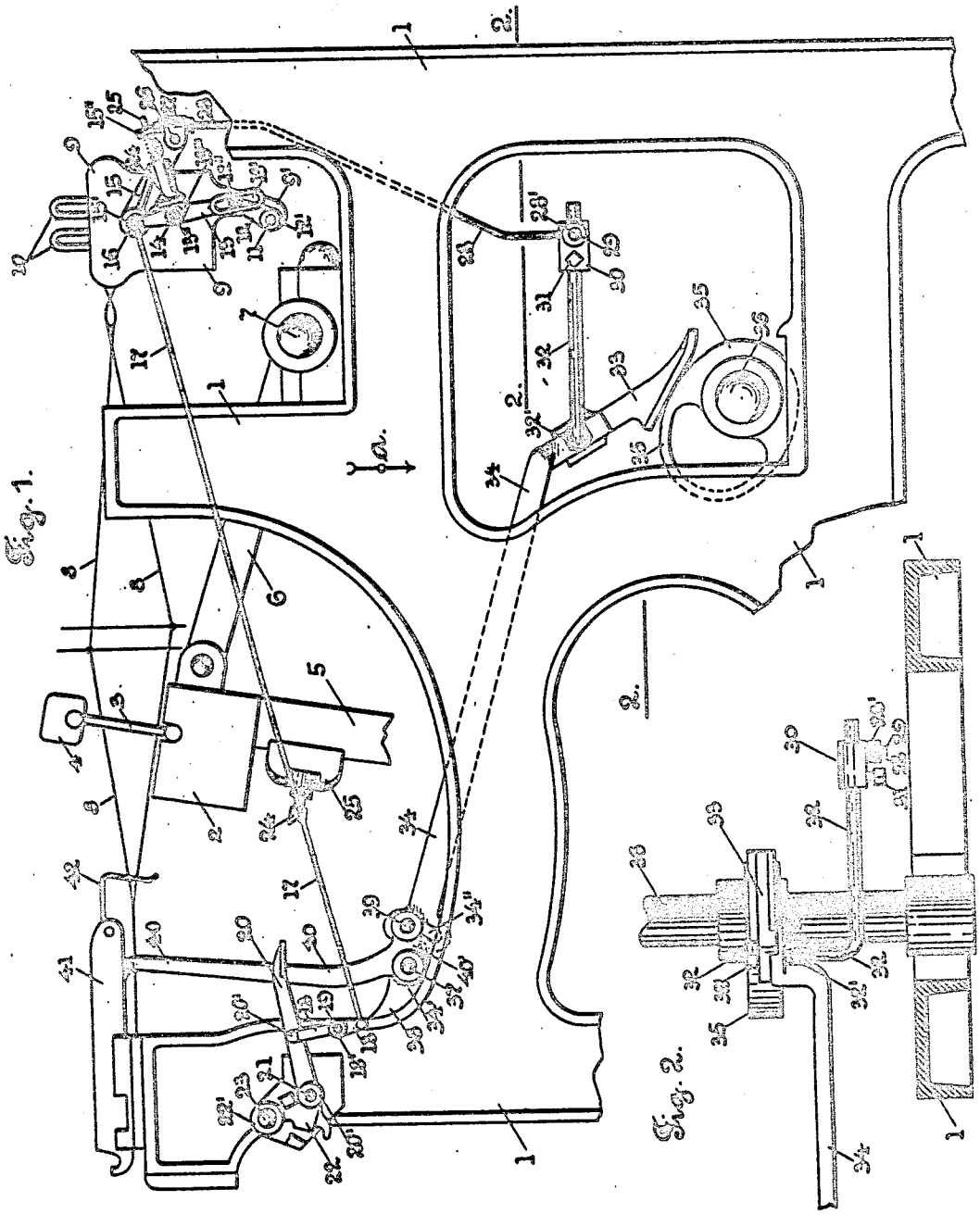


Fig. 1.

Fig. 2.

Witnesses
M. Bredt.
W. Haas.

Inventor
John Regan.
By John E. Darby.
Attorney.

UNITED STATES PATENT OFFICE.

JOHN REGAN, OF NEW BEDFORD, MASSACHUSETTS, ASSIGNOR TO CROMPTON & KNOWLES LOOM WORKS, A CORPORATION OF MASSACHUSETTS.

WARP STOP-MOTION FOR LOOMS.

1,037,063. Specification of Letters Patent. Patented July 3, 1912.

Application filed December 23, 1909. Serial No. 534,011.

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 Warp Stop-Motions for Looms, of which the following is a specification.

My invention relates to a warp stop motion for looms, and particularly to improvements in mechanical warp stop motions of the type shown and described in U. S. Letters Patent, No. 665,713, dated January 8, 1901. In the warp stop motion shown and described in said patent, there is a cam located on the bottom shaft, which operates, through a cam lever and intermediate connections to a vibrator, said vibrator, to communicate a rocking motion thereto, and to cause the same to feel for the drop devices supported upon the warp threads. Upon the dropping of a drop device said vibrator on engaging said drop device, is stopped in its rocking motion, and through connections to a lever, causes the movement of said lever and allows a dagger to drop into the path of and into position to be engaged by a hunter on the lay, on the forward movement of the lay, to cause the movement of the shipper lever to stop the loom, all as fully shown and described in said patent.

The object of my invention is to improve upon and simplify the mechanism for operating the vibrator on a warp stop motion of the type referred to, which vibrates or moves in the path of the drop devices, when a drop device is dropped on the breaking of a warp thread.

In my improved construction of a warp stop motion of the type referred to, I do away with the cam, and the cam lever, shown and described in the patent above referred to, and simplify the mechanism, by combining with the warp stop motion the filling cam motion, to operate the warp stop motion from the filling cam motion.

My invention consists in certain novel features of construction of my improvements as will be hereinafter fully described.

I have shown in the drawing a detached portion of a loom, and a mechanical warp stop motion of the type above referred to, and 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 side view of a detached portion of a loom with my improvements applied thereto. Fig. 2 is a section, on line 2, 2, Fig. 1, looking in the direction of arrow *a*, same figure, showing the cam, and cam lever.

In the accompanying drawing, 1 is the loom side or end frame, 2 is the lay, 3 is the reed, 4 is the hand roll, 5 is the lay sword, pivotally mounted at its lower end, not shown, and connected, through a crank connector 6, to the crank shaft 7, in the usual way.

8 represents the warp threads, 9 is the end frame of the warp stop motion, which is supported on a bracket on the loom side, not shown.

10 are the drop devices, in this instance there are two series, which are supported on the warp threads 8. Extending downwardly from the end frame 9 is an arm or bracket 9', which carries in suitable bearings a rock shaft 11. The rock shaft 11 carries the vibrator, not shown, which vibrates or rocks under the drop devices, and is adapted to engage the lowered drop device on the breakage of a warp thread.

One end of a rock shaft 11 has fast thereon the hub 12' of an arm 12, which carries a stud 12'', which extends into an elongated slot 13' in the lower end of a lever 13, which through stud 12'' vibrates the arm 12, and rocks the shaft 11 and moves the vibrator, not shown, in the usual way. The lever 13 has its hub 13'' pivotally mounted upon a stud 14 carried on a lever 15. The upper end of the lever 13, above its pivotal point, carries a stud 16, to which is pivotally connected one end of a rod 17; the other end of said rod 17 is pivotally connected to the lower end of a lever 18, which has its hub 18' pivotally mounted on a stud 19 on the loom side 1. The upper end of the lever 18 is adapted to extend under the side projection 20' on the dagger 20, to hold said dagger in its raised position, as shown in Fig. 1. The dagger 20 has its hub 20'' pivotally mounted on a stud 21 on a lever 22, which has its hub 22' fast on a shaft 23 of the shipping mechanism of the loom, not shown. A hunter 24 is mounted on a stand 25 on the lay sword 5, and is adapted to en-

gage the dagger 20, on the forward movement of the lay, when said dagger is lowered on the breaking of a warp thread, to stop the loom in the usual way.

The stud 16 on the upper end of the lever 13, in its inoperative position, is centrally located with relation to a stud, not shown, on the frame 9, on which stud is pivotally mounted the hub 15′ of the lever 15, which lever is an angle or elbow lever. The lever 13 has on one edge a flat surface or projection 13‴, against which bears the engaging end of a positioning device 24, which has a straight face or engaging surface, and is carried on a slide rod 25, movable in suitable ears or projections 15″ on one arm of the lever 15. The end of the lever 15 carries a stud 26, which carries a block 27, which adjustably receives the upper end of a connector or rod 28; the lower end of said connector 28 has a boss 28′ thereon, which is pivotally connected to a stud 29 on a collar 30, which is adjustably secured by a set screw 31 on one end of a rod or bar 32. The rod 32 is in this instance bent inwardly at its other end, and is threaded on said end. The bent end of the rod 32 extends loosely through a hole in the lower end of the cam lever 34, and also through a hole in the cam lever foot portion 33, which in this instance is made separate from the cam lever 34. The foot portion 33 has in this instance an extension thereon, which fits into a recess in the lower end of the cam lever 34, see Fig. 2. Nuts 32′ on the threaded end of the rod 32, one on the outside of the cam lever 34, and the other on the inside of the shoe portion 33, see Fig. 2, secures the foot portion 33 to the end of the cam lever 34, and also secures the rod 32 to the cam lever 34 and the foot portion 33. The foot portion 33 of the cam lever 34 travels upon the periphery of, and is operated by a cam 35 which is secured on the bottom shaft 36.

The cam lever 34 has its hub 34′ pivotally mounted on a stud 37 on a stand 38, and through a stud 39, adjustable in a slot 34″ in the lever 34, is adjustably connected with an extension 40′ on the filling fork lever 40, which has its hub pivotally mounted on the stud 37. The upper end of the filling fork lever 40 extends within the filling fork slide 41, which carries the filling fork 42, and is adapted to move said slide to operate the shipping mechanism in the usual way.

All of the above mentioned parts, except the arm 32 connected with the connector 28, and the foot portion 33 on the cam lever 34, are of the usual and well known construction, and as shown and described in the Patent, No. 665,713, above referred to.

The advantages of my improvements will be readily appreciated by those skilled in the art.

From the cam 35 on the bottom shaft 36, which operates the cam lever of the filling stop motion, through the cam 32 connected to the foot portion 33 on the cam lever 34, and the connector 28, a vibrating movement is communicated to the vibrator, and the other parts of the warp stop motion are operated in the same manner as described in said Patent, No. 665,713, and the additional cam on the cam shaft, and the intermediate connections to the connector 28 are done away with.

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:—

In a loom, the combination with a driven cam, a cam lever, and a separate foot portion thereon, traveling on the periphery of said cam, and a filling fork slide operated by said cam lever, of a warp stop motion, and connections from said warp stop motion to said cam lever, said connections, comprising a connector, connected at one end to the warp stop motion, and at its other end pivotally connected to a collar, and said collar, fast on a rod or bar, and said rod or bar, bent at its attached end, said end being threaded and extending through an opening in the cam lever and in the foot portion of said cam lever, and bolts for securing said rod or bar and the foot portion to said cam lever.

JOHN REGAN.

Witnesses:
JOHN C. DEWEY,
MINNA HAAS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."