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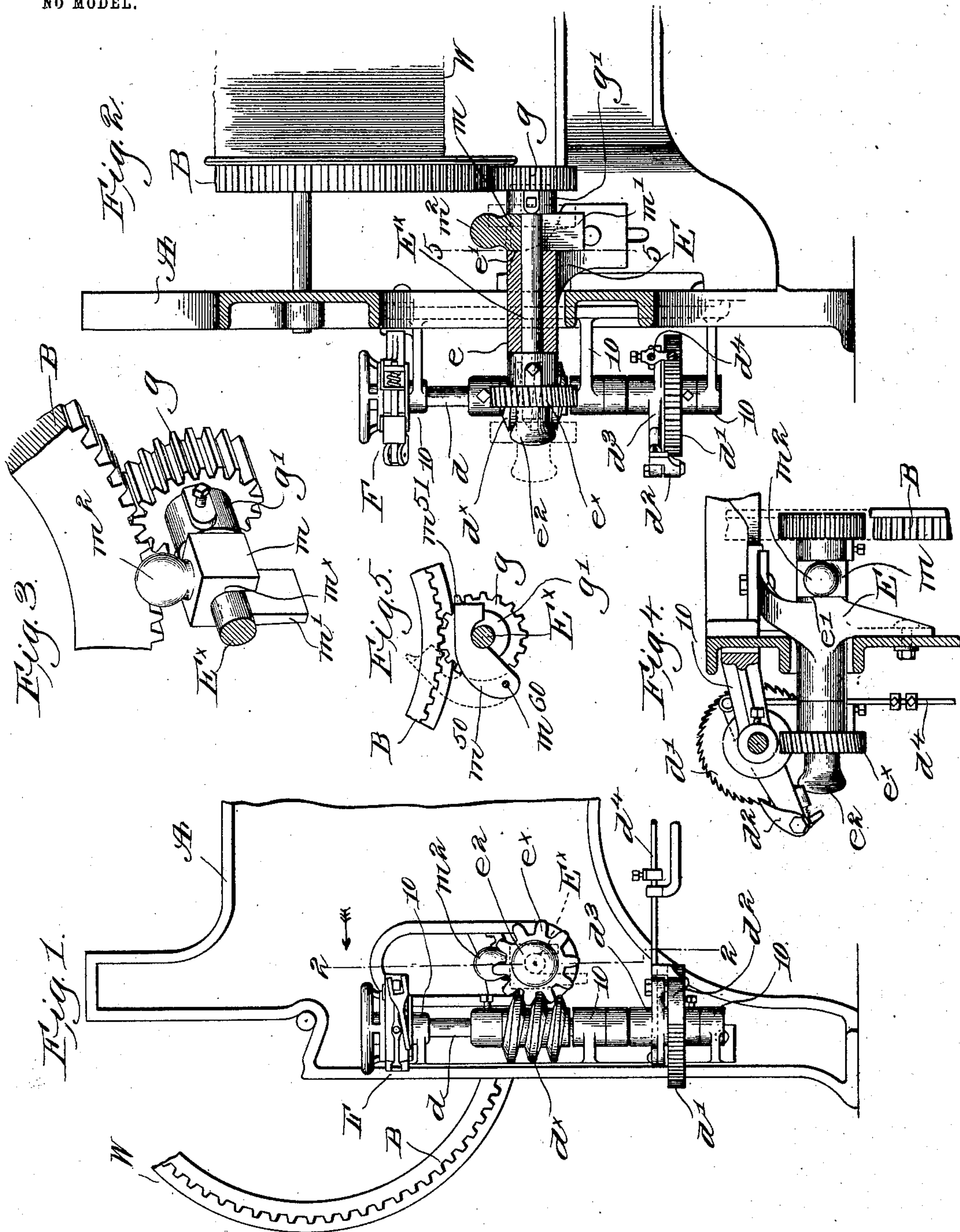
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LET-OFF MECHANISM FOR LOOMS.

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NO MODEL.



Witnesses:
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UNITED STATES PATENT OFFICE.

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LET-OFF MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 728,961, dated May 26, 1903.

Application filed November 10, 1902. Serial No. 130,643. (No model.)

To all whom it may concern:

Be it known that we, JAMES J. MULDOWNEY and HENRY TOMLINSON, citizens of the United States, and residents of Lawrence, county of Essex, State of Massachusetts, have invented an Improvement in Let-Off Mechanism 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 relates to positive let-off mechanism for looms wherein the warp-beam is positively rotated to gradually let off the warp as the weaving progresses; and it has for its object the production of novel and simple means whereby the beam and its actuating instrumentality can be readily disconnected without any derangement or manipulation of the actuating instrumentality.

The novel features of our invention will be fully described hereinafter and particularly pointed out in the following claims.

Figure 1 is a side elevation of a sufficient portion of the let-off mechanism of a loom to be understood with one form of our invention embodied therein. Fig. 2 is a part vertical sectional view on the line 2-2, Fig. 1, looking toward the left. Fig. 3 is an enlarged perspective detail showing the locking device. Fig. 4 is a detail in plan of the transmitting-shaft, its bearing, and the locking device; and Fig. 5 is a modification of the locking device, to be referred to, taken on the line 5-5, Fig. 2.

Referring to Figs. 1 and 2, the loom side A, warp-beam W, its attached annular gear B, the upright actuating or driving shaft d , supported in bearings 10, attached to the loom side, the ratchet d' , pawl d^2 , and pawl-carrier d^3 , and the link d^4 , connecting the pawl-carrier with a moving part of the loom, as the lay, may be of substantially well-known construction, the pawl and ratchet rotating the shaft d step by step. A friction device F for the said shaft may also be of usual construction and forms no part of our invention, the driving-shaft having a worm d^x fast thereon.

A bracket or stand E, attached to the loom

side, has an elongated horizontal bearing e 50 for a transmitting-shaft E^x rotatably mounted therein and having secured to its outer end beyond the bearing a worm-gear e^x to mesh with the worm d^x , and thereby effect rotation of the shaft E^x . The said shaft projects some distance beyond the inner end of the bearing and has fast upon it the hub g' of a pinion g , adapted to mesh with the beam-gear B. The inner end of the bearing e is cut away to present an upright face e' , and 60 between this face and the adjacent end of the hub g' the shaft E^x is exposed when the worm-gear and the pinion are in mesh, respectively, with the worm and beam gear, as shown in full lines, Fig. 2. A knob or handle e^2 is 65 secured to the outer end of the transmitting-shaft, and by grasping it and pulling the said shaft outward to dotted-line position, Fig. 2, it will be seen that the beam is operatively disconnected from its driving or actuating 70 member d , and then the beam can be turned forward or back by hand or otherwise manipulated without any derangement of or change in its actuating means. In order to prevent such longitudinal movement of the 75 transmitting-shaft and retain it in operative running position in its bearing, we have provided a locking device (shown as a metal block m , forked or bifurcated on its under side at m^x ; Fig. 3,) to loosely embrace the shaft 80 E^x , the block being of such width that it will readily enter the space between the pinion-hub g' and the face e' of the bearing, and thereby prevent longitudinal movement of the transmitting-shaft. A hand piece or knob 85 m^2 is made on the top of the block to enable it to be lifted out of or put in position, and the rear leg m' of the fork is shown as made longer to assist in positioning the locking device and also tending to prevent its rotation 90 with the shaft E^x .

When it is desired to disconnect the warp-beam from its actuating means, the weaver lifts the locking device from its seat on the shaft E^x and grasping the knob e^2 pulls the 95 shaft outward to dotted-line position, Fig. 2, thereby disengaging the worm-gear e^x from the worm d^x and the pinion g from the beam-

gear B. If desired, the locking device can then be slipped onto the exposed end of shaft E^x between the outer end of bearing e and the hub of the worm-gear e^x , retaining the transmitting-shaft inoperative and keeping the locking device in a convenient position for replacement in operative position, when the weaver is ready to again start the let-off of the warps.

10 The structure shown and described is efficient, simple, and readily operated and may be modified or rearranged by those skilled in the art without departing from the spirit and scope of our invention.

15 In the modification shown in Fig. 5 the locking device m^{50} is pivotally connected, as at m^{60} , with some fixed part of the frame or to the bracket E, so that when it is desired to disconnect the warp-beam from the actuating means the locking device m^{50} is swung up and back into dotted-line position, a finger-piece or ear m^{51} being provided for the convenience of the operator. By thus attaching the locking device to the apparatus it cannot
25 be misplaced.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In let-off mechanism for looms, a warp-beam, a positively-driven actuating member, a transmitting-shaft geared to the said member and the warp-beam respectively, and longitudinally movable to operatively disconnect them, and a locking device to prevent such movement of and retain the transmitting-shaft operative, release of said shaft from control of the locking device permitting longitudinal movement of the shaft into position to disconnect it from both the beam
40 and the actuating member.

2. In let-off mechanism for looms, a warp-beam, an actuating member therefor, driven by a moving part of the loom, gears on the beam and driving member, a transmitting-shaft having gears to mesh with the beam and driving-gears, a fixed bearing for and in which the said shaft is longitudinally movable, and a locking device adapted to be in-

terposed between one end of the bearing and one of the gears on the shaft, to prevent longitudinal movement of the shaft, release of the shaft from the control of such device permitting its longitudinal movement to disconnect both its gears from the driving member and warp-beam gears.

3. In let-off mechanism for looms, a warp-beam having an attached gear, an actuating-worm driven by a moving part of the loom, a transmitting-shaft, a fixed and elongated bearing in which said shaft is mounted and longitudinally movable therein, a worm-gear and a pinion fast on said shaft, to mesh with the worm and beam gear respectively, to rotate the beam, and a device adapted to be interposed between the pinion and the adjacent end of the bearing, to normally prevent longitudinal movement of the shaft in its bearing, said device when withdrawn from operative position permitting the shaft to be moved to disengage it from operative connection with both the worm and the beam gear.

4. In let-off mechanism for looms, a warp-beam having an attached gear, an actuating-worm driven by a moving part of the loom, a longitudinally-movable transmitting-shaft rotatably mounted in and extended beyond a fixed bearing, a worm-gear and a pinion fast on the shaft, to mesh with the worm and beam gear respectively, to rotate the beam, and a removable forked locking device to embrace the shaft between the pinion and the adjacent end of the bearing, to prevent longitudinal movement of the shaft and retain the worm-gear and pinion in operative position, withdrawal of said device permitting the shaft to be moved to disengage the worm-gear and pinion from the worm and beam gear respectively.

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

JAMES J. MULDOWNNEY.
HENRY TOMLINSON.

Witnesses:

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