J. W. BOUNDS & J. C. ELLENBURG.

WARP STOP MECHANISM.

APPLICATION FILED SEPT. 15, 1909.

973,102. **Patented Oct. 18, 1910.**

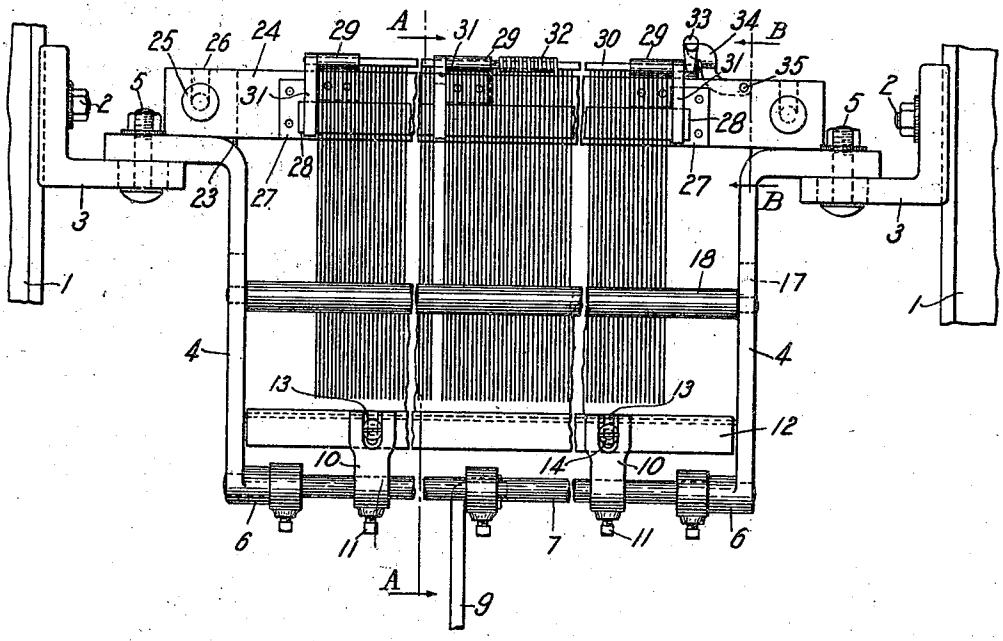

Fig. 1.

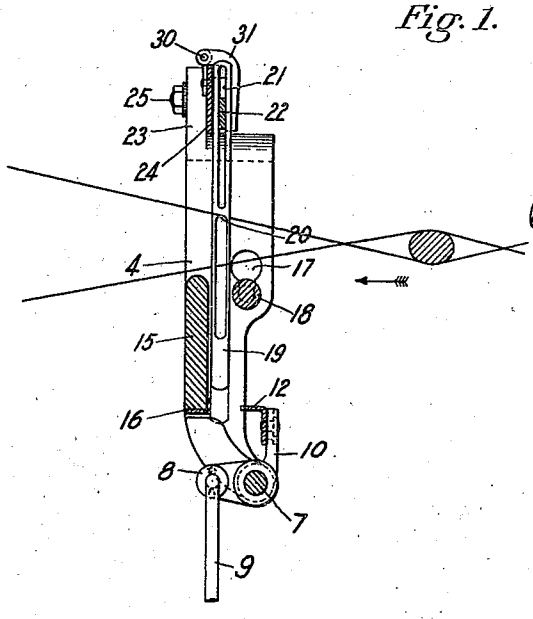

Fig. 2.

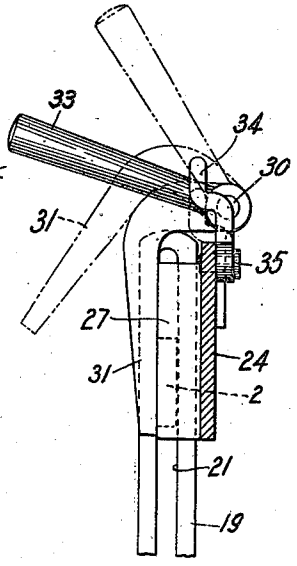

Fig. 3.

Witnesses:
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by Robt. P. Harris. Atty.

UNITED STATES PATENT OFFICE.

JOHN W. BOUNDS AND JAMES C. ELLENBURG, OF KANNAPOLIS, NORTH CAROLINA, ASSIGNORS TO WILLIAM F. DRAPER, OF HOPEDALE, MASSACHUSETTS; CLARE H. DRAPER AND OLIVER H. LANE EXECUTORS OF SAID WILLIAM F. DRAPER, DECEASED.

WARP STOP MECHANISM.

973,102. Specification of Letters Patent. **Patented Oct. 18, 1910.**

Application filed September 15, 1909. Serial No. 517,360.

To all whom it may concern:

Be it known that we, JOHN W. BOUNDS and JAMES C. ELLENBURG, citizens of the United States, residing at Kannapolis, in the county of Cabarrus and State of North Carolina, have invented an Improvement in Warp Stop Mechanism, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The invention to be hereinafter described relates to warp stop mechanism for looms, and more particularly to the drop wires and their associated elements.

The aims and purposes of the invention are to provide means whereby the drop wires of a warp stop mechanism may be readily and conveniently removed and replaced with respect to their coöperating parts, all of which will best be understood from the following description and accompanying drawings of one form of means for carrying the invention into practical effect, it being understood that the invention in its true scope is defined by the claims.

In the drawings: Figure 1 is a view looking in the direction of the arrow, Fig. 2, and showing sufficient of the loom frame and warp stop mechanism to make clear the present invention and its general characteristics; Fig. 2 is a section on the line A—A, Fig. 1; and Fig. 3 is a detail section on an enlarged scale on the line B—B, Fig. 1.

The loom frame may be of any usual or desired character, a portion 1 being indicated in Fig. 1. Secured to the loom frame by suitable means, such as the bolts 2, 2, are the brackets 3, 3, which afford supports for the side arms 4, 4, preferably connected to the brackets 3, 3, adjustably, as by the bolts 5, 5, see Fig. 1.

Mounted to rock in suitable bearings 6, 6, of the side arms 4, 4 is the rock shaft 7 having suitable means connected with some moving part of the loom to impart rocking movement thereto, such, for instance, as the arm 8 and rod 9, the construction being such that so long as the movement of the rock shaft 7 is unopposed the loom may continue to run, but should the rocking movement of the said shaft be opposed, as by a drop wire in its path, the loom will be brought to rest. Devices for acting in the manner stated are well known in the art and need no further detail description.

Secured to the rock shaft 7, as by the set screws 11, are the feeler arms 10 adjustably sustaining the feeler 12. As one means for connecting the feeler to its supporting arms, the latter may be slotted, as at 13, and a cap screw 14 be passed through each slot and engage the feeler, as will be readily understood.

Extending between the side arms 4, 4 is the bar 15 having a facing 16 at its lower portion against which a drop wire may rest when permitted to fall into the path of the feeler 12 by a slack or broken warp thread. A guide or roller 18 is preferably held by its ends in key-hole slots 17 formed in the side bars, the construction being such that the bar 15 and guide or roller 18 form a guide passage or way between them for a series of drop wires 19.

The drop wires 19 are formed with a shouldered part 20, shown as provided by the upper wall of a slot made in the drop wires, and said wires are shown as formed of thin flat metal, but the invention, it is to be understood, is not restricted in these respects. Whatever be the particular structure of the drop wires they are adapted to be sustained in an elevated position by the raised warp threads of the shed so long as such threads are in normal working condition, but should a warp thread become broken or too slack, then the drop wire controlled thereby will fall, so that its lower end will be in the path of the feeler and thereby cause loom stoppage in a manner well understood by those skilled in the art.

It is desirable at times to remove the entire set of drop wires, as, for instance, when a new set of warps is placed in the loom with drop wire already strung thereon, or it may be that one or more of such drop wires should be removed or replaced, and to enable these results to be readily and conveniently secured, the drop wires are mounted on detachable drop wire sustaining means, which, in the present form of the invention, comprises a support 22 preferably passed through slots 21 of the drop wires 19.

As one means of detachably connecting the support 22 to the machine, the side arms 4 are provided with lugs 23 or other suitable

supports for a cross bar 24 preferably connected to said lugs 23 by bolts 25 which afford adjustment for the cross bar 24 through the medium of the slots 26 formed in said lugs.

Secured to the face of the cross bar 24 are the blocks 27 having facial recesses to receive the end portions 28 of the drop wire support 22. Mounted in bearings 29 carried by the cross bar 24 is a rock shaft 30, having secured thereto at desired intervals the holding fingers 31, a spring 32 surrounding said rock shaft 30 and having one end secured to the cross bar 24 and the other end to the rock shaft serving to normally press the holding fingers 31 against the face of the drop wire support 22 and hold the end portions 28 thereof in the recesses of the blocks 27, as will be apparent. The rock shaft 30 is provided with a hand piece 33 by which it may be rocked in opposition to the spring 32, and a pawl 34 pivoted to tne cross bar 24 may serve to lock the rock shaft with the holding fingers 31 in inoperative position, as indicated by dotted lines in Fig. 3.

Obviously the details of the invention may be greatly varied within the true scope thereof, it being understood that the same is set forth by the claims.

The term drop wire is intended to include various forms and constructions of such devices other than that shown and described, and various means may be employed within the present invention to guide the drop wires, and to stop the loom when a wire is improperly positioned, the forms of such devices herein shown and described being merely illustrative of the general features of the invention.

What is claimed is:

1. In a loom, the combination of a series of drop wires, a drop wire support, seats for sustaining the drop wire support, a rock shaft having fingers to engage the drop wire support, and means acting to hold the fingers against the drop wire support.

2. In a loom, the combination of a series of drop wires having openings, a drop wire support engaging said openings, sustaining means having open faced seats to sustain the drop wire support, yielding locking means to detachably hold the drop wire support in its seats, and hand operated means to trip said locking means to permit ready removal of the support.

3. In a loom, the combination of a series of drop wires, a drop wire support, means for detachably sustaining the drop wire support, yielding means acting normally to hold the drop wire support in supporting relation with its sustaining means, and means to hold said yielding means in inoperative position.

4. In a loom, the combination of a series of drop wires, a drop wire support, a cross-bar carrying facial recesses to receive said support, a rock shaft having fingers for engaging the face of the support to hold it in said facial recesses, and a spring acting to hold said fingers in operative position.

5. In a loom, the combination of a series of drop wires, a drop wire support, a cross-bar carrying facial recesses to receive said support, a rock shaft having fingers for engaging the face of the support to hold it in said facial recesses, a spring acting to hold said fingers in operative position, and a pawl for holding the fingers in inoperative position.

6. In a loom, the combination of a series of drop wires, a drop wire support, a cross-bar carrying blocks having facial recesses to receive said drop wire support, a rock shaft sustained by said cross-bar, fingers carried by said shaft to engage the drop wire support, means for holding said fingers in operative position, and means for operating the rock shaft to free the fingers from the drop wire support.

In testimony whereof, we have signed our names to this specification, in the presence of two subscribing witnesses.

JOHN W. BOUNDS.
JAMES C. ELLENBURG.

Witnesses:
G. W. FINK,
RAY TAGGART.