June 19, 1934. G. M. ROBERTSON 1,963,808

LOOM TAKE-UP MECHANISM

Filed Sept. 18, 1933 2 Sheets-Sheet 1

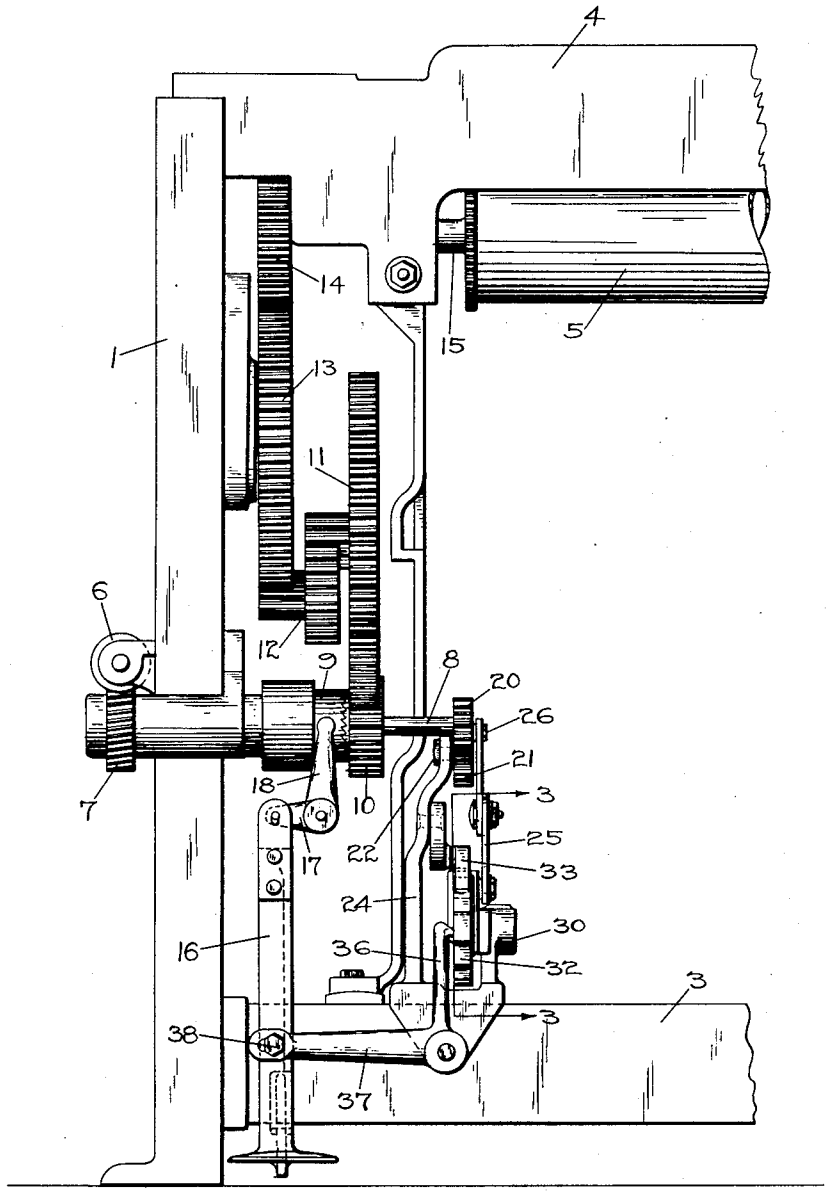


Fig. 1.

WITNESS.
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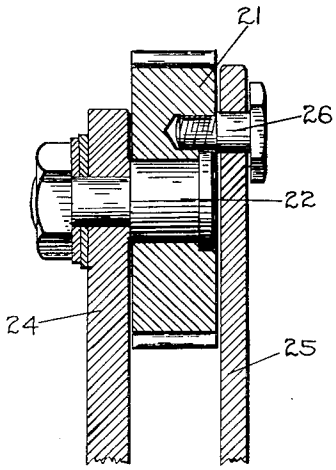


Fig. 4.

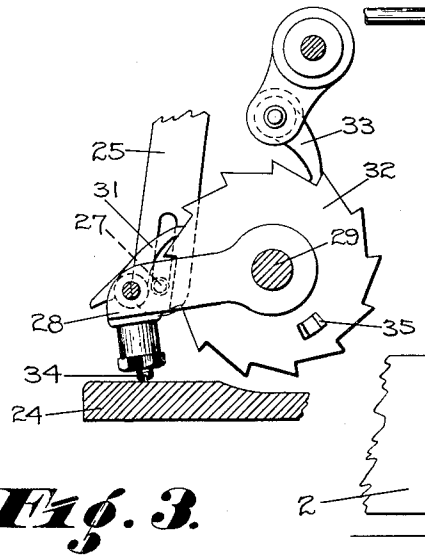


Fig. 3.

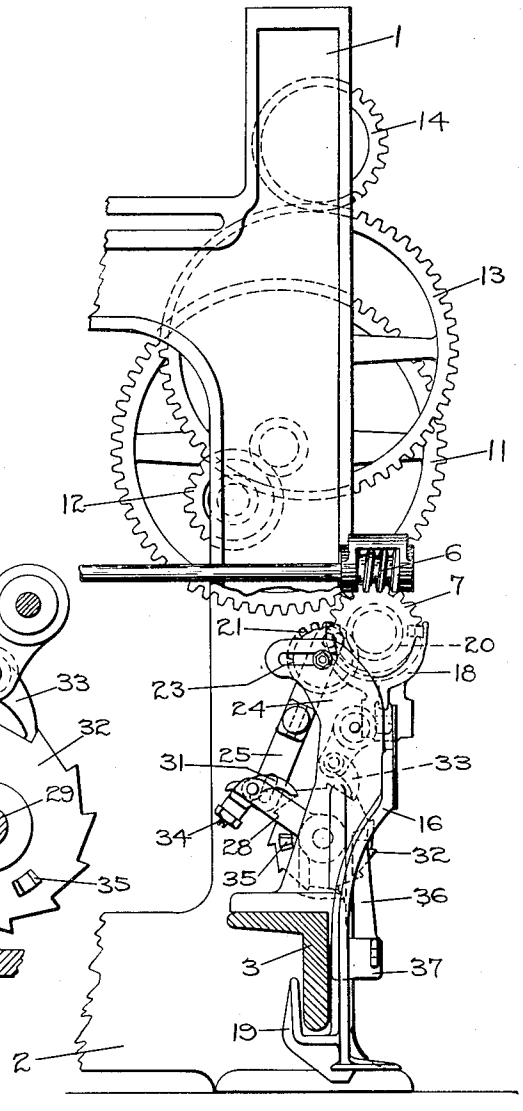


Fig. 2.

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UNITED STATES PATENT OFFICE

1,963,808

LOOM TAKE-UP MECHANISM

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7 Claims. (Cl. 139—304)

The present invention pertains to loom take-up mechanisms and more particularly to such mechanisms which are periodically disconnected or stopped while the loom continues in operation, to form relatively heavy cross bars in the cloth being woven.

An object of my invention is to provide a mechanism of the type mentioned having a take-up roll and gearing for driving the same, wherein pattern mechanism for controlling the operation and non-operation of the gearing is driven directly from the driving element for the take-up gearing.

Further objects of the invention will, in part, be hereinafter more specifically enumerated or will, in part, become obvious as the description proceeds.

The preferred embodiment of my invention is illustrated on the accompanying drawings, of which:

Fig. 1 is a front elevation of the left hand corner of the loom and take-up constituting the said preferred embodiment;

Fig. 2 is a side elevation of the mechanism shown in Fig. 1 as seen from the left thereof;

Fig. 3 is a detailed view, in section, taken approximately on line 3—3 of Fig. 1 but to a larger scale; and

Fig. 4 is a sectional view of the interchangeable ratchet operating gear and certain other parts.

The loom to which my invention has been applied includes the usual left hand loom-side 1 and right hand loom-side 2 (Fig. 2) connected by cross girts, as 3, and breast beam 4. The component mechanisms of the loom, except the take-up, are of usual construction and form no part of the present invention, and accordingly are not shown or described.

The take-up mechanism herein illustrated is of the sand-roll type wherein a take-up roll 5, usually covered with sand-paper or other gripping means, is positively rotated to thereby feed the woven cloth to suitable cloth wind-up means, not shown. The spacing of the picks of filling in the cloth is controlled by the speed of the rotation of the take-up roll 5 and, if this roll be stopped while the rest of the loom remains in operation several picks of filling will be packed in quite closely to provide reinforcing bars.

The driving means for the take-up roll is, in the present instance, comprised of a continuously rotating driving worm 6 meshing with a worm wheel 7 which is fixed to the so-called worm wheel shaft 8. A clutch member 9 is feathered to the shaft 8 and is provided with clutch teeth engageable with complementary teeth formed on the face of a pinion 10. The pinion 10 is rotatable relative to the shaft 8 on which it is mounted.

A train of gearing connects the pinion 10 with the take-up roll for driving the latter. The particular gearing illustrated includes reduction gearing 11 and 12, an idler gear 13, and a final driven pinion 14 which is fixed to the shaft 15 of the take-up roll.

The mechanism as thus far described, except for the extension of shaft 8 beyond pinion 10, may be identical with corresponding parts of the mechanism disclosed in the patent to Nevin, Number 913,908, granted March 2, 1909, to which patent reference is made for more detailed disclosure of such parts.

The clutch 9 may be manually released by a foot treadle 16 which is pivotally suspended from an arm 17 of a bell-crank lever, the other arm of the lever being forked as at 18 to engage the clutch. A guide arm 19 on the treadle engages about the vertical web of the cross girt 3. The foot treadle 16 serves as a let-back treadle, in the sense that when the same is depressed to release the clutch a letting back of the cloth may occur, either automatically, as through the tension of the warp or through some usual mechanical means (not shown), or manually as by manipulation of the gearing.

In accordance with my invention, pattern mechanism for controlling the clutch 9 is driven from the shaft 8. To this end, the shaft is extended to the right beyond pinion 10 to accommodate a driving gear 20 which meshes with a driven gear 21. The latter gear is rotatably mounted on a stud 22 which is adjustably and removably secured in a slot 23 in a stand 24 on the girt 3. By this construction, the driven gear 21 is made interchangeable, so that the speed at which the pattern mechanism is driven may be varied at will.

A link 25 is regularly reciprocated through engagement with a pin 26 eccentrically carried by the gear 21. The lower end of the link is slotted to receive a pin 27 (see Fig. 3) on a pawl carrier 28 which is pivoted on a stub shaft 29 carried by the arm 30 of the stand 24. A feed pawl 31 on the carrier 28 engages with and operates a ratchet wheel 32 mounted on the shaft 29. A hold-back pawl 33 may be provided to prevent retrograde movement of the ratchet wheel.

The pawl carrier 28 carries an adjustable stop screw 34 which may be adjusted to strike the foot of the stand 24 before the link 25 is at the bottom of the stroke, the pin 27 sliding in its slot

in the link to allow further downward movement of the latter. By this means the stroke of the pawl carrier and pawl may be adjusted to conform to the spacing of the ratchet teeth.

In the present embodiment of my invention the ratchet wheel 32 also serves as a pattern cam, the ratchet wheel having a suitable cam surface, as 35, formed directly on one face thereof. A cam follower 36 is herein constituted by one arm of a bell-crank lever the other arm 37 of which is connected to the foot treadle 16, the arm 37 being slotted to engage a bolt 38 in the treadle. It will be apparent that, while the cam follower is connected with the clutch by means which include the foot treadle, the treadle may still be used to disengage the clutch, the cam follower merely moving away from the pattern cam as the treadle is depressed.

The various adjustments and interchangeable gearing above mentioned, permit the spacing of the bars in the cloth and the number of picks in the bars to be varied at will, within limits. Since the pattern mechanism is driven from the same shaft that drives the clutch, it may be compactly mounted on one stand and connected with the clutch by means of a very few parts.

It is contemplated that changes may be made in the mechanism herein disclosed, within the scope of the appended claims.

I claim:

1. An intermittent loom take-up comprising a take-up roll, gearing for driving said roll, a continuously rotating driving means, a releasable clutch connecting said driving means with said gearing, a bell-crank lever one arm of which engages and operates said clutch, a vertically movable foot-operated let-back treadle pivotally suspended from the other arm of said lever, and pattern-controlled means for intermittently depressing said treadle to thereby stop said take-up roll at predetermined intervals.

2. An intermittent loom take-up comprising a take-up roll, gearing for driving said roll, a continuously rotating driving means, a releasable clutch connecting said driving means with said gearing, a bell-crank lever one arm of which engages and operates said clutch, a vertically movable foot-operated let-back treadle pivotally suspended from the other arm of said lever, pattern mechanism driven by said driving means, and means controlled by said pattern mechanism and directly connected to said treadle for intermittently depressing the same to thereby stop said take-up roll at predetermined intervals.

3. An intermittent loom take-up comprising a take-up roll, gearing for said driving roll, a continuously rotating take-up driving worm, a worm wheel meshing with and driven by said worm, a worm wheel shaft to which said worm wheel is fixed, a releasable clutch connecting said shaft with said gearing for driving the latter, pattern mechanism driven by said shaft, and means controlled by said pattern mechanism for periodically releasing said clutch to thereby stop said take-up roll at predetermined intervals.

4. An intermittent loom take-up comprising a take-up roll, gearing for driving said roll, a continuously rotating driving means, a releasable clutch connecting said driving means with said gearing, a bell-crank lever one arm of which engages and operates said clutch, a vertically movable foot-operated let-back treadle pivotally suspended from the other arm of said lever, and pattern mechanism including a pattern cam and a cam follower connected to said treadle for intermittently releasing said clutch, said cam follower being moved away from said cam when said treadle is depressed to release said clutch.

5. An intermittent loom take-up comprising a take-up roll, gearing for driving said roll, a continuously rotating driving shaft, a releasable clutch connecting said shaft with said gearing, a driving gear fixed to said shaft, an interchangeable gear meshing with and driven by said driving gear, pattern mechanism including a pawl and ratchet operated from said interchangeable gear, and connections from said pattern mechanism for operating said clutch.

6. An intermittent loom take-up comprising a take-up roll, gearing for driving said roll, a continuously rotating driving shaft, a releasable clutch connecting said shaft with said gearing, additional gearing driven by said shaft independent of said clutch, a ratchet wheel having a cam surface formed on one face thereof, means for intermittently rotating said ratchet wheel from said additional gearing, and means controlled by said cam surface for releasing said clutch.

7. An intermittent loom take-up comprising a take-up roll, gearing for driving said roll, a continuously rotating driving shaft, a releasable clutch connecting said shaft with said gearing, additional gearing driven by said shaft independent of said clutch, a ratchet wheel having a cam surface formed thereon, an oscillating pawl for rotating said ratchet wheel, said pawl being oscillated by said additional gearing, a cam follower engaging said cam surface, and connections from said cam follower to said clutch for intermittently releasing the latter under control of said cam surface.

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