A. KEAN.

STOP MOTION FOR LOOMS.

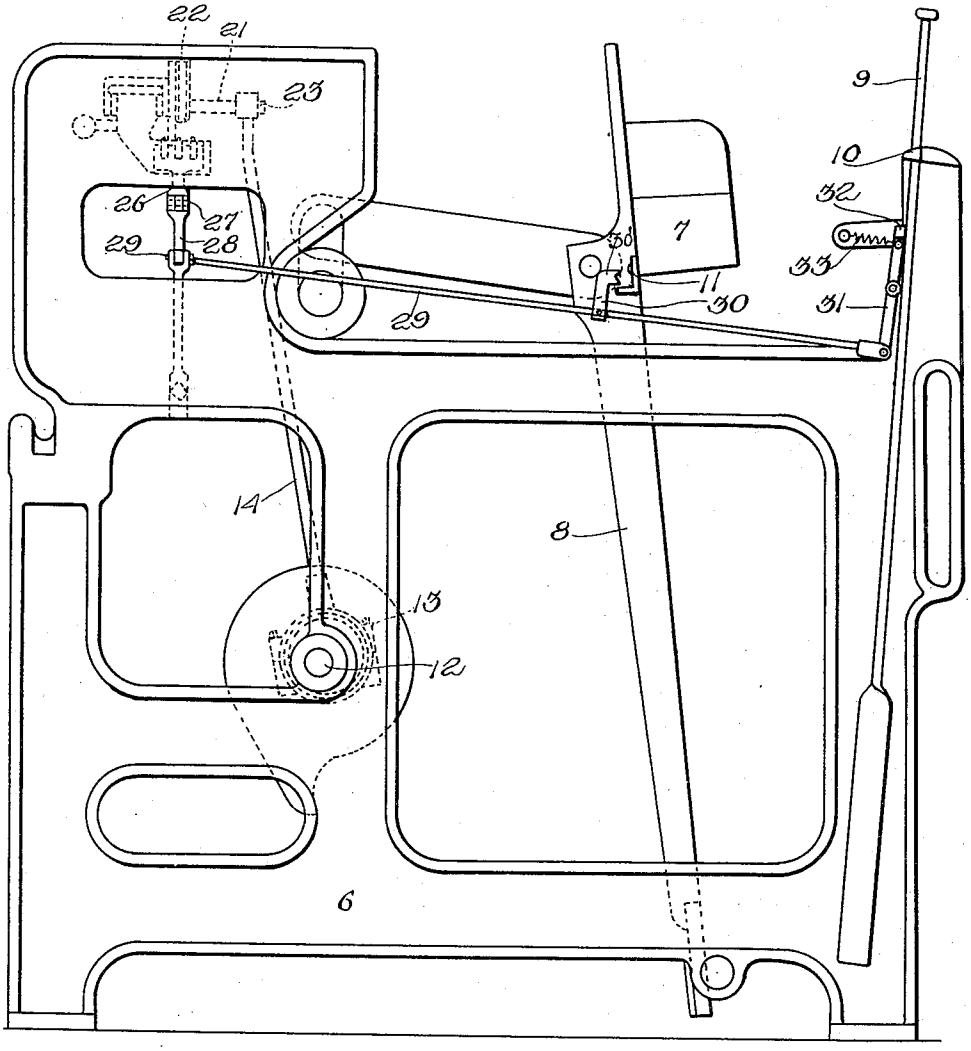
APPLICATION FILED NOV. 14, 1912.

1,067,611.

Patented July 15, 1913.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
L. B. Reymouth.
E. C. Murphy.

Inventor:
Arthur Kean.
By Henry J. Miller
atty.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

A. KEAN.

STOP MOTION FOR LOOMS.

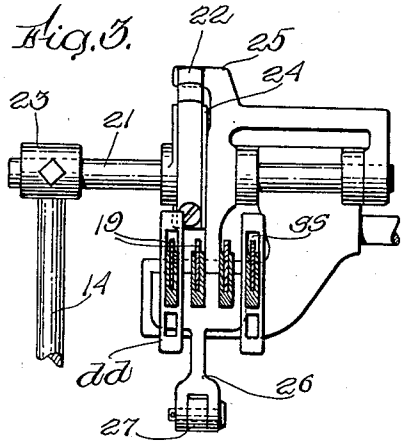
APPLICATION FILED NOV. 14, 1912.

1,067,611.

Patented July 15, 1913.

2 SHEETS—SHEET 2.

Fig. 3.



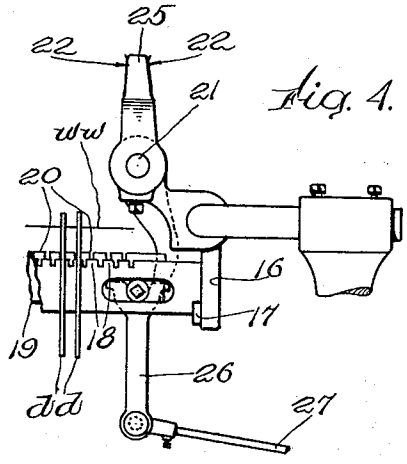


Fig. 4.

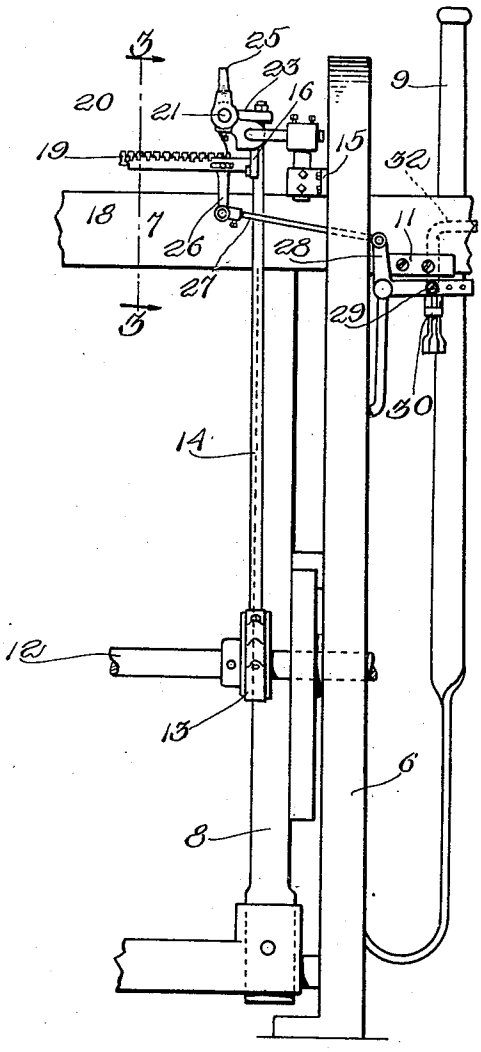


Fig. 2.

Witnesses:
L. B. Weymouth
E. C. Murphy.

Inventor:
Arthur Kean
By Henry J. Miller
atty.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ARTHUR KEAN, OF BOSTON, MASSACHUSETTS.

STOP-MOTION FOR LOOMS.

1,067,611. Specification of Letters Patent. Patented July 15, 1913.

Application filed November 14, 1912. Serial No. 731,290.

To all whom it may concern:

Be it known that I, ARTHUR KEAN, of Boston, in the county of Suffolk, State of Massachusetts, have invented certain new and useful Improvements in Stop-Motions for Looms, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

This invention has reference to improvements in devices or stop motions adapted to be brought into operation by or through the breaking of a warp thread or the undue slackening thereof to effect the stopping of the loom.

The main object of the invention is to so construct a warp stop motion for looms that the same may be simplified largely through the elimination of feeler devices.

Another object of the invention is, in warp stop motions of this character, to provide a mechanism which shall be absolutely positive in action to release the shipper arm preferably on the backward movement of the lay from the breast beam.

The invention consists in such novel features of construction and combination of parts as shall hereinafter be more fully described and pointed out in the claims.

Figure 1, represents an end view partly broken away and shown in section of a loom illustrating my new invention. Fig. 2, represents a back view of portions of the same partly broken away. Fig. 3, represents details of construction of the same taken on line 3—3 Fig. 2 looking in the direction indicated by the arrows of said line. Fig. 4, represents an enlarged detail view of parts shown in Fig. 2.

Similar reference characters designate corresponding parts throughout.

As shown in the drawings 5 and 6 represent end frames of a loom having the usual lay 7 mounted on the pivoted swords 8, 8 and operated in the usual manner by mechanisms controlled to some extent by the ordinary shipper arm 9 mounted on the frame 6 or on any other part of the loom and adapted, when released from its detaining device 10, to move in a direction to effect the stopping of the loom by or through any of the well known mechanisms ordinarily used for that purpose. In the present instance the lay 7 is furnished with the striker plate 11 the purpose of which will hereafter be described. Journaled in the end frames 5 and 6 is the shaft 12 having the cam 13 through which motion is transmitted to the rod 14 in the usual manner of cam actuated rods.

Mounted on the respective frames 5 and 6 or on the brackets extending therefrom are the supports 15 and 16 on which are carried one or more longitudinally grooved bars as 17 having transverse slots at the open edge of said groove to form the teeth 18, 18 and slidable in the longitudinal groove of each of said bars as 17 is a strip 19 notched at its upper edge to form the teeth 20, 20 corresponding to the teeth 18, 18 of said bar 17.

Journaled in bearings of the support 16 is the shaft 21 having fixed thereto the spring fingers 22, 22 and the arm 23 which latter is connected with and actuated by the rod 14 to effect the vibratory movement of said arm 23, its shaft 21 and the spring fingers 22, 22. On said shaft 21 is loosely mounted the vibrator 24 having the member 25, engaged between the spring fingers 22, 22 and having the depending arm 26. This vibrator 24 is connected with the toothed strip or strips 19 so that under the normal operation of the loom the actuation of the rod 14 effects the vibration of vibrator 24, through the fingers 22, 22 and the sliding back and forth of the strips 19 in the grooves of said bars 17 while if the movement of said bars 19 is arrested the arm 23 can still vibrate because of the yielding of fingers 22, 22 without effecting the vibration of vibrator 24 and its depending arm 26.

In order to effect the movement of the shipper arm or lever 9 to the release position when the movement of the strip 19 is arrested I connect the vibrator arm 26 by the rod 27 with one end of the bell crank 28 which is pivotally mounted on the frame 6, or some other fixed part of the loom. One arm of said bell crank 28 is perforated and in one of the perforations is slidable the rod 29 having the inverted L shaped arm 30 adjustably secured thereon while the end of this rod 29 is pivotally connected with the knock off 31 pivotally mounted on a stud extending from the frame 6 and having the lateral projection 32 so engaged with the shipper arm 9 that when the knock off 31 is moved against the action of its retraction spring 33 the projection 32 will effect the release movement of the shipper arm 9 from its detaining device whereupon said shipper

arm, so released, can move to the loom stopping position.

Provision is made for arresting the movement of the slide strip 19 when a warp thread breaks as follows: Each warp thread is supplied with a drop wire *d*, so called, which consists of a thin strip of steel having the slot *s* to receive both the bar 17 and the slide strip 19 and is furnished with means for engaging a warp thread. Under the normal operation of the loom these drop wires *d* are sustained by the unbroken warp threads, as *w*, *w*, out of engagement with the teeth 18 and 29 of the bar 17 and slide 19. When, now, a warp thread breaks or becomes unduly slack its drop wire *d* moves downward until the upper end of its slot *s*, ultimately, enters the slots between the teeth 18, and 20 respectively of the bar 17 and the slide 19, the movement of the slide 19 and of the vibrator arm 26 is arrested whereby the swinging of the bell crank lever 28 ceases and the bent end 30′ of the arm 30 remains in the path of the striker plate 11 on the lay 7, which, when the lay moves back strikes said end 30′ of arm 30 and moves rod 29 in a direction to actuate the knock off 31 to knock off or release the shipper arm 9 from its detaining device to permit said shipper arm to move to the loom stopping position.

During the normal operation of the loom the slidable rod 29 is preferably raised at one backward movement of the lay 7 and lowered at the next similar movement of said lay and the L shape of the arm 30 permits the edge of the striker plate 11 to move above and below the end of the bent end 30′ of said arm 30. Under abnormal conditions, however, rod 29 is so arrested that said bent end 30′ is in the path of the striker plate 11 and, hence, when so positioned will be struck by said striker plate 11 at the next backward movement of the lay to effect the sliding of rod 29 and the release of the shipper lever as above described.

It is of course obvious that in different makes of looms the knock off mechanism will be modified in construction to accommodate it to the construction of the machine and the location and direction of movement of the shipper lever or device.

Having thus described my invention I claim as new and desire to secure by Letters Patent.

1. A stop motion for looms comprising a guide bar having teeth at its upper edge, a toothed slide carried by said guide, a vibrator for said slide having a depending arm, a bell crank actuated by said arm and having a guide, a rod slidable in said guide and having a stop arm adapted to be located in the path of a moving part of the loom under abnormal conditions, and a knock off connected with said slidable rod.

2. A stop motion for looms comprising a guide bar having a longitudinal groove having a toothed edge, a strip slidable in said groove and having a toothed edge, means for vibrating said strip under normal conditions, means to arrest the movement of said strip under abnormal conditions, a bell crank connected with said vibrating means and having one of its arms perforated, a rod slidable in said perforation, and having an adjustable L shaped arm adapted to be struck by a part on the lay when the vibration of said rod is arrested, a knock off pivotally mounted on the machine and connected with said rod, a shipper arm adapted to be moved to the release position by said knock off, a spring for retracting said knock off, and a lay movably mounted and having a striker plate, substantially as described.

ARTHUR KEAN.

Witnesses:
HENRY J. MILLER,
ESTHER C. MURPHY.

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