No. 872,061. PATENTED NOV. 26, 1907.

A. A. GORDON, Jr.

TAKE-UP MECHANISM FOR LOOMS.

APPLICATION FILED JAN. 17, 1906.

2 SHEETS—SHEET 1.

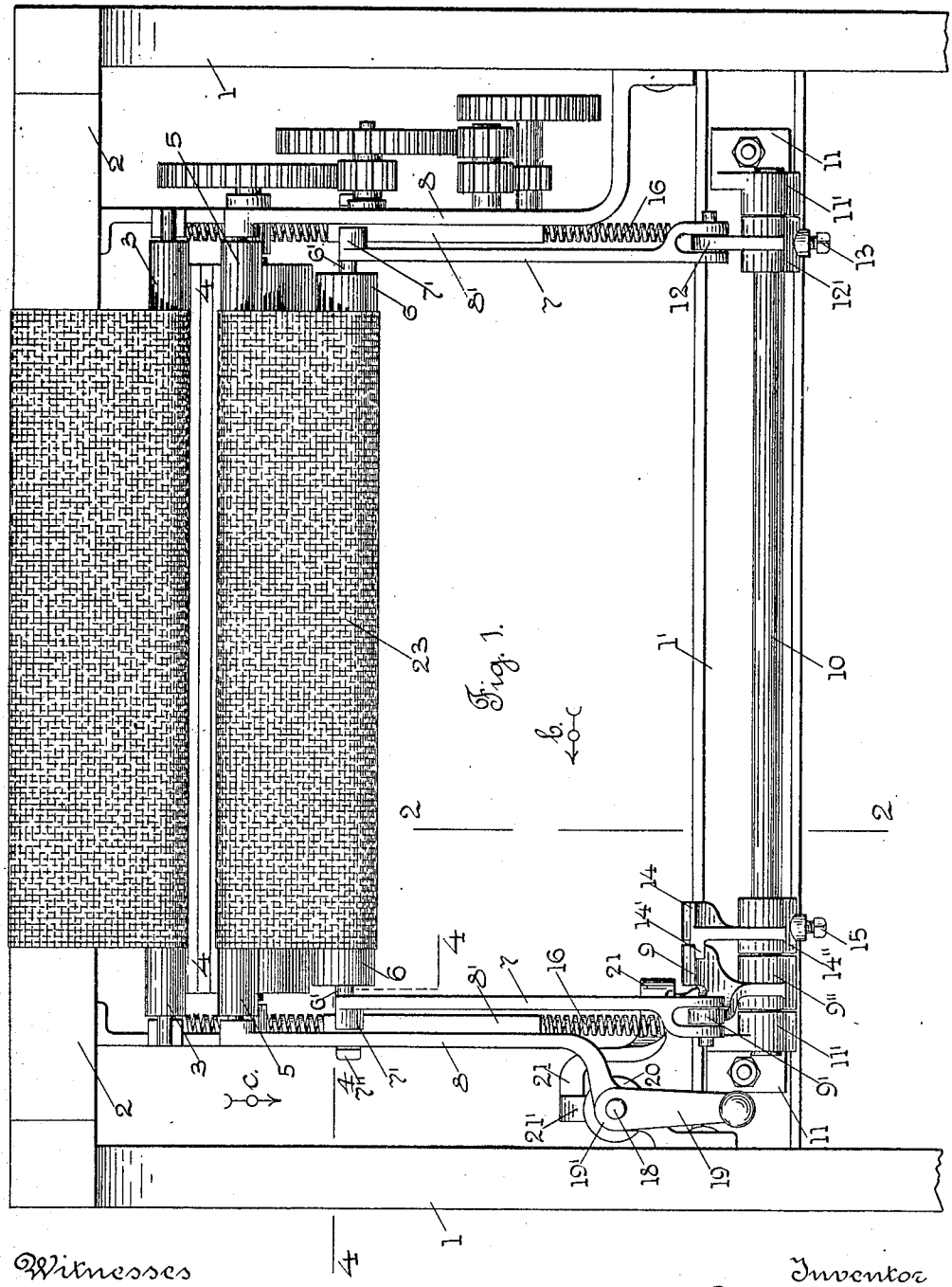


Fig. 1.

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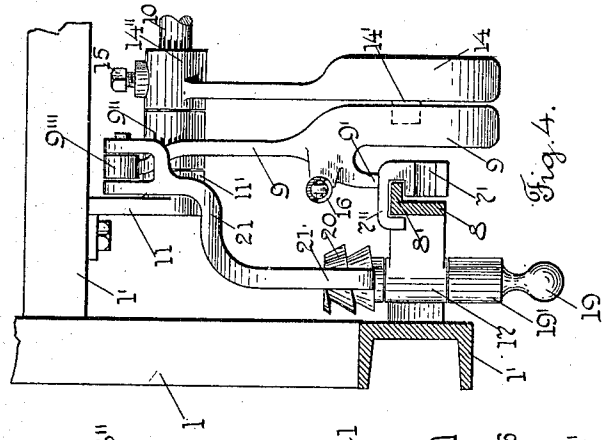


Fig. 4.

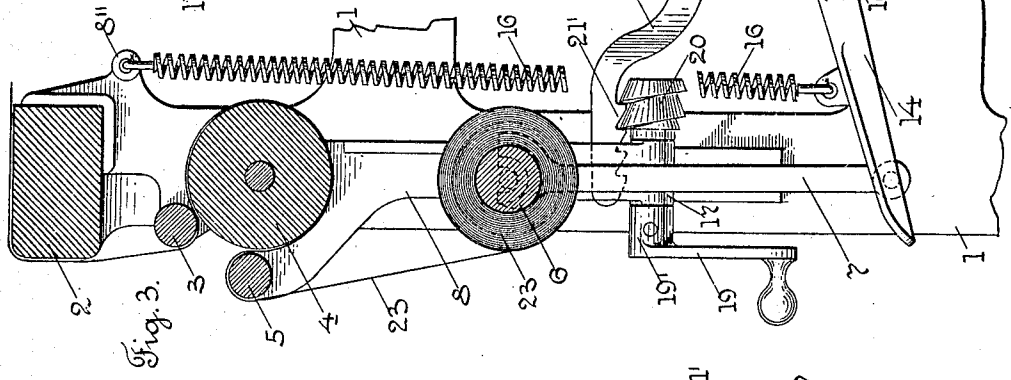


Fig. 3.

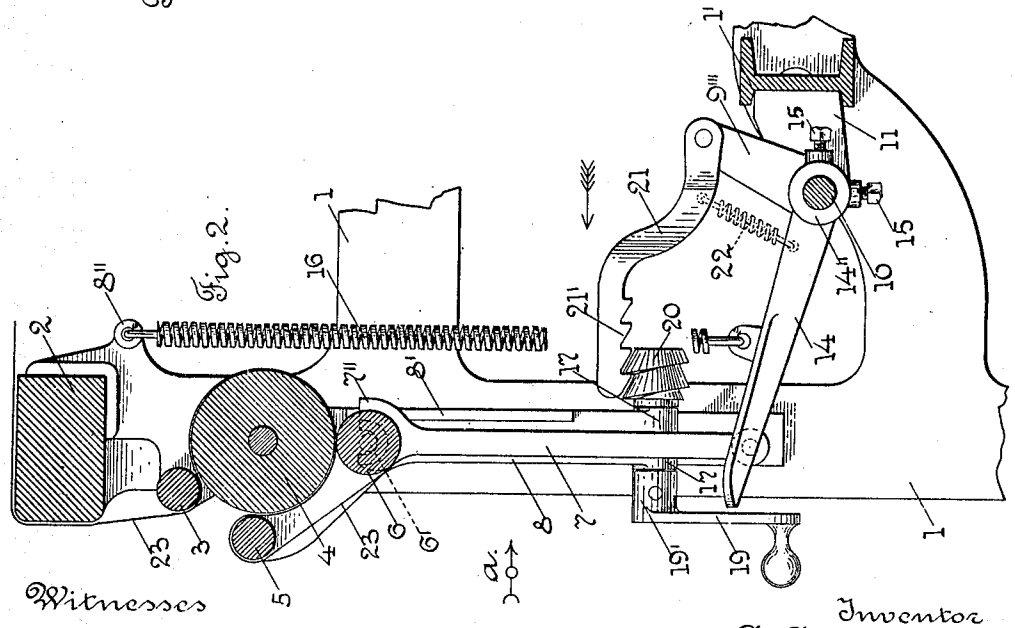


Fig. 2.

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UNITED STATES PATENT OFFICE.

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TAKE-UP MECHANISM FOR LOOMS.

No. 872,061. Specification of Letters Patent. Patented Nov. 26, 1907.

Application filed January 17, 1906. Serial No. 296,467.

To all whom it may concern:

Be it known that I, ALBERT A. GORDON, Jr., 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 Take-Up Mechanism for Looms, of which the following is a specification.

My invention relates to take-up mechanism for looms, and more particularly to a releasing mechanism for the winding-up roll, and to an improvement on the releasing mechanism for the winding-up roll, shown and described in U. S. Letters Patent, No. 646,614, in which the winding-up roll for the woven fabric is supported in vertically moving supports and is pressed upwardly, and yieldingly held against the take-up roll by springs, and a foot treadle mechanism is employed for lowering the winding-up roll from engagement with the take-up roll, to remove said winding-up roll from the loom, or to adjust the fabric on the winding-up roll. It has been found in practice, that in the use of the releasing mechanism for the winding-up roll, shown and described in said patent, when the operator replaces a winding-up roll in place of the winding-up roll removed, and operates the treadle mechanism to allow the new winding-up roll to be raised into its normal position, in yielding engagement with the take-up roll, there is a liability of the fingers of the operator being caught between the winding-up roll and the take-up roll.

The object of my invention is to provide a supplemental mechanism, adapted to be combined with the releasing mechanism for the winding-up roll, shown and described in said patent, by means of which the full winding-up roll is held in its lowered position, preparatory to being removed from the loom, and the winding-up roll which replaces the full winding-up roll is also held in its lowered position, and is allowed to be raised into its normal position, in yielding engagement with the take-up roll, through manually operated means, without operating the foot treadle mechanism as required in said patent; the manually operated means controlling the upward movement of the winding-up roll.

My invention consists in certain novel features of construction of my improvements, as will be hereinafter fully described.

I have shown in the drawings a take-up mechanism for looms, and a releasing mechanism for the winding-up roll combined therewith, of substantially the same construction and operation as shown in said patent, No. 646,614.

Referring to the drawings:—Figure 1 is a front view of the take-up mechanism with my improvements combined therewith, looking in the direction of arrow *a*, Fig. 2. Fig. 2 is a vertical section, on line 2, 2, Fig. 1, looking in the direction of arrow *b*, same figure. Fig. 3 corresponds to Fig. 2, but shows the full winding-up roll in its lowered position, and shows the releasing mechanism for the winding-up roll in the opposite position from that shown in Fig. 2. Fig. 4 is a sectional plan view of the releasing mechanism, taken at a point indicated by line 4, 4, Fig. 1, looking in the direction of arrow *c*, same figure.

In the accompanying drawings, 1 are the loom sides or ends, 2 is the breast beam, 3 a guide-roll, 4 the take-up roll, 5 a guide-roll, 6 the winding-up roll, 7 vertically moving arms or supports, having recessed upper ends 7′, to receive the journals 6′ on the ends of the winding-up roll 6. The vertically moving arms or supports 7 for each end of the winding-up roll 6, have in this instance a hooked projection 7″ at their upper end adapted to extend over the flanged edge 8′ on the vertically extending stands 8, see Fig. 4, which are secured at their upper end to the breast beam 2, and at their lower end to the loom sides 1.

The vertically extending stands 8 act as guides for the upper ends of the vertically moving arms or supports 7 for the winding-up roll 6. The lower end of each vertically moving arm or support 7 is made forked shape, and one of said arms, the one shown at the left in Fig. 1, is pivotally attached, in this instance to a side projection 9′ on a foot treadle 9, the hub 9″ of which is loosely mounted on a shaft 10 which extends transversely through the loom, and is loosely mounted at each end in bearings 11′ on brackets 11, secured to the cross girth 1′ of the loom. The lower forked end of the other supporting arm 7 is in this instance pivotally attached to an arm 12, the hub 12′ of which is secured on the rock shaft 10, by a set screw or bolt 13, see Fig. 1. A second foot treadle

14 extends along side of the foot treadle 9, and has a projection 14′ thereon, which extends under and is adapted to be engaged by the foot treadle 9. The hub 14″ of the foot treadle 14 is fast on the rock shaft 10, in this instance secured thereon by two set screws or bolts 15, see Fig. 2.

The winding-up roll 6 is held in yielding engagement with the take-up roll 4, in this instance by two spirally coiled springs 16, at each end of the loom. One spring 16 is attached at its lower end, in this instance to the foot treadle 9, and at its upper end to a projection 8″ on the stand 8. The other spring 16 is attached at its lower end to the lever or arm 12, and at its upper end to a projection on the stand 8, see Fig. 1. The take-up roll 4, and the winding-up roll 6 are operated by a system of gears, shown at the right in Fig. 1, in the ordinary and well known way, and therefore the operation thereof does not need to be described herein.

All of the above described parts are, and may be of substantially the same construction and operation as similar parts shown and described in said patent, No. 646,614.

I will now describe my improvements, which, as above stated, are adapted to be combined with the take-up mechanism, and the releasing mechanism for the winding-up roll, shown and described in said patent, No. 646,614, and are employed to lock and hold the full winding-up roll in its lowered position, preparatory to being removed from the loom, and also to hold and lock the new winding-up roll in its lowered position, and allow of the same being raised into its normal position, in yielding engagement with the take-up roll, by the manual operation of the operator.

At one end of the loom, in this instance the left hand end, in a bearing 17 on the upright stand 8, is loosely mounted the horizontally extending shaft 18, which extends in a direction at right angles to the winding-up roll 6. On the outer end of the shaft 18 is in this instance fast the hub 19′ of a handle 19. On the inner end of the shaft 18 is fast a worm 20, having worm teeth thereon of the desired shape. Extending up from the hub 9″ of the foot treadle 9, is an arm 9‴, see Fig. 2. To the upper end of said arm 9‴ is pivotally attached the forked end of a toothed latch 21, see Fig. 4. The toothed latch 21 has in this instance a side bend therein, as shown in Fig. 4, so that its free end will extend over and in alinement with the shaft 18, carrying the worm 20. The latch 21 has teeth 21′ thereon, of a shape adapted to engage with the worm teeth on the worm 20. The toothed part of the latch 21 is preferably held in engagement with the worm 20 by gravity, but a light spring shown by broken lines, 22, in Fig. 2, may be employed, to hold the toothed end of the latch 21 in engagement with the worm 20.

The operation of my improvements, in connection with the releasing mechanism shown and described, will be readily understood by those skilled in the art. When the winding-up roll 6 is in its normal position, in yielding engagement with the take-up roll 4, as shown in Fig. 2, the latch 21 will be in the position shown in Fig. 2, with its toothed end resting on the worm 20. As the woven fabric 23 is wound on the winding-up roll 6, the winding-up roll is moved downwardly, the springs 16 allowing the downward movement of the supporting arms 7. The downward movement of the supporting arms 7, causes the downward movement of the treadle 9 and the arm 12, and the rocking of the shaft 10′; and the downward movement of the treadle 9, through arm 9‴, causes the latch 21, at its toothed end, to be moved outwardly, or in the direction of the arrow Fig. 2, said toothed end passing freely over the teeth of the worm 20, which is stationary. When the winding-up roll 6 is filled and ready to be removed from the loom, the operator presses downwardly the foot treadle 9, and through the engagement of said treadle with the foot treadle 14 fast on the shaft 10, the shaft 10 is rocked, and with it the arm 12, to move down the supporting arms 7 of the winding-up roll 6. The downward movement of the treadle 9, causes the movement of the arm 9‴, and the forward movement of the toothed latch 21, to its extreme outer position, as shown in Fig. 3. The engagement of the toothed part 21′ of the latch 21 with the stationary worm 20, as shown in Fig. 3, holds the toothed latch in position, and through arm 9‴, holds the treadle 9 in its lowered position, and also the arm 12 at the opposite end of the loom, and consequently holds the supporting arms 7 in their lowered position. The full winding-up roll 6, shown in Fig. 3, may now be removed and a new winding-up roll substituted therefor. After the new winding-up roll is substituted, the operator turns the handle 19 on the shaft 18 by hand, and rotates said shaft 18, and with it the worm 20; the rotation of the worm 20, in engagement with the toothed latch 21, allows said latch 21 to be moved inwardly, and allows the springs 16 to act to raise the treadle 9 and the arm 12, and with them the supporting arms 7 of the winding-up roll 6, into their raised position, shown in Fig. 2. The engagement of the toothed latch 21 with the worm 20 controls and regulates the action of the springs 16, and said springs cannot operate to raise the supporting arms 7 for the winding-up roll 6, except according to the movement of the toothed latch 21 by the revolution of the worm 20, as will be well

understood, unless said latch 21 is raised, and released from engagement with the worm 20.

The advantages of my improvements will be readily appreciated by those skilled in the art; they are of simple construction and operation, and are adapted to be applied to the take-up and releasing mechanism of the type shown and described in said patent, No. 646,614.

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 the take-up mechanism of a loom, the combination with vertically extending guide-ways, and vertically moving supports for the winding-up roll, and means for yieldingly holding said supports in their raised position, and means for lowering said supports to lower the winding-up roll, said lowering means consisting of levers or arms connected with said supports and mounted on a rock shaft, and said rock shaft, and means for rocking the same, of means for holding said vertically moving supports in their lowered position, and manually operated means for controlling the upward movement of said supports to move the winding-up roll into its normal raised position.

2. In a take-up mechanism of a loom, the combination with vertically extending guide-ways, and vertically moving supports for the winding-up roll, and means for yieldingly holding said supports in their raised position, and means for lowering said supports to lower the winding-up roll, said lowering means consisting of levers or arms connected with said supports, and mounted on a rock shaft, and said rock shaft, and means for rocking the same, of means for holding said vertically moving supports in their lowered position, and manually operated means for controlling the upward movement of said supports to move the winding-up roll into its normal raised position, said means consisting of a latch connected to and moving with said rock shaft, and having teeth thereon adapted to engage a cam, and said cam, and means for rotating said cam, to cause the movement of said latch.

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