

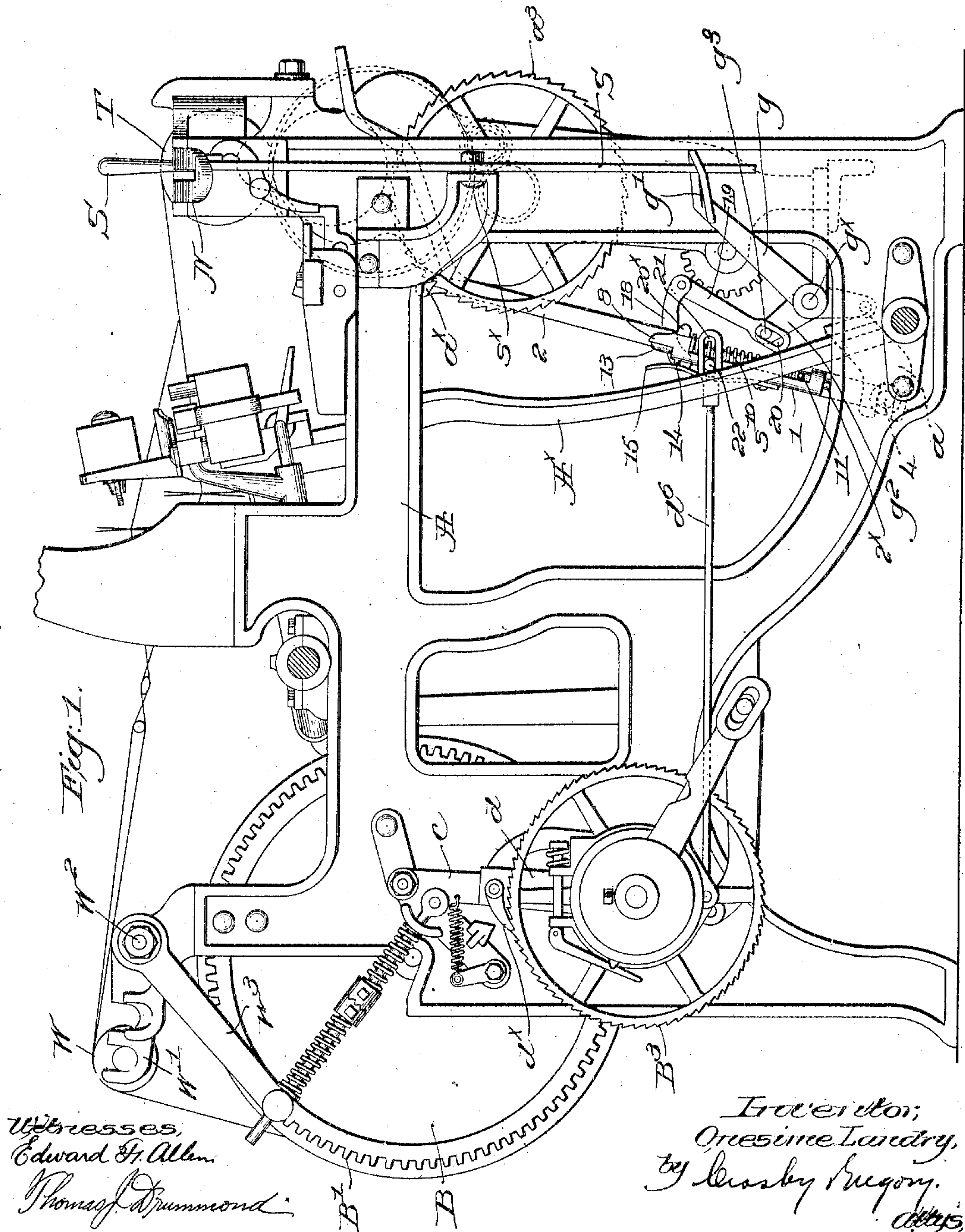
No. 789,283.

PATENTED MAY 9, 1905.

O. LANDRY.
STOPPING MEANS FOR LOOMS.

APPLICATION FILED DEC. 17, 1904.

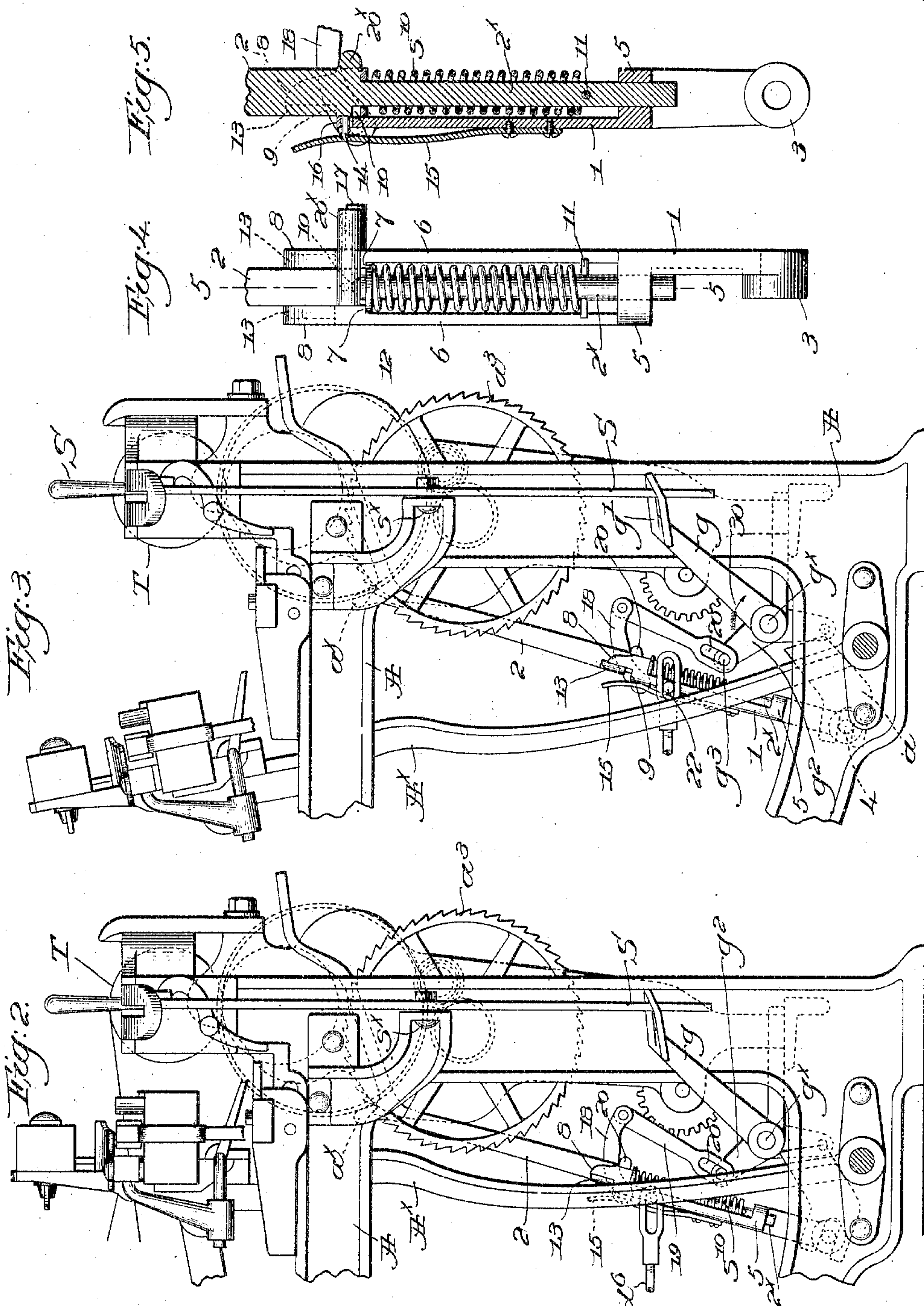
2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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STOPPING MEANS FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 789,283, dated May 9, 1905.

Application filed December 17, 1904. Serial No. 237,208.

To all whom it may concern:

Be it known that I, ONESIME LANDRY, a citizen of the United States, residing at Lawrence, county of Essex, State of Massachusetts, have invented an Improvement in Stopping Means for Looms, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention has for its object the production of means to effect automatically the stoppage of a loom upon the occurrence of an unusual strain—for instance, when the warp is subjected to an abnormal tension, such as might be produced by failure of the let-off mechanism to act properly in letting off the warp or if the cloth-roll or some other part of the take-up mechanism should stick. In the former case the warp would be so strained or stretched as to almost inevitably cause warp breakage or the formation of poor cloth, and in the latter case if the take-up fails to operate not only will the cloth have thick places formed in it, but breakage of some of the mechanism is very apt to occur. The warp is advanced by the operation of the take-up mechanism, pick by pick, driven from a moving part of the lay, and in my present invention I have provided means operated automatically by or through an abnormal strain on the take-up mechanism to effect the actuation of a loom-stopping instrumentality.

The various novel features of my invention will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a side elevation of a sufficient portion of a loom to be understood, showing the let-off and take-up mechanisms, and with one embodiment of my invention applied thereto, the parts being illustrated in normal working condition. Fig. 2 is a detail in side elevation of some of the mechanism shown in Fig. 1, but with the lay forward. Fig. 3 is a view of the same parts, but in readiness to effect the actuation of the stopping instrumentality on the next forward beat of the lay. Fig. 4 is an enlarged detail, in front

elevation, of the device by or through which the stopping instrumentality is actuated; and Fig. 5 is a longitudinal section thereof on the line 5 5, Fig. 4.

Referring to Fig. 1, the loom-frame A, warp-beam B, having an attached gear B', whip-roll W, mounted in rocking arms W', secured to a rock-shaft W², rocker-arm W³, fast on the rock-shaft, the compound pawl-carrier c d and its connections with the arm W³, let-off pawl d^x, and ratchet B³, and the link d⁶, attached by a slot-and-pin connection 21 22 with the lay-sword A^x, may be and are substantially as shown and described in United States Patent No. 741,661, dated October 20, 1903, and operate as therein set forth. The lay-sword has an attached bracket a, to which the pawl-carrier for the take-up pawl a^x is attached, the ratchet a³, with which said pawl coöperates, the train of gearing between the ratchet and the take-up roll T, the shipper S, and its notched holding-plate N are, with the exception of the pawl-carrier, of well-known construction. A rock-shaft g^x, mounted on the lower part of the loom-frame, has an upturned arm g bent over at its upper end and provided with an inclined cam-slot g', through which extends the end of the shipper below its fulcrum s^x, said rock-shaft being adapted to be controlled upon the occurrence of warp breakage to release the shipper, the rocking of the shaft g^x then being effected by or through a suitable connection (not shown and forming no part of my present invention) with a warp stop-motion mechanism. In my present invention the rock-shaft g^x has a rigidly-attached, upturned, and rearwardly-inclined arm g², provided with a lateral stud or pin g³ for a purpose to be described.

I have herein shown the take-up actuator or pawl-carrier of novel construction, it being made compound and comprising two relatively movable parts or members 1 and 2, the member 1 having at its lower end a hub 3, by which it is pivotally connected at 4 with the bracket a on the lay-sword A^x. Above the hub the member 1 is shaped to present a bearing 5, through which the lower end of the

member 2 is longitudinally slidable, and above said bearing the member 1 has parallel elongated ribs 6 on its front face with overhanging inturned shoulders 7 (see Fig. 4) and terminating in upright ears 8, cut away at their rear faces to present stops 9. The lower end or extension 2^x of the member 2 is reduced in cross-section and made cylindrical to slide in the bearing 5, leaving an overhanging shoulder 10 at its rear side (see Fig. 5) for a purpose to be described. A strong and normally expanded spring s^{10} is coiled around the extension 2^x , its lower end bearing against a pin 11, driven through the extension, while its upper end bears against a washer 12, slipped onto the extension and seating upon the inturned shoulders 7 of the member 1 of the pawl-carrier. Lugs 13 on the sides of the member 2 are arranged to cooperate with the ears 8 in slidable engagement with their rear faces and normally held by the expansion of the spring s^{10} pressed against the stops 9. (See Figs. 1 and 2.) A locking-pin 14 is mounted on the free end of a spring 15, attached to the back of the member 1, (see Fig. 5,) the pin passing through a hole 16 and normally bearing against the back of member 2 just above the overhanging shoulder 10, as shown in Fig. 5.

In the normal operation of the loom the swinging movement of the lay-sword acts through the bracket a to reciprocate the compound pawl-carrier, the spring s^{10} being strong enough to cause the members 1 and 2 to move in unison, and the pawl a^x is advanced as the lay beats up and drawn back as the lay swings back to rotate the ratchet a^3 step by step, and thereby operate the take-up mechanism. Should the latter be subjected to abnormal strain due to failure of the let-off to operate properly or by the reason of the sticking or holding of the take-up roll or any of the parts of the take-up, the spring s^{10} will yield as the lay swings back, and the members 1 and 2 will be moved relatively to each other. The lugs 13 will be separated from the stops 9 and the locking-pin 14 will snap into locking position beneath the shoulder 10, so that the members 1 and 2 will be held in abnormal position, as in Fig. 3.

A lateral stud 17 on the upper end of the member 1 serves as the fulcrum for a rocker-arm 18, pivotally connected at its front end with a link 19, having an elongated slot 20 in its lower end into which the stud g^3 projects, the slot being long enough to normally permit the movement of the pawl-carrier without affecting the shipper-releasing device $g g'$. The rocker-arm 18 rests upon a lateral support 20^x on the member 2 close to the fulcrum-stud 17, and ordinarily said rocker-arm has no movement relative to the pawl-carrier or actuator 1 2. When, however, the members are moved into abnormal relative position, as in Fig. 3, the stud 17 and support 20^x

are separated, thereby turning up the rocker-arm 18, so that the link 19 is lifted to bring the bottom of slot 20 against the stud g^3 , the lay being back, as shown in Fig. 3. As the lay beats up, the pawl-carrier will be moved upward bodily, raising the arm 18 with it, and the link 19 then rocks the shaft g^x in the direction of arrow 30, Fig. 3, and through the arm g and cam-slot g' the shipper is released to effect the operation of the usual loom-stopping instrumentality. The connection between the pawl-carrier and the releasing device will not interfere with the actuation of the latter by or through the warp stop-motion.

In order to permit the members 1 and 2 to return to their normal position, the spring 15 must be pulled back manually to withdraw the locking-bolt 14 and permit the spring s^{10} to expand, and thereby restore the parts to the position shown in Figs. 1, 2, 4, and 5. The cooperation of the lugs 13 and ears 8 prevent any tendency of the members 1 and 2 to separate transversely at that point, the bearing 5 guiding the extension 2^x and preventing transverse separation of the members thereat.

My invention is not restricted to the construction and arrangement herein shown and described, as one practical embodiment only of my invention is herein set forth, and various changes or modification may be made by those skilled in the art without departing from the spirit and scope of my invention.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a loom, take-up mechanism, and means adapted to effect automatically therethrough the actuation of a loom-stopping instrumentality when the take-up mechanism is subjected to abnormal strain.

2. In a loom, a shipper, releasing means therefor, take-up mechanism, and means to effect automatically therethrough the actuation of the said releasing means when the take-up mechanism is subjected to abnormal strain.

3. In a loom, let-off mechanism, take-up mechanism, and means to effect automatically therethrough the actuation of a loom-stopping instrumentality when through improper operation of the let-off mechanism the increased warp tension subjects the take-up mechanism to abnormal strain.

4. In a loom, a normally moving member, take-up and let-off mechanisms operated by or through said member, a shipper, and means operated by movement of said member to release the shipper when the take-up mechanism is subjected to abnormal strain.

5. In a loom, take-up mechanism, including an actuating-pawl and a cooperating ratchet, a compound pawl-carrier the parts of which are relatively movable when the mechanism is subjected to abnormal strain, and means adapted to effect the actuation of

a loom-stopping instrumentality upon relative movement of the parts of the pawl-carrier.

5 6. In a loom, a shipper, a releasing device therefor, take-up mechanism, including a reciprocating, longitudinally-extensible actuator, and means, operative by or through extension of the actuator when the take-up mechanism is subjected to abnormal strain, to effect the actuation of the releasing device.
10 7. In a loom, take-up mechanism, including an actuating-pawl and a cooperating ratchet, a compound pawl-carrier the parts of which are relatively movable, a spring to normally effect their movement in unison, a shipper, and means to release it by or through
15 relative movement of the parts of the pawl-carrier when the strain upon the take-up mechanism overcomes the action of the spring.

20 8. In a loom, a lay and its lay-sword, take-up mechanism, including an actuating pawl and ratchet, a two-part pawl-carrier one mem-

ber of which is connected with the lay-sword to be reciprocated thereby, the other member carrying the pawl, a spring to normally effect the movement of said members in unison, a lock to automatically lock them in abnormal position when moved thereinto against the action of the spring, a shipper, a releasing device therefor, and a connection between said device and the pawl-carrier, relative movement of the members of the pawl-carrier into abnormal position acting through said connection to actuate the releasing device on the next stroke of the lay-sword.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ONESIME LANDRY.

Witnesses:

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