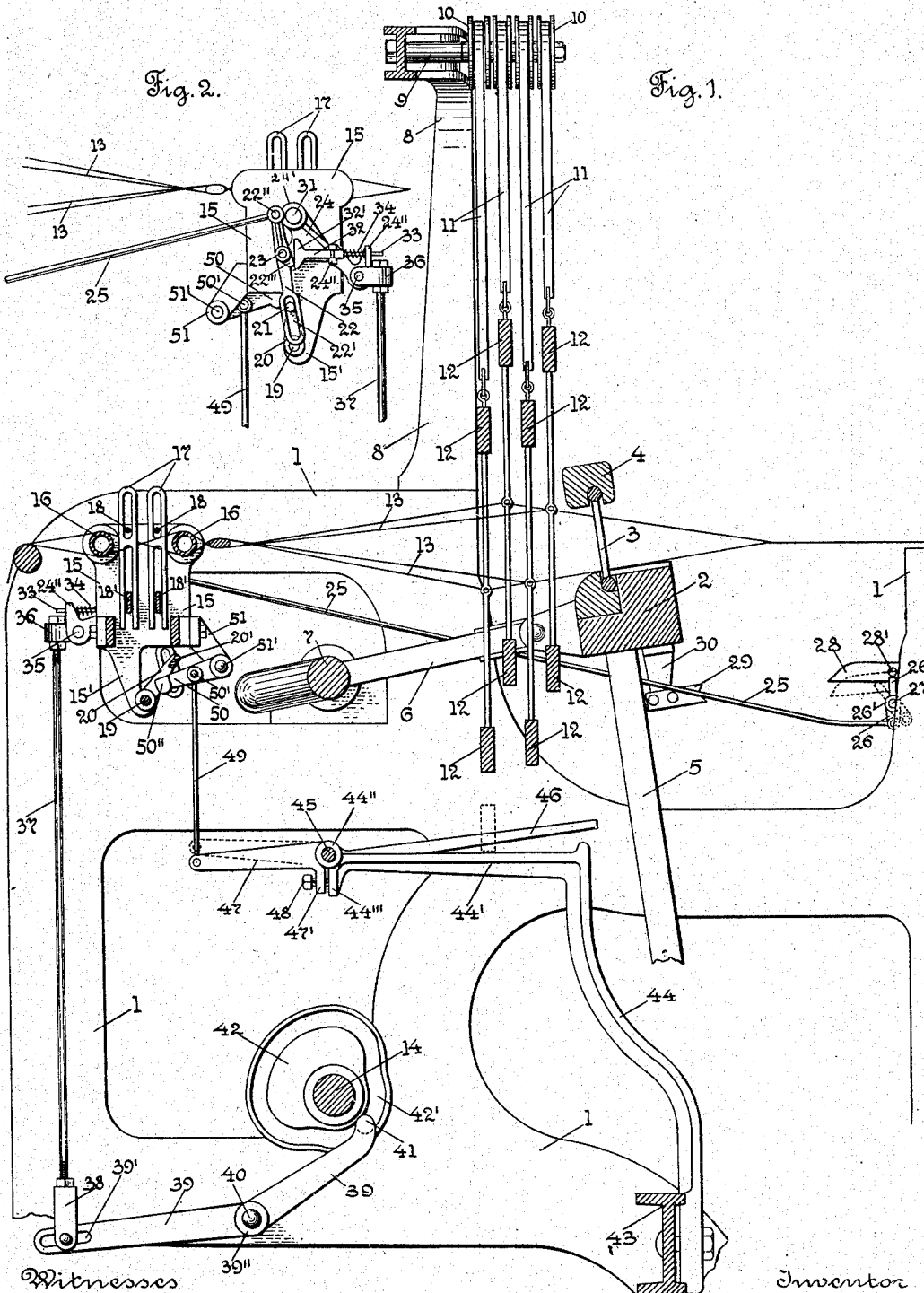


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STOP MOTION FOR LOOMS.
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950,910.

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UNITED STATES PATENT OFFICE.

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STOP-MOTION FOR LOOMS.

950,910.

Specification of Letters Patent.

Patented Mar. 1, 1910.

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To all whom it may concern:

Be it known that I, ALBERT A. GORDON, Jr., 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 Stop-Motions for Looms, of which the following is a specification.

My invention relates to a stop motion for looms, and particularly to a stop motion to automatically stop the loom upon the breakage of a harness strap, or the loosening of a harness from its fastening, and the object of my invention is to provide mechanism to stop the loom in case of the breakage of a harness strap, or the loosening of a harness from its fastening, said mechanism adapted to be used in connection with a warp stop motion of any usual and well known construction.

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

I have shown in the drawing my improvements combined with a mechanical warp stop motion of the class shown and described in U. S. Letters Patent, No. 665,713.

I have only shown in the drawing a detached portion of a loom, and a warp stop motion of the class 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 vertical cross section of a detached portion of a loom, showing the warp stop mechanism, with my improvements combined therewith. Fig. 2 shows a part of the warp stop mechanism, detached, looking from the opposite end shown in the drawing, with some of the parts in a different position.

In the accompanying drawing, 1 is the loom side or end frame, 2 is the lay, 3 the reed, 4 the hand-rail, 5 is the lay sword, pivotally mounted at its lower end, not shown, and connected through the crank connector 6 with the crank shaft 7. The loom arch 8 has on its upper end a bolt 9 on which are loosely mounted the harness rolls or sheaves 10, over which pass the harness straps 11 to

the harnesses 12, which form, through the shed harness operating mechanism, not shown, the shed, by carrying the warp threads 13 up and down in the usual way. 14 is the bottom shaft.

The warp stop mechanism, which in this instance is of the class shown in Letters Patent, No. 665,713, above referred to, consists of an end frame 15, suitably supported on a bracket on the loom side.

16 are the warp supporting or lease rods, supported at each end on the end frame 15. The drops, or drop devices 17, are in this instance divided into two sets, and one-half are supported on one-half of the warp threads 13, and the other half on the other half of the warp threads 13. The drops 17 have in this instance closed slots therein for the guide rods 18, and open end slots for the guide bars 18', in the usual way.

Extending downwardly from the frame 15 is an arm or bracket 15', which carries in suitable bearings a rock shaft 19. The rock shaft 19 carries arms 20, which support at their ends a transverse vibrator bar 20'. On the outside of the arm 20 is a stud or pin 21, see Fig. 2, which extends into a slot 22' in a lever 22, to operate said lever, which is pivotally mounted on a stud 23 on a lever 24. The upper end of the lever 22, above its pivotal support, has a stud 22'' thereon, to which is pivotally connected one end of a rod 25. The other end of the rod 25, see Fig. 1, is pivotally connected to one arm of a lever 26, which has its hub 26' mounted on a stud 27 on a stand, not shown, secured to the loom side. The other arm of the lever 26 is adapted to extend under a stud 28' on a dagger 28, which is connected with the shipper lever, or the shipping mechanism of the loom, not shown, and hold said dagger in its raised position.

When the lever 26 is moved out from under the stud 28' on the dagger 28, the dagger will drop into its lowered position, shown by broken lines in Fig. 1, and is then in position to be engaged by the bunter 29 secured on a bracket 30 on the lay 2.

The lever 24 has its hub 24' pivotally mounted on a stud 31 on the end frame 15.

The lever 22 has on one edge a projection 22'', against which acts a positioning device 32, which has a flattened end 32' and is carried by a slide rod 33, movably held in ears 24'' on the lever 24. A helically coiled expansion spring 34 encircles the rod 33, and bears at one end against the end of the positioning device 32, and at its other end against one of the ears 24'', and acts to yieldingly move forward the positioning device 32.

The downwardly extending part of the lever 24 carries a stud 35, on which is pivotally supported a block 36, to adjustably receive the upper end of a rod 37. The lower end of the rod 37, see Fig. 1, is provided with a rod head 38, adjustably secured in a slot 39' in one arm of a lever 39, which has its hub 39'' pivotally mounted on a stud 40 on the loom side 1. The other arm of the lever 39 has a roll or stud 41 thereon, which in this instance travels in a cam groove 42' in a cam 42, which is mounted on the bottom shaft 14.

Through the operation of the cam 42, and the intermediate connections above described, to the lever 24, and the lever 22 pivotally mounted on said lever 24, the vibrator bar 20' will have a rocking motion back and forth under the drop devices 17 of the stop motion. As long as the drop devices 17 are held in their raised position, the vibrator bar 20' will continue its rocking motion. When a drop device 17 drops down, in case of the breaking of a warp thread, said device will be engaged by the transverse bar 20', and the further movement of said bar and the arm 20 supporting said bar, will be prevented, and through the continued movement of the lever 24, the lever 22 by reason of its slotted end 22' being in engagement with the stud 21 on the lever 20, will be moved on its supporting stud 23, causing the upper end of said lever 22 to be moved to the position shown in Fig. 2. Through the movement of the lever 22, the rod 25 is caused to move the lever 26, and allow the dagger 28 to drop, so that on the forward movement of the lay the bunter 29 will engage the dagger 28, and operate the shipper lever, or shipping mechanism to stop the loom.

All of the above mentioned parts, and the operation thereof, may be of the usual and well known construction, and as fully shown and described in U. S. Letters Patent, No. 665,713, above referred to.

I will now describe my improvements combined with the stop motion mechanism above described, to stop the loom upon the breakage of a harness strap, or the loosening of a harness from its fastening.

The cross girt 43 of the loom has in this instance secured thereon the lower end of an upwardly extending stand 44. A stand 44 is preferably located on each side of the

loom, and each stand 44 has a rearwardly extending arm 44' thereon. The arms 44' extend in a horizontal plane below the harnesses 12, and have on their ends a boss 44'' which has loosely mounted therein the transverse shaft 45. Preferably on both ends of said shaft 45 is fast the hub of a forwardly extending arm 46, which is preferably made of thin sheet metal and extends in its inoperative position slightly above the upper edge of the arm 44', see Fig. 1.

On the hub of one of the arms 46 is a rearwardly extending arm 47, which has a downwardly extending projection 47' thereon, provided with a set screw 48, which engages with its inner end the downwardly extending projection 44''' on the stand 44, to limit and regulate the downward movement of the lever 47. The lever 47 has pivotally connected to its end the lower end of a connector 49; the other end of the connector 49 is pivotally connected with a stud 50' on a lever 50, which has its hub loosely mounted on a stud 51' on a stand 51 secured to the end frame 15 of the warp stop motion. The end of the lever 50 has an engaging portion 50'', which is adapted to be raised into the path of the vibrating transverse bar 20'.

From the above description in connection with the drawing, the operation of my improvements, in connection with the warp stop motion, will be readily understood by those skilled in the art.

In case a strap of a harness breaks, or the harness is loosened from its fastening, and drops down, as shown by broken lines in Fig. 1, the forwardly extending arms 46 will be forced down, causing the rearwardly extending arm 47 to be raised, as shown by broken lines in Fig. 1, and through the connector 49 the lever 50 will be raised, and its engaging end 50'' moved into the path of the transverse bar 20' to stop the movement of said bar, and consequently through the mechanism of the warp stop motion above described, stop the loom in the same manner as when a warp thread breaks and a drop device drops down.

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 the harnesses, and a warp stop motion to automatically stop the loom upon the breakage of a warp thread, of means, intermediate said harnesses and said warp stop motion, to cooperate with a normally moving part of said warp stop motion, to automatically stop the loom upon the falling of a harness upon a portion of said means, said means comprising a lever or arm adapted to be

engaged by the falling harness, a second lever or arm connected with the first mentioned arm, a connector to a pivotally mounted lever, and said lever, adapted to be
5 moved into the path of a transverse vibrating bar of said warp stop motion, to cause the operation of said warp stop motion to

automatically stop the loom, upon the falling of a harness upon said first mentioned lever or arm.

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