

No. 702,654.

Patented June 17, 1902.

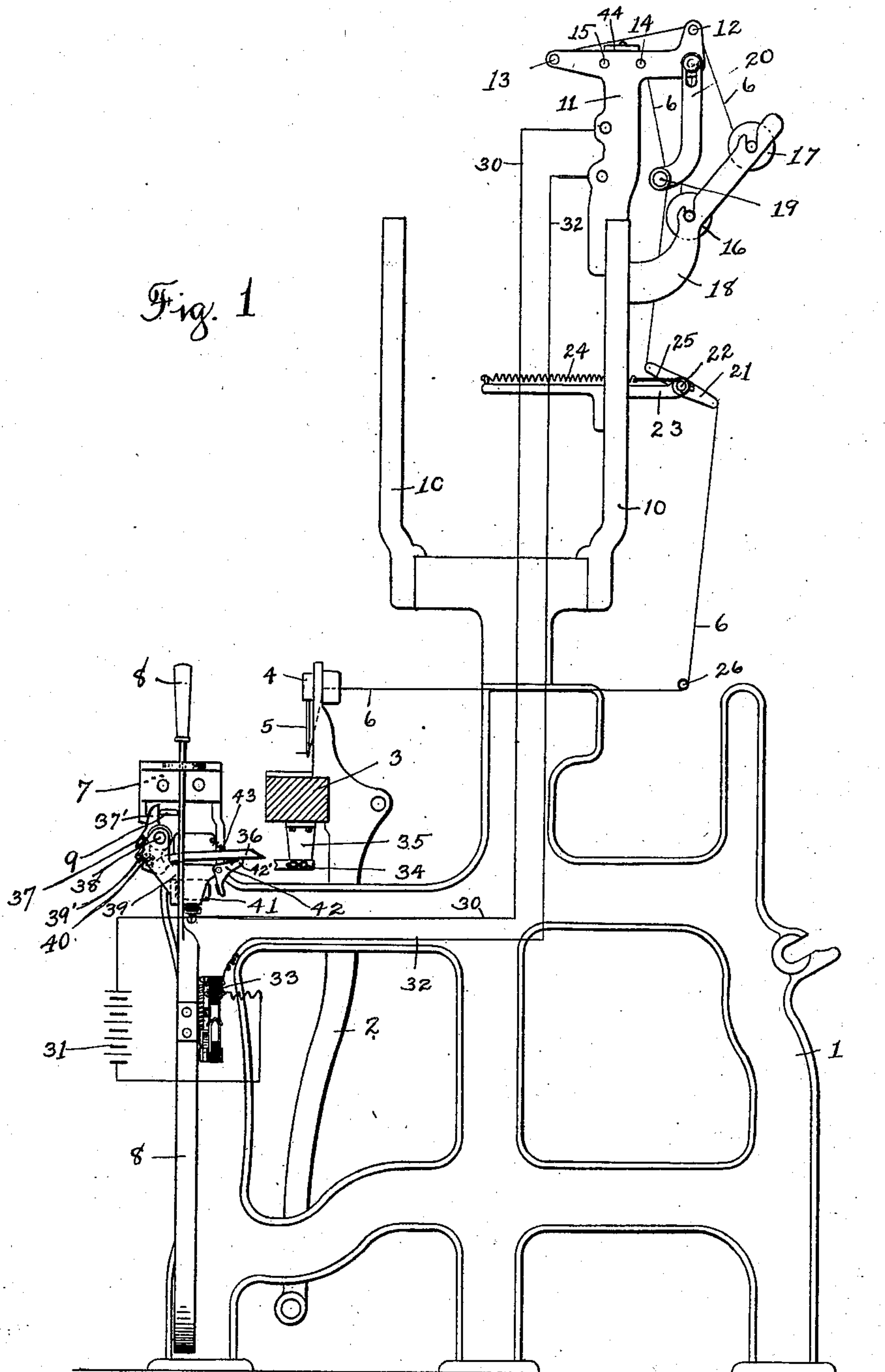
H. J. JARRY.

WARP STOP MOTION FOR LOOMS.

(Application filed Dec. 9, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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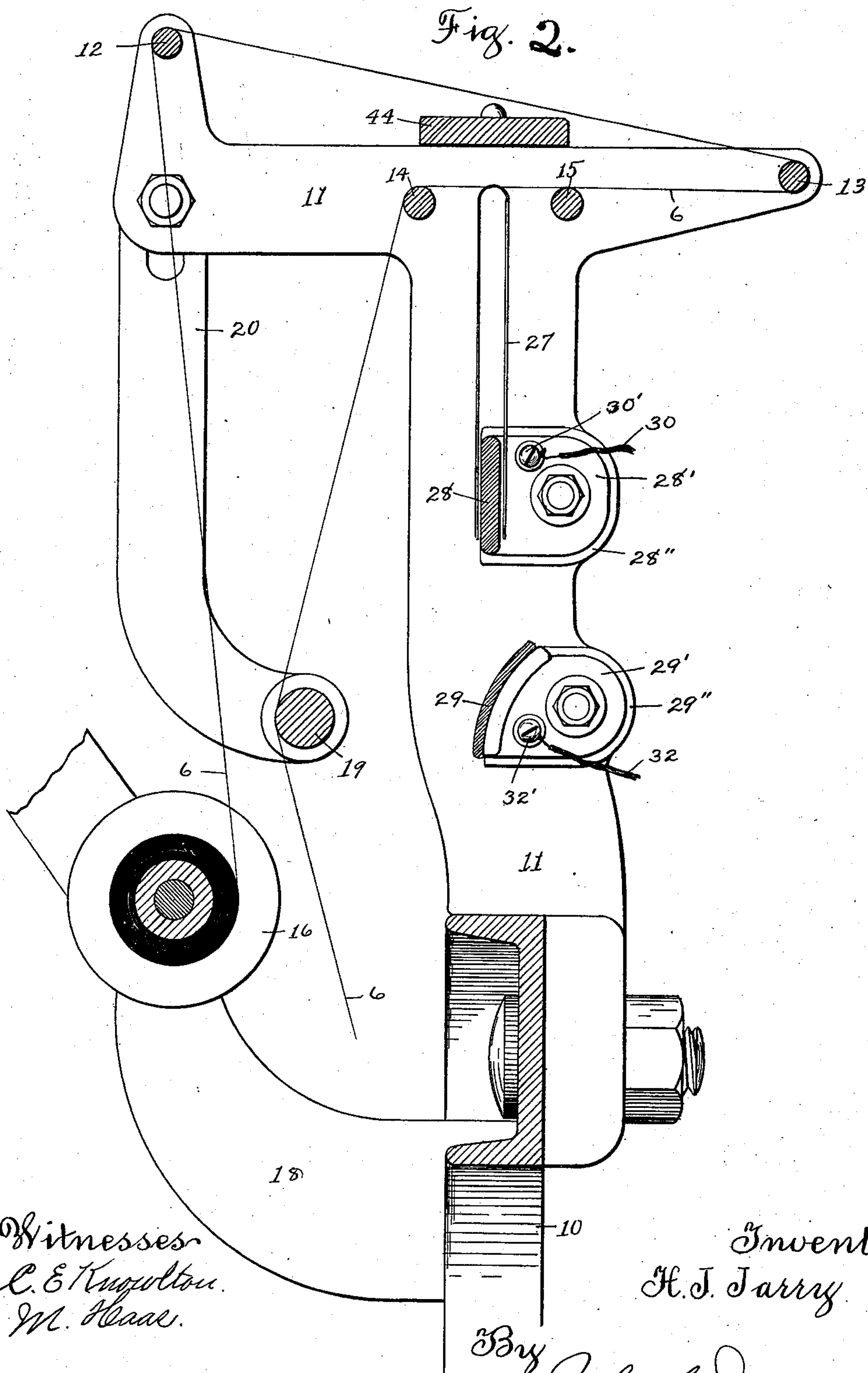
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UNITED STATES PATENT OFFICE.

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WARP STOP-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 702,654, dated June 17, 1902.

Application filed December 9, 1901. Serial No. 85,217. (No model.)

To all whom it may concern:

Be it known that I, HENRY J. JARRY, 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 Warp Stop-Motions for Looms, of which the following is a specification.

My invention relates to improvements in lappet stop-motions for looms; and the object of my invention is to provide an electric stop-motion for lappet-loom to be used in connection with the lappet-threads which extend above the ordinary warp-threads and lead over guide rods or rolls to the lappet-needles in that class of looms ordinarily termed "lappet-loom." In case of the breaking of any one of the lappet-threads an electric circuit is completed, which through coacting mechanism stops the loom.

My invention consists in certain novel features of construction of my electric stop-motion for lappet-threads in lappet-loom, as will be hereinafter more fully described.

Referring to the drawings, Figure 1 represents a right-hand side elevation of a sufficient portion of a loom with my improvements applied thereto to enable those skilled in the art to understand the construction and operation thereof. The lay is shown in section. Fig. 2 shows, on an enlarged scale, a sectional inside view of some of the parts shown at the upper part in Fig. 1, with the drop-wire in its normal position.

I have shown in Fig. 1 of the drawings mechanism for shipping the lever to stop the loom upon the breaking of a lappet-thread electrically operated and of substantially the same construction and operation as is shown in United States Letters Patent No. 665,591, of January 8, 1901; but it will be understood that any other suitable and well-known form of mechanism may be used electrically operated for moving the shipper-lever to stop the loom upon the breaking of a lappet-thread.

In the accompanying drawings, 1 is the loom side; 2, the lay-sword; 3, the lay; 4, the needle-bar, carrying a series of needles 5, through the lower end of each of which is

threaded a lappet-thread 6 in the ordinary way.

7 is the breast-beam. 8 is the shipper-lever, which is engaged by a knock-off lever 9 and moved out of its retaining-notch to ship the belt and stop the loom in the ordinary way.

All of the above parts may be of the ordinary construction.

I will now describe the parts more particularly connected with my improvements.

To one of the arches 10 is bolted a T-shaped stand 11, to which is secured one end of the two guide-rods 12 and 13, over which the lappet-threads pass from each of the lappet-thread beams 16 and 17, mounted in a stand 18, secured to the loom-arch. There are also two supporting-rods 14 and 15 between the guide-rods 12 and 13, which support the lappet-threads in a horizontal plane. It will be understood that there is a corresponding T-shaped stand 11 on the opposite end of the loom for supporting the opposite ends of the rods 12, 13, 14, and 15 and also a stand 18 for the lappet-thread beams 16 and 17.

A guide-rod 19 is supported at one end in the lower end of a bracket 20, secured to the upper part of the stand 11, and each lappet-thread 6 from the lappet-thread beams 16 and 17 passes over the rod 12, around the rod 13, and over the supporting-rods 15 and 14 and over the guide-rod 19 to the tension device, (see Fig. 1,) consisting in this instance of two parallel rods, (not shown,) each supported in the end of a centrally-pivoted arm 21, fast on a rock-shaft 22, mounted in the outer end of a stand 23, secured to the loom-arch. The lappet-threads pass under the upper rod and over the lower rod of the tension device, and a spring 24, secured at one end to the end of the stand 23 and at its other end to a strap 25, which extends around the shaft 22, acts to keep the tension device in the position shown in Fig. 1 to put a tension on the lappet-threads in the ordinary way. From the tension device the lappet-thread 6 passes around the guide-rod 26 and through an eye in the lower end of the needle 5, as shown in Fig. 1, in the ordinary way.

Upon each lappet-thread 6, between the supporting-rods 14 and 15, is supported a drop-

wire 27, which in this instance is shown of loop form, adapted to straddle the transverse guide-bar 28 and in its lowered position to engage a second curved or inclined transverse bar 29. The transverse bars 28 and 29 have the angle ends 28' and 29' bolted to the stand 11 and insulated therefrom by the non-conducting plates 28'' and 29''. The transverse bar 28 is electrically connected by binding-posts 30' and through wire 30 with the battery 31, and the transverse bar 29 is also electrically connected by binding-post 32' through wire 32 with the battery 31. The wire 32 passes through the automatic switch or cut-out 33, which is fully described in Patent No. 665,591, above referred to.

A bunter 34, Fig. 1, is secured to the lower end of a bracket 35, carried on the lay, and said bunter 34 is adapted to engage on the forward beat of the lay the projecting end of a dagger 36 when said dagger is in its lowered position. The dagger 36 is pivoted at its inner end upon the dagger-carrier 37, pivotally mounted at 38 on the stand 39 and having an upwardly-projecting extension 37' in engagement with the knock-off lever 9, which operates the shipper-lever 8 in the ordinary way. A small spiral spring 40, interposed between the lower end of the dagger-carrier 37 and the under side of the ear 39' of the stand 39, acts to hold the parts in the position shown in Fig. 1.

Below the dagger 36 is an electromagnet 41, whose armature 42, pivoted on the stand 39, is normally held out of contact with the magnet 41 by means of a spring 43. The armature 42 carries the dagger-supporting arm 42', which when the loom is in its normal operating condition supports the dagger 36 with its engaging end above the path of movement of the bunter 34, as shown in Fig. 1. The electromagnet 41 has by means of the wires 30 and 32 and the binding-posts 30' and 32' an electric circuit with the bars 28 and 29, so that when the circuit is closed by the falling of a drop-wire 27 the armature 42 will be drawn toward the magnet 41 and its dagger-supporting arm 42' will be moved to allow the dagger 36 to drop into the path of the bunter 34 and be moved thereby to rock the dagger-carrier 37 on its pivot-support and through the knock-off lever 9 disengage the shipper 8 from its retaining-notch and allow it to move to ship the belt and to stop the loom in the ordinary way.

The construction and operation of the dagger mechanism above described is substantially the same as that shown in Patent No. 665,591, above referred to; but it will be understood that I do not limit my invention to the use of this particular style of dagger mechanism operating the knock-off lever, as any other well-known mechanism may be used, if preferred.

In order to prevent the drop-wires from jumping off of the warp-threads, I preferably employ a transverse bar 44, extending across

the loom and supported above the drop-wires on the top of the stands 11.

It will be noted that the lappet-threads do not pass through heddles, as do ordinary warp and pile-warp threads, but are carried to needles usually mounted so as to project in front of the lay-reed, and which needles may be movable with the lay and sometimes movable lengthwise thereof under the call of a pattern to vary the position of the lappet effect. On the other hand, it is necessary that the varieties of movements imparted to the lappet-threads may not be transmitted back to the drop devices and that they be maintained in normal condition. Therefore the guide-bars and tension mechanism hereinbefore described act as a means between the lappet-needles and drop devices to prevent the transmission of the said motion of the lappet-threads and the deflection of the threads at the point where the drop devices are located.

The advantages of my improvements will be readily appreciated by those skilled in the art. In case of the breakage of any one of the lappet-threads the loom will be automatically stopped.

In addition to the mechanism for stopping of the loom in case of the breakage of a lappet-thread, above described, any ordinary warp-stop-motion mechanism may also be used on the loom to stop the loom in case of the breakage of a warp-thread.

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 lappet-loom, the combination of a lappet-thread-supporting beam, needles for introducing the lappet-thread, drop devices supported by the lappet-threads between the lappet-beam and lappet-needles, means interposed between the lappet-needles and drop devices for maintaining a normal condition of the lappet-threads as they pass through the drop devices, and electrically-controlled stop devices operative on the dropping of a drop device to stop the loom.

2. In a lappet-loom, the combination of a lappet-thread-supporting beam, needles for introducing the lappet-thread, drop devices supported by the lappet-threads between the lappet-beam and lappet-needles, guides and tension mechanism for the lappet-threads disposed between the lappet-needles and drop devices for maintaining a normal condition of the lappet-threads as they pass through the drop devices, and electrically-controlled stop devices operative on the dropping of a drop device to stop the loom.

3. In a lappet-loom, a lappet-thread-supporting beam, lappet-needles for introducing the lappet-threads, means for maintaining the lappet-threads in normal condition as they pass through the drop wires or bars, and

an electric stop-motion for the lappet-threads, consisting of a series of drop wires or bars supported on the lappet-threads, and extending in a plane above the plane of the ordinary warp-threads, a circuit guide-bar for the drop wires or bars, and a second circuit-bar to be engaged by the drop wires or bars in their lowered position, to complete the electric circuit and put into operation mechanism for stopping the loom, substantially as shown and described.

4. In a lappet-loom, a lappet-thread-supporting beam, a lay, lappet-needles for introducing the lappet-threads, and an electric stop-motion for the lappet-threads, consisting of a series of drop wires or bars supported on the lappet-threads, and extending in a plane above the plane of the ordinary warp-threads, a bar extending over the drop wires or bars, a circuit guide-bar for the drop wires or bars, and a second circuit-bar to be engaged by the drop wires or bars in their lowered position, to complete the electric circuit and put into operation mechanism for stopping the loom, and guides for the lappet-threads to lead the said threads direct from the stop-motion to the lappet-needles, and means interposed between the lappet-needles and drop wires or bars for maintaining the lappet-

threads in normal condition as they pass through said drop wires or bars, substantially as shown and described.

5. In a lappet-loom, the combination with lappet-thread beam and lappet-needles, two supporting-rods for the lappet-threads, of a series of drop wires or bars hung on the lappet-threads, between said two supporting-rods, and extending in a plane above the ordinary warp-threads, and a circuit guide-bar for the drop wires or bars, and a second circuit-bar to be engaged by the drop wires or bars in their lowered position, said circuit-bars provided with binding-posts, and in electric connection with an electromagnet, and an armature, and a dagger-support, which is operated on the closing of the circuit by the dropping of a wire or bar, to allow the dagger to drop, and cause the shipper-lever, through intermediate mechanism, to operate to stop the loom, and a tension mechanism for the lappet-threads disposed between the needles and the drop devices, substantially as shown and described.

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