Aug. 18, 1942. E. A. SANTON 2,293,666

TAKE-UP MECHANISM FOR LOOMS

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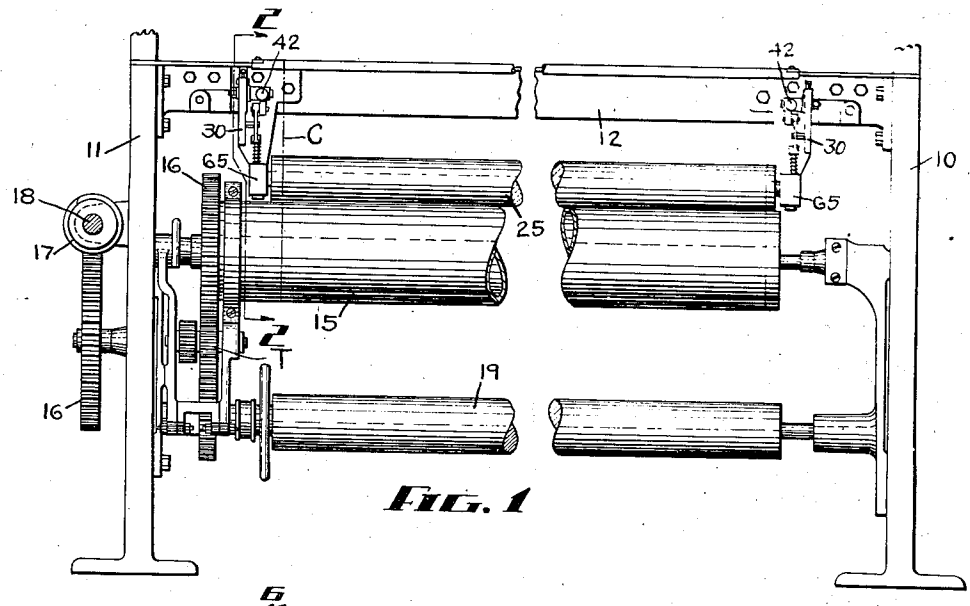


FIG. 1

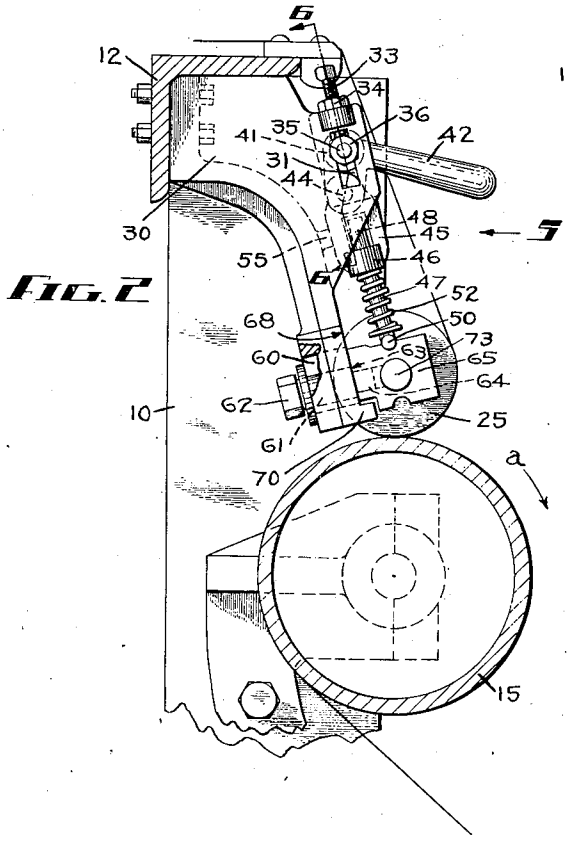


FIG. 2

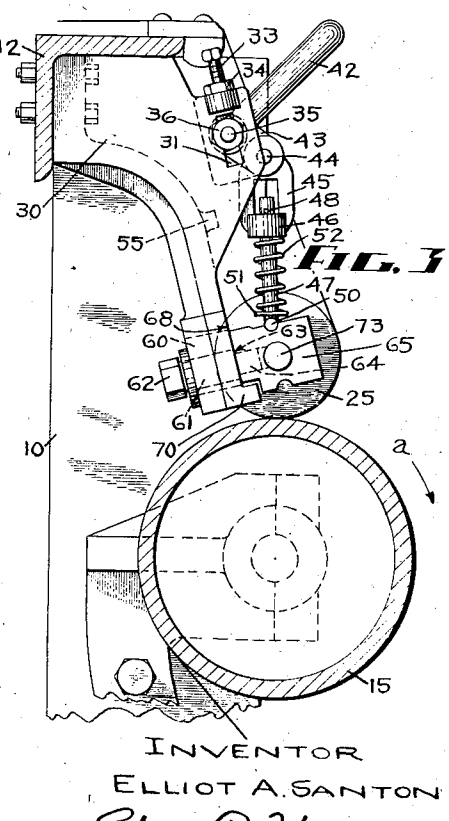


FIG. 3

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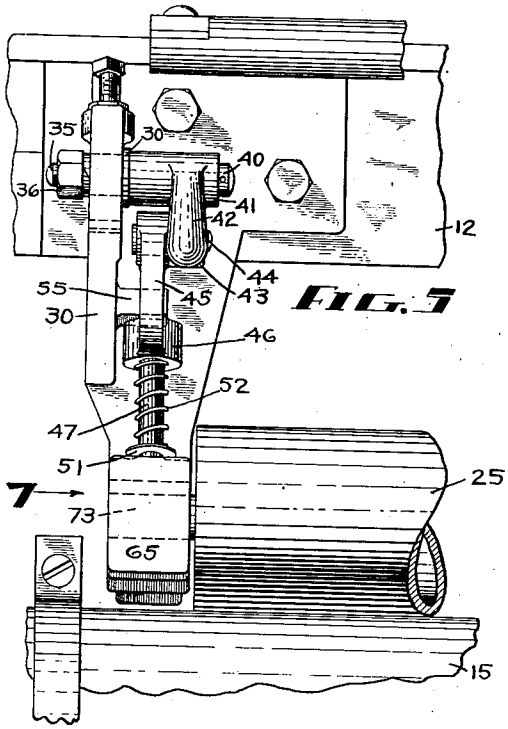


FIG. 5

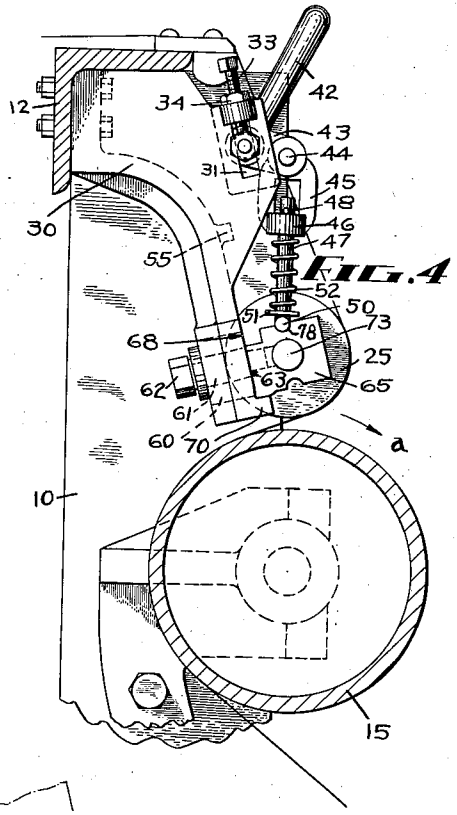


FIG. 4

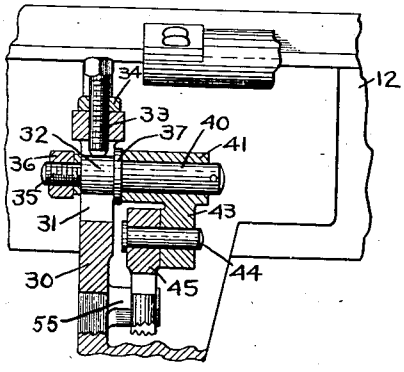


FIG. 6

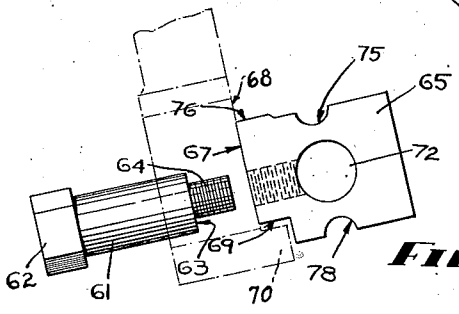


FIG. 7

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TAKE-UP MECHANISM FOR LOOMS

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Application December 15, 1941, Serial No. 422,991

16 Claims. (Cl. 139—307)

This invention relates to take-up mechanisms for looms and it is the general object of the invention to provide a pressure roll which can be conveniently manipulated and also be given two different settings in one of which it serves to press the cloth against the take-up roll and in the other of which it serves as a guide roll spaced from the take-up roll.

The cloth in a loom is led forwardly from the weaving point and wound around a take-up roll having a friction surface. Mechanism is provided for feeding the take-up roll forwardly at a rate proportional to the rate of weaving and in order to insure proper contact between the cloth and the take-up roll it is customary to use a pressure bar or roll to force the fabric against the friction surface of the take-up roll. It occasionally happens that the cloth must be slipped rearwardly on the take-up roll, as in the case of a pickout, and it is an important object of my present invention to facilitate rearward motion of the cloth by providing a roll so mounted that it can quickly be released from its pressing position.

In weaving certain fabrics it is not necessary to have the cloth pressed against the take-up roll, but it is desirable to have a guide roll close to the take-up roll for directing the cloth toward the friction surface. It is another object of my present invention to provide the mounting for the pressure roll so constructed that it can be reversed to move the pressure roll from pressing to guiding position. The mechanism is so constructed that the quick detaching feature which is more particularly useful when the pressure roll is in cloth pressing position can also be used as a mounting for the pressure roll when the latter serves merely to guide the fabric.

It is a still further object of my present invention to mount the guide roll in bearing blocks which are mounted for slight motion away from the take-up roll for the purpose of accommodating slight variations in the thickness of the fabric being woven.

With these and other objects in view which will appear as the description proceeds, my invention resides in the combination and arrangement of parts hereinafter described and set forth.

In the accompanying drawings, wherein a convenient embodiment of my invention is set forth,

Fig. 1 is a front elevation of a loom made according to my present invention,

Fig. 2 is a vertical section on line 2—2 of Fig. 1 on an enlarged scale showing the roll in pressure exerting position close to the take-up roll,

Fig. 3 is a view similar to Fig. 2 but with the pressure roll released to permit movement of cloth between it and the take-up roll,

Fig. 4 is a view similar to Fig. 3 but with the bearing blocks for the pressure roll reversed to cause said roll to serve as a guide for the fabric,

Fig. 5 is an enlarged front elevation of the structure shown in Fig. 2 looking in the direction of arrow 5,

Fig. 6 is an enlarged section on line 6—6 of Fig. 2, and

Fig. 7 is an enlarged end elevation of the bearing block for the pressure roll looking in the direction of arrow 7, Fig. 5, showing the retaining stud detached.

Referring particularly to Fig. 1, I show a loom frame having loomsides 10 and 11 between which extends a breast beam 12 of angular cross section as shown in Fig. 2. Located between the loomsides and mounted thereon for rotation is a take-up roll 15 one end of which has attached thereto a gear 16 forming part of the train of take-up gearing designated generally at T. This train is driven by a worm gear 16 actuated by a worm wheel 17 on the shaft 18. The latter may be driven in any approved manner and rotates during weaving to cause rotation of the take-up roll in the direction of arrow *a*, Fig. 2. A cloth roll 19 is located in the lower part of the loomframe and is driven by the train T for the purpose of winding up the cloth as it comes from the take-up roll.

The matter thus far described is of common construction and of itself forms no part of my present invention and is set forth herein as one type of take-up mechanism which has been used heretofore and to which my invention can be applied.

In carrying my present invention into effect I provide a roll 25 around a portion of which the cloth C passes on its way to the take-up roll. Roll 25, which is somewhat similar to those heretofore used, may be made of steel and mounted so that its axis is parallel to the axis of the take-up roll. The mounting for each end of the roll 25 is the same and I will describe the mounting located at the left end of the loom with the understanding that it is duplicated at the right end.

As shown in Fig. 2 the breast beam has secured thereto and depending therefrom a bracket 30 provided with a slot 31 in the forward edge thereof. Passing through the slot is a stud 32,

see Fig. 6, upward motion of which is limited by a stop screw 33 tapped into part of the bracket 30 and held in adjusted position by a lock nut 34. Extending from the left of that part of the stud which moves in the slot 31, Fig. 6, is a reduced threaded end 35 receiving a holding nut 36 shown also in Fig. 2. A shoulder 37 on the stud located near that side of the bracket 30 opposite the nut 36 cooperates with the latter to guide the stud for vertical motion in the slot 31.

Extending to the right from the shoulder 37 as shown in Fig. 6 is a gudgeon 40 on which is mounted the hub of a lever 41 from which projects a handle 42. The lower arm 43 of lever 41 is provided with a pivot 44 on which is pivoted a rod head 45. The lower part of the rod head is provided with a hub 46 through which slides a rod 47. A pin 48 in the rod is positioned for engagement with the top of hub 46 to limit downward motion of the rod 47 relatively to the head 45. The bottom of rod 47 is formed with a cross bar 50 above which is located a washer 51. A compression spring 52 is located between the hub 46 and the washer 51 and constantly exerts a downward force on the cross bar 50 when the parts are in the position shown in Fig. 2. The bracket 30 is provided with a stop 55 for engagement with the rear part of the rod head 45 and is so located that when the parts are in the position shown in Fig. 2 the pivot 44 is behind a line joining the axes of gudgeon 40 and the cross bar 50. By this relation the spring 52 serves yieldingly to lock the pivoted parts as shown in Fig. 2 with the handle 42 in down position.

The lower end of bracket 30 is provided with a vertical slot 60 through which extends a bearing supporting stud 61 having at the rear end thereof a head 62 by means of which it may be tightened by a wrench. The forward end of stud 61 is formed with a shoulder 63 and a reduced extension 64 projecting forwardly from the shoulder 63 is threaded to be tapped into a bearing block 65. The latter when in the position shown in Figs. 2 and 3 has the rear edge 67 thereof mounted for sliding motion along the forward face 68 of the lower part of the bracket 30 in which the slot 60 is formed. The block is notched as at 69 near the lower edge of surface 67 to receive an abutment 70 on the bracket 30 extending forwardly from and below the surface 68. A bore or bearing 72 extends through the block to receive the adjacent gudgeon 73 of the roll 25. The upper surface of the block is formed with a groove or notch 75 which receives the cross bar 50. As shown in Fig. 7 the top of the bearing block has the left end thereof formed with a flat bearing 76 extending preferably above the front part of the top of the block and above notch 75. A second groove or notch 78 is formed in the bottom surface of the block under the groove 75 and is also adapted to receive the cross bar 50 when the block 65 is inverted.

When the roll 25 is to be used to exert pressure on the cloth and hold the same against the take-up roll 15 the parts will be in the position shown in Fig. 2 with the handle 42 down and the spring 52 exerting a downward force through the cross bar 50 on the block 65 to force the adjacent end of the roll 25 downwardly. At this time the abutment 70 enters the notch 69 and is so proportioned as to offer no resistance to the downward motion of the roll 25. This result may be accomplished by having the top of the abutment somewhat below the top of the notch 69 when the roll 25 is against the take-up roll. The roll 25 will be locked yieldingly in low position by reason of the relation of the centers of gudgeon 40, pivot 44 and cross bar 50 already described. If a pick-out should necessitate the sliding of the cloth along the take-up roll, the handle 42 will be moved to the position shown in Fig. 3 to move the rod head forwardly away from the stop 55, thereby releasing the pressure exerted by the spring 52 against the bearing block 65 and permitting the operator to lift the roll 25.

In order to facilitate upward motion of the roll 25 the stud 61 is so proportioned that the distance between its head 62 and shoulder 63 is slightly greater than the thickness of that part of bracket 30 extending between these parts. The stud 61 and the block connected thereto may therefore be raised without releasing the stud. After the cloth has been moved to its new position the handle 42 is lowered to the position shown in Fig. 2 to reestablish pressure between the rolls 15 and 25.

When it is desired to use the roll 25 merely to guide the cloth without performing any pressing function, block 65 will be inverted to the position shown in Fig. 4. In this position the flat bearing 76 will rest on abutment 70 and cross bar 50 will enter notch 78. The abutment 70 and bearing 76 are so constructed that when they engage as shown in Fig. 4 the roll 25 will be held in spaced relation with respect to the take-up roll and over it. Since at this time there is no need for exerting a downward force on the roll 25, the handle 42 may be in the raised position indicated in Fig. 4, but the notches 75 and 78 are substantially equi-distant from the bore 72 and surface 68 and the handle 42 can be depressed to the position of Fig. 2, if desired, when the roll 25 is serving merely as a guide.

From the foregoing it will be seen that I have provided a mounting for a cloth pressure or guide roll so constructed that the roll can be located either in position to press the cloth against the take-up roll or be mounted in a higher position and serve merely to guide the cloth. It will be seen that the two positions of the roll are made possible by the reversible bearing 65 and that in either of its positions the bearing block can receive a downward thrust of the spring 47 to hold the same in proper position. Furthermore, the block 65 is mounted to slide vertically along the bracket 30, although this is not a necessary feature of the invention and I may if desired so proportion the stud 61 as to hold the face 67 tightly against the surface 68 of the bracket 30. It will also be noted that adjustment of the stop screw 33 permits a variation in the amount of downward pressure exerted by the spring 52 on roll 25. The notch 69 is large enough to receive the abutment 70 when the roll 25 is in the position shown in Fig. 2 but serves to support the block and maintain the same above the take-up roll when the parts are in the position shown in Fig. 4.

Having thus described my invention it will be seen that changes and modifications may be made therein by those skilled in the art without departing from the spirit and scope of the invention and I do not wish to be limited to the details herein disclosed, but what I claim is:

1. In take-up mechanism for a loom having a take-up roll and a pressure roll therefor, a fixed support, a bearing for the pressure roll movable relatively to the fixed support, and control mechanism for the bearing including two jointed

members movable from normal locked to abnormal unlocked position, one of said members being limited in motion thereof away from the pressure roll by said fixed support, a yieldable pressure element on the other member to exert a force on the bearing in a direction toward the take-up roll, said members when in normal position exerting a given force on the pressure element to hold the pressure roll against the take-up roll, and said members when in abnormal position exerting a reduced force on the bearing.

2. In take-up mechanism for a loom having a fixed support, a pressure roll and a take-up roll, a bearing on said support for the pressure roll, and a yielding lock on the support for the bearing, said yielding lock comprising two pivoted members and a resilient element connected to one of said members engaging the bearing to exert a force thereon to hold the pressure roll against the take-up roll.

3. In take-up mechanism for a loom having a fixed support, a pressure roll and a take-up roll, a bearing block for the pressure roll mounted on the support, a pressure exerting mechanism for the bearing including two jointed parts one of which is connected to the support, and a resilient element between said other part and the bearing, said parts when in normal position causing the resilient element to exert a given downward force on the bearing to hold the pressure roll against the take-up roll and said parts when in abnormal position reducing the downward force exerted by the resilient element against the pressure roll.

4. In take-up mechanism for a loom having a fixed support, a pressure roll and a take-up roll, a bearing block for the pressure roll mounted on the support, and pressure exerting mechanism for the bearing block, said mechanism comprising a pair of pivoted members one of which includes a plunger to engage the bearing block and spring means between said one part and the plunger, the other part of the pressure mechanism being limited by the support in movement away from the pressure roll, said pivoted parts when in normal position causing the spring and plunger to exert a relatively large force on the pressure roll urging the latter toward the take-up roll and said parts when in abnormal position causing said plunger and spring to exert a lesser force on said pressure roll.

5. In take-up mechanism for a loom having a fixed support, a pressure roll and a take-up roll, a bearing block for the pressure roll, and pressure mechanism for the block, said mechanism including two members pivoted together, one of said members being limited in movement thereof away from the pressure roll by said support and the other member including a plunger slidably mounted thereon and a spring to urge the plunger toward the block, a stop for one of said members, said spring yieldingly holding said members in normal position and exerting a force on the bearing to hold the pressure roll against the take-up roll with said stop in engagement with one of the members, said members when in abnormal position and away from said stop relieving the force exerted by the spring on said bearing.

6. In take-up mechanism for a loom having a fixed support, a pressure roll and a take-up roll, a bearing block for the pressure roll, pressure mechanism for the block, including two members pivoted together, one of said members being limited in movement thereof away from the pressure roll by said support and the other member including a plunger slidably mounted thereon and limited in movement thereof toward said pressure roll, a spring to urge the plunger toward the block, and a stop for one of said members, the latter when in normal position with one member against said stop causing the spring to exert a relatively large downward force on the block to hold the pressure roll in engagement with the take-up roll, said members when in abnormal position spaced from said stop causing the spring to exert a reduced downward pressure on said pressure roll.

7. In take-up mechanism for a loom having a fixed support, a take-up roll and a cloth guiding roll, a bearing block for the cloth guiding roll mounted on said support, resilient means to urge the bearing block and guiding roll toward the take-up roll, said bearing block when in one position being movable relatively to the support means by the resilient means to force the guiding roll against the take-up roll, and cooperating parts on said support and bearing block to limit movement of said block toward the take-up roll independently of the latter to hold the guiding roll out of contact with the take-up roll when said block is inverted.

8. In take-up mechanism for a loom having a take-up roll and a cloth guiding roll, a support for the cloth guiding roll, and a bearing block for the cloth guiding roll mounted on said support means, a stop on said support means for the bearing block, resilient means to urge the block and guiding roll toward said take-up roll, said bearing block when in one position and out of contact with said stop acting to transmit a force from the resilient means to the guiding roll and hold the latter against the take-up roll, and said bearing block when inverted being held by said resilient means against said stop and the latter holding the cloth guiding roll out of contact with the take-up roll.

9. A bearing block for the pressure roll of a loom take-up mechanism, said block having a gudgeon receiving bore extending therethrough and notches on opposite sides of said bore to receive a pressure element, one surface of said bearing block being substantially parallel to a line passing through said notches and the axis of the bore and the greater part of said surface lying on one side of a plane perpendicular thereto and passing through the axis of the bore.

10. A bearing block for the pressure roll of a loom take-up mechanism, said bearing block having a body through which extends a gudgeon receiving bore, said block having opposite sides thereof provided with means for receiving a pressure member, and said block having a third side transverse to said opposite sides and so disposed that the greater part thereof lies on one side of a plane perpendicular to said third side and passing through the axis of the bore.

11. A bearing block for the pressure roll of a loom take-up mechanism, said bearing block having a body through which extends a gudgeon receiving bore, said block having opposite sides thereof provided with means for receiving a pressure member, and said block having a third side transverse to said opposite sides and so disposed that the greater part thereof lies on one side of a plane perpendicular to said third side and passing through the axis of the bore, and said block having a screw threaded hole extending thereinto from said third side.

12. A bearing block for the take-up pressure roll of a loom having a support with a stop thereon, said block having a gudgeon receiving

bearing extending therethrough and a surface parallel to the axis of said bore for engagement with said stop to locate said block with the bore at a given distance from said stop, said block having a second surface transverse to the first surface to engage the stop and locate the block with the bore at a different distance from said stop.

13. A bearing block for the take-up pressure roll of a loom having a support with a stop thereon, said block having a gudgeon receiving bearing extending therethrough and a surface parallel to the axis of said bore for engagement with said stop to locate said block with the bore at a given distance from said stop, said block having a second surface transverse to the first surface to engage the stop and locate the block with the bore at a different distance from said stop, the block having provision to receive a pressure element to hold said surfaces one at a time against said stop.

14. A bearing block for the take-up pressure roll of a loom having a support with a stop thereon, said block having a gudgeon receiving bearing extending therethrough and a surface parallel to the axis of said bore for engagement with said stop to locate said block with the bore at a given distance from said stop, said block having a second surface transverse to the first surface to engage the stop and locate the block with the bore at a different distance from said stop, said block having a screw threaded hole therein to receive a fastening member to hold said block against the support.

15. In take-up mechanism for a loom having a take-up roll, a pressure roll and a fixed support, a bearing block for the pressure roll extending along a portion of the fixed support, said support having an elongated slot therein extending in a direction toward and from the axis of the take-up roll, a stud passing through the slot and into the block and slidable along said slot, and resilient means acting on the block in a direction toward the take-up roll to move said block and pressure roll toward the take-up roll.

16. In take-up mechanism for a loom having a take-up roll, a pressure roll and a fixed support, said support having an elongated slot therein extending toward and from the axis of the take-up roll, a bearing block for the pressure roll extending along portions of said support adjacent to the slot, a stud extending through that portion of the fixed support in which the slot is located and being secured into the bearing block, said stud having a head on that side of said portion of the support opposite the block spaced from the latter a distance slightly greater than the thickness of said portion of the support through which the slot extends to permit motion of said stud along the slot, and resilient means acting on the block tending to urge the latter and the pressure roll toward the take-up roll.

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