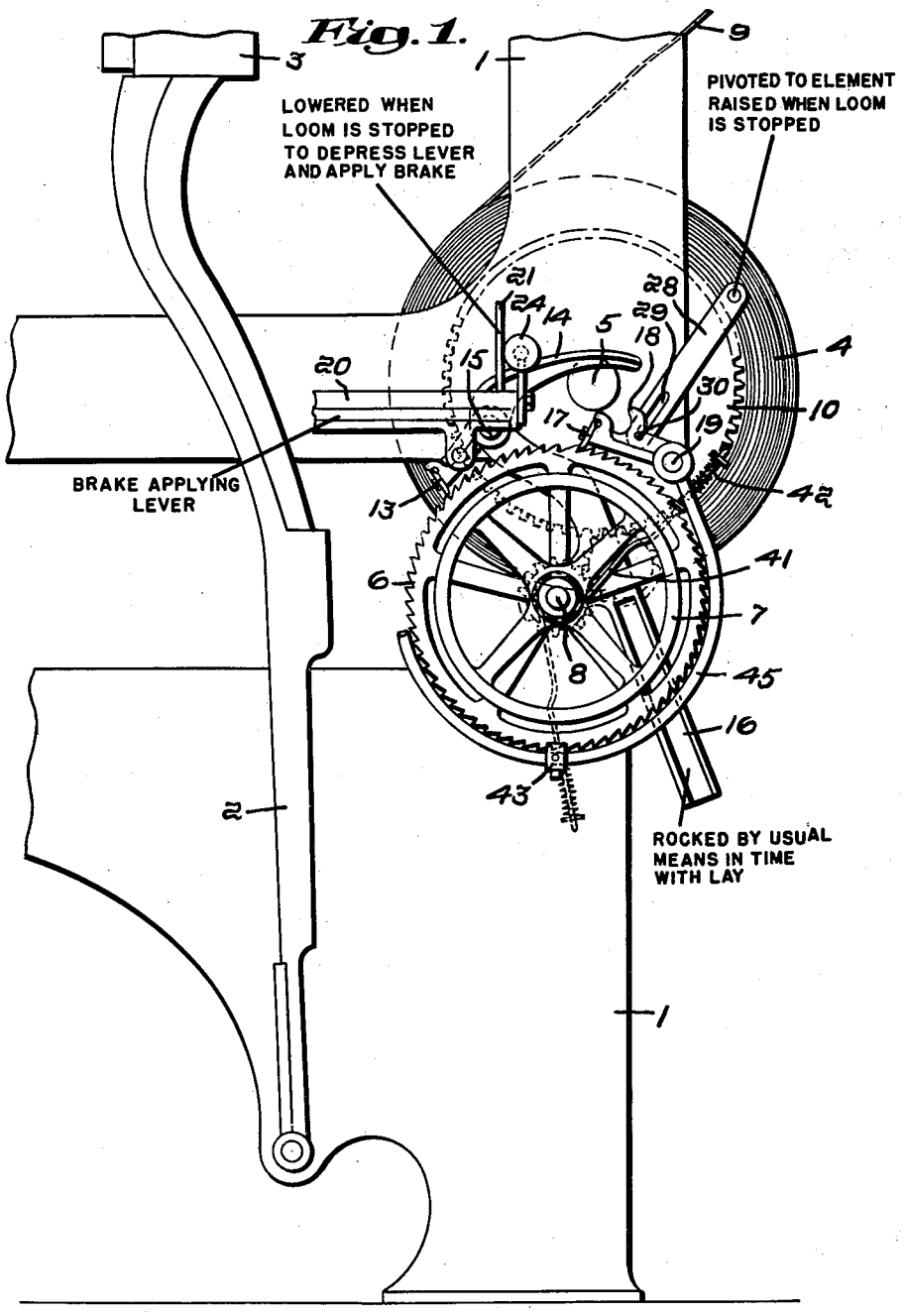
April 1, 1952 H. B. GOSNELL 2,591,538

LOOM TAKE-UP LET-BACK MECHANISM

Filed Oct. 24, 1950 2 SHEETS—SHEET 1

Fig. 1.



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Fig. 2.

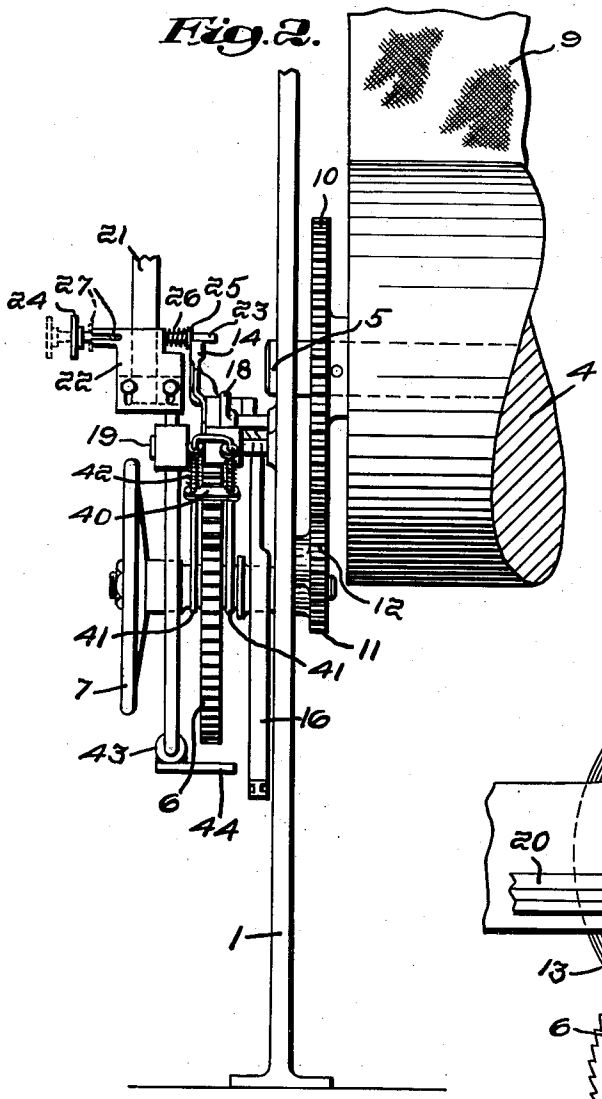
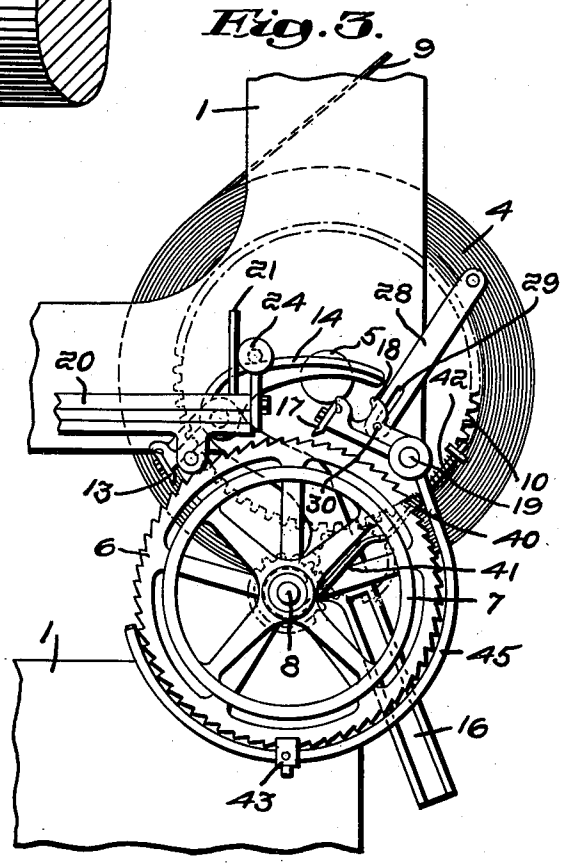


Fig. 3.



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LOOM TAKE-UP LET-BACK MECHANISM

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6 Claims. (Cl. 139—313)

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This invention relates to the take-up mechanism of a loom and has particularly for its object to prevent and eliminate set marks caused by a portion or section of the warps becoming permanently stretched, a condition which is usually caused when the loom is stopped and is inoperative for a period of time.

The object of the invention is to provide for an effectively controlled let-back of the take-up roll whenever the loom is either automatically or manually stopped.

The let-back mechanisms heretofore provided for the take-up roll of a loom are commonly operated by a ratchet toothed or pick-wheel advanced by a pawl operated from a moving part of the loom and held against let-back by a holding or detent pawl. Another object of the invention is to provide novel means acting when the loom is stopped to release the actuating pawl of the pick-wheel. And another object of the invention is to provide novel means for controlling to any required extent the amount of let-back when both the actuating and the detent pawls are released from the pick-wheel.

The invention not only eliminates the occurrence of set marks, due to stretching a section of the warps when the loom is stopped and remains inoperative for a period of time, but it also may be employed to prevent the occurrence of thin places in the weaving which may occur when the loom is momentarily stopped for any reason.

The object of the invention is further to provide a mechanism which may be readily reset by the operator with a minimum of mechanical effort and which is readily accessible to the normal working position of the weaver.

The nature and objects of the invention will appear more fully from the accompanying description and drawings and will be particularly pointed out in the claims.

Since the invention is applicable to and readily embodied in a wide variety of looms, and since the construction and operation of those features of looms which are in any way connected with a mechanism of the present invention, are well known and familiar to those skilled in the art, it is only necessary to a disclosure of a preferred form of the present invention to illustrate but a small portion of an ordinary type of loom.

In the drawings:

Fig. 1 is an end elevation of a portion of a loom adjacent the take-up roll with a construction embodying a preferred form of the invention embodied therein;

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Fig. 2 is a front elevation of the construction shown in Fig. 1; and,

Fig. 3 is a view similar to Fig. 1 of the main portion of the construction shown therein, but with the elements in a different position.

A portion of the side frame 1 of a loom is shown with one of the lay swords 2 and the lay 3.

An ordinary form of take-up roll 4 is shown mounted in a usual position at the front of the loom and journaled at its end 5 in the side frames. This take-up roll is driven from a ratchet toothed pick-wheel 6 mounted together with a hand wheel 7 on a shaft 8 journaled in the side frame 1.

The principles of the present invention are applicable to the different forms of take-up mechanism. In the particular type illustrated the cloth 9 passes down at the front of the loom directly onto and is wound upon the take-up roll 4, and the take-up roll 4 is driven from the pick-wheel by a train of gearing connecting the pick-wheel shaft 8 to the take-up roll. Thus the take-up roll is shown provided with a large gear 10, the shaft 8 with a pinion 11, and a stub shaft on the side frame 1 with a pinion 12 intermeshing with the pinion 8 and the gear 10. Thus as the pick-wheel is rotated counterclockwise the take-up roll will be rotated counterclockwise to wind the cloth thereon as illustrated.

The advancing or take-up movement of the pick-wheel is illustrated as effected by a pawl 13 having a tail 14 and fulcrumed at 15 upon a carrier lever 16 fulcrumed on the shaft 8. The pawl carrier lever 16, like any of the well-known pawl-actuating levers employed for advancing the pick-wheel of a take-up mechanism, may be rocked by any of the usual means in time with the lay, as indicated on the drawings.

The hold-back or detent pawl 17 for the pick-wheel is shown of a usual construction having an upwardly projecting handle 18 and pivotally supported, in this case, on the shaft 19 secured in the loom side frame.

In the preferred form of the invention illustrated the means for releasing the pawl 13 from the pick-wheel when the loom is stopped is conveniently associated with the usual lever, the forward end of which is shown at 20, for applying the brake to a loom. Such a brake-applying lever is usually provided with a connection 21 which is lowered, as from the usual shipper handle, whenever the loom is stopped, either automatically or manually, to depress the lever and apply the loom brake. The pawl, as noted, is provided with a tail 14. A bracket 22 is adjustably mounted on the forward end of the

brake-applying lever 20. This bracket is provided with an arm shown in the form of a rod 23 extending from the bracket above the pawl tail. It will thus be seen that when the loom is stopped and the brake-applying lever 20 is depressed in the usual manner that this arm engaging the tail 14 rocks the pawl 13 on its fulcrum and releases it from the pick-wheel.

In order to render the means for releasing the pawl 13 from the pick-wheel inoperative the arm 23 is made in the form of a plunger retractable from its position above the pawl tail and means are provided for locking it in retracted position. Thus the plunger 23 is provided at its outer end with a handle 24 and at the inner portion with a washer 25. A spring 26 interposed between the washer 25 and the bracket 22 tends to project the plunger into position over the pawl tail. A pin 27 secured to the plunger rides in a slot in the bracket and when the plunger is retracted to the position shown in dotted lines it is turned to bring this pin against the end of the frame 22 and thus hold the plunger in retracted position.

The means illustrated for releasing the holdback or detent 17 from the pick-wheel, whenever the loom is stopped, is illustrated as of a familiar type in which a link 28 is provided at its lower end with a slot 29 engaging a pin 30 projecting from the pawl and at its upper end is pivoted to an element raised in the usual manner, as from the shipper handle, when the loom is stopped either automatically or manually.

The invention, as noted, provides extremely accurately adjustable means for controlling the amount of let-back of the pick-wheel when the loom is stopped and consequently the amount of relaxation of the tension on the warps. For this purpose the invention provides an indicator which is yieldingly held in a radial direction against the teeth of the pick-wheel so that as the pick-wheel advances the teeth ride beneath, and in frictional engagement with, the indicator, but when the pick-wheel turns in the opposite direction the indicator is moved therewith and is thus retracted by its engagement with a tooth of the pick-wheel. In the construction shown the indicator is in the form of a small plate 40 mounted to slide at its ends on the arms of a wire loop 41. The arms 41 of this loop are conveniently, at their lower ends, wound about the shaft 8 or the hub of the pick-wheel so as to be pivoted thereon. Coiled springs 42 on the upper end of the arms 41 act to press the indicator 40 in a substantially radial direction against the teeth of the pick-wheel.

As the pick-wheel is advanced in the normal operation of the loom the indicator is held against advancing movement by the engagement of the supporting loop with the hub of the detent pawl 17, as shown in full lines, (Fig. 1) and thus the advance of the indicator by its frictional engagement with the pick-wheel is limited by this hub acting as a forward stop. When the pawls are released from the pick-wheel and the pick-wheel lets back or reverses its rotation moving clockwise, the indicator by its engagement with a tooth of the pick-wheel partakes of this same movement and the extent of this movement is accurately controlled and limited by the indicator coming into engagement with a rearward stop 43. This rearward stop, in the preferred form illustrated, has

an arm 44 projecting past the pick-wheel and is adjustably mounted upon an arcuate guide 45 in turn mounted in fixed position adjacent and concentric the pick-wheel. In Fig. 1 the indicator is shown in dotted lines in one retracted position in engagement with the rearward stop 43.

Thus by adjusting the rearward stop along the arcuate guide the let-back movement of the pick-wheel and consequently of the take-up roll may be accurately controlled so as to relax the tension on the warp to any desired degree.

When the loom is restarted and the pawls restored to engagement with the pick-wheel the indicator 40 is carried by frictional engagement with the teeth of the ratchet wheel from its position against the rearward stop 43 to its forward position against the forward stop and thus is in operative position for the occurrence of a subsequent stoppage of the loom.

It will thus be seen that whenever the loom is stopped, either automatically or manually, both pawls are released from the pick-wheel and the exact amount of let-back of the take-up roll and release of warp tension is determined by the position of the rearward stop so that it is under accurate control by the weaver. Moreover, the parts are so positioned that the weaver standing in his normal position at the side of the loom may readily make the required adjustment. Moreover, both pawls are readily accessible so that either may be released and restored to the pick-wheel whenever desired. In the case of the pawl 13 it will be noted that the arm 23 on the brake-applying lever will normally stand above the tail 14 and that the detent pawl 17 may be swung by means of the handle 18 out of engagement with the pick-wheel and with its stud 30 riding in the slot 29.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is:

1. In a loom take-up roll mechanism in which a ratchet toothed pick-wheel is connected to the take-up roll, in which the pick-wheel and therewith the take-up roll is advanced by a pawl operated from a moving part of the loom, and in which the pick-wheel and therewith the take-up roll is held against let-back by a detent pawl, the combination of means for controlling let-back when the pawls are released from the pick-wheel consisting of an indicator journaled on the pick-wheel axis and yieldingly held radially against the pick-wheel teeth, a forward stop limiting the advance of the indicator by its frictional engagement with the pick-wheel, and a rearward stop limiting the retraction of the indicator by its engagement with a tooth of the pick-wheel.

2. The cambination in a loom take-up roll mechanism as defined in claim 1, together with an arcuate guide mounted in fixed position adjacent and concentric the pick-wheel, and means for adjustably mounting the rearward stop on said guide.

3. In a loom take-up roll mechanism in which a ratchet toothed pick-wheel is connected to the take-up roll, in which the pick-wheel and therewith the take-up roll is advanced by a pawl having a tail and fulcrumed upon a carrier lever operated from a moving part of the loom, in which the pick-wheel and therewith the take-up roll is held against let-back by a detent pawl, and in which when the loom is stopped a lever is depressed to apply a brake, the combination of a

bracket on the brake-applying lever, an arm extending from the bracket above the pawl tail and acting upon depression of the brake-applying lever to rock the pawl out of engagement with the pick-wheel.

4. The combination in a loom take-up roll mechanism as defined in claim 3, together with means acting to release the detent pawl from the pick-wheel simultaneously with the rocking of the first pawl out of engagement with the pick-wheel.

5. The combination in a loom take-up roll mechanism as defined in claim 3, together with means acting to release the detent pawl from the pick-wheel simultaneously with the rocking of the first pawl out of engagement with the pick-wheel, and means for controlling the amount of let-back upon the release of both pawls from the pick-wheel.

6. The combination in a loom take-up roll mechanism as defined in claim 3, in which the said arm extending from the bracket consists of a plunger retractable from a position above the pawl tail and means for locking the plunger in retracted position.

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