

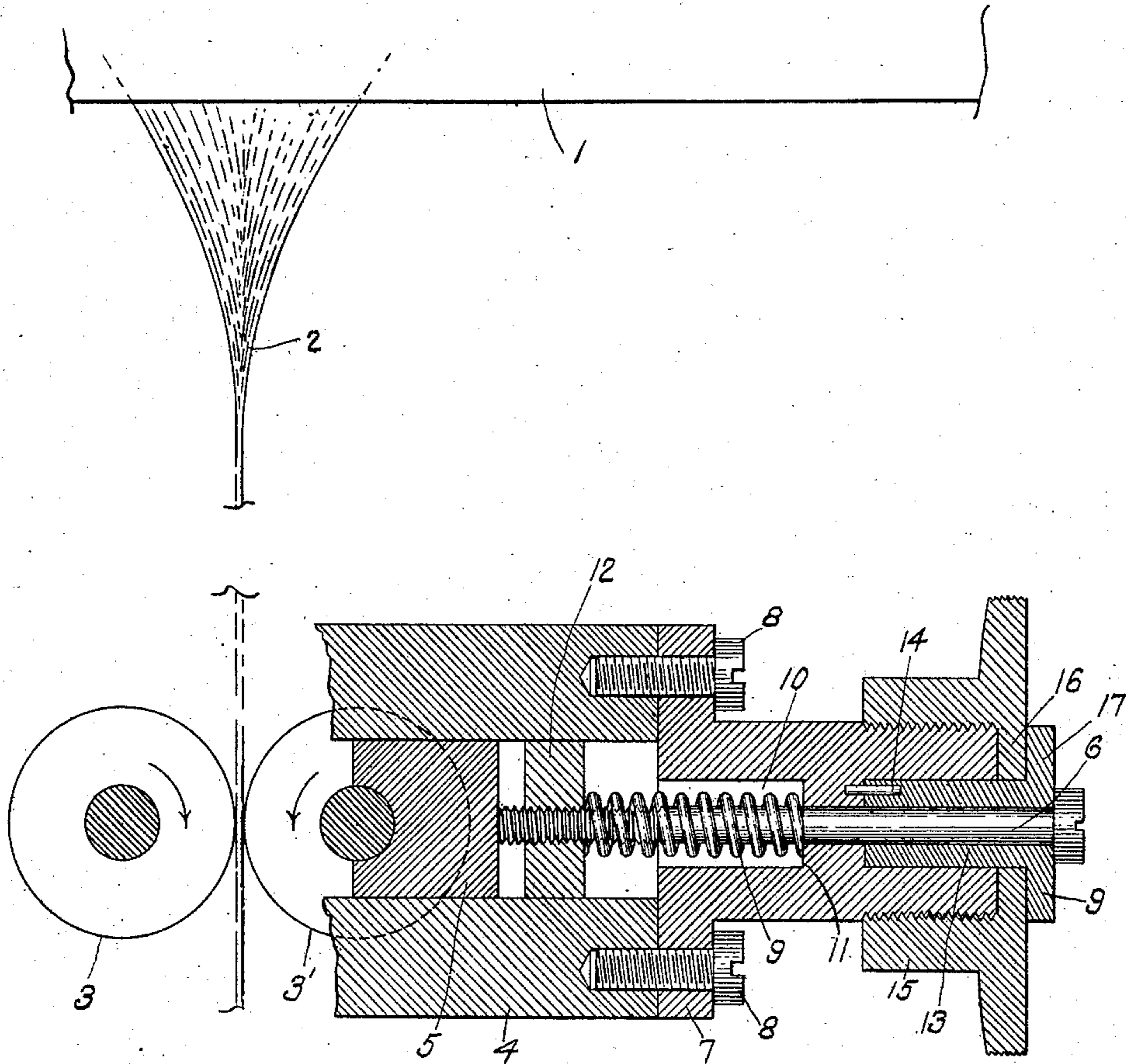
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B. T. STEBER.

FABRIC TAKE-UP MECHANISM FOR KNITTING MACHINES.

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# UNITED STATES PATENT OFFICE.

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## FABRIC-TAKE-UP MECHANISM FOR KNITTING-MACHINES.

No. 850,855.

Specification of Letters Patent.

Patented April 16, 1907.

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*To all whom it may concern:*

Be it known that I, BERNARD T. STEBER, a citizen of the United States, residing at Utica, in the county of Oneida, State of New York, have invented an Improvement in Fabric-Take-Up Mechanism for Knitting-Machines, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

My invention relates to fabric-take-up mechanism for knitting or other machines, and contemplates, among other objects, the provision of means permitting release of the fabric from the control of the take-up mechanism.

In order that the principles of the invention may be understood, I shall disclose one type of the invention and the preferred embodiment of means for carrying out the same, reference being made to the accompanying drawing, representing in vertical section the preferred form of fabric-contacting take-up devices and the preferred form of mechanism for maintaining the same in operative relation to the fabric.

Referring to the drawing, wherein I have selected for illustration one embodiment only of the invention, the body of the machine, which in the present instance is a knitting-machine of any desired type, is indicated conventionally at 1, the fabric 2 issuing therefrom in the operation of the machine in the usual manner. It is to be noted, however, that the invention may be applicable to other mechanisms than knitting-machines, it presenting a machine-product take-up mechanism useful in other relations.

In the present type of the invention I have represented the take-up devices as a pair of rolls 3 3', adapted to contact with opposite faces of the fabric 2 and preferably to tightly press the fabric between them. In practice the rolls are preferably positively rotated at the proper speed by any usual or preferred mechanism—as, for example, by a gearing directly engaging the shaft of one of the rolls, from which motion is imparted to the other roll at a similar speed. The said rolls may be of any desired extent or surface conformation, and other suitable fabric-contacting device or devices may be substituted therefor, as may seem desirable.

While the fabric-contacting device or de-

vices which herein are shown as rolls may be mounted in any desired manner, I contemplate in the present embodiment of my invention mounting them in an arm 4, a portion whereof is herein shown in section, said arm being mounted in any suitable manner, as, for example, by pivoting the same to the framework or other desired part of the machine, so that the weight of said arm normally tends to maintain the fabric 2 under the desired tension. The particular manner of support of the arm or other support for the fabric-contacting devices may, however, be varied as seems suitable or necessary.

In the present embodiment of the invention I prefer to mount the fabric-contacting rolls 3 3' for movement relative to each other and herein contemplate mounting one of said rolls, as 3, in fixed bearings, and the other, 3', in movable bearings. To that end I have herein provided a movable bearing box or boxes, such a box being represented at 5 and preferably engaging a journal of said roll, said box being mounted between the preferably parallel members of the arm or support 4 for movement toward and from the fabric. I preferably provide means to sustain the roll 3' in yielding contact with the fabric and to that end contemplate the provision of pressure means to maintain the roll 3' in the desired fabric relation and in the present instance have shown as a suitable type of pressure means a screw 6, axially disposed with respect to the arm or support 4 and preferably bearing at the inner end thereof upon the movable bearing-box.

While the pressure means, herein typified as a screw, may be supported in any suitable manner, I herein contemplate the employment of a casing 7, preferably secured to the end of the support 4 in any desired manner, as by screws 8, said casing being herein shown as axially bored for the reception of the pressure-screw 6.

In the present type of the invention I preferably employ yielding means to maintain the screw in its desired relation with the roll 3' and to that end may employ any suitable device; but I have herein shown a coil-spring 9 encircling the said screw and maintained within the support 4 and an enlarged axial opening 10 within said casing, said spring bearing at one end upon the shoulder 11 afforded by the enlarged axial opening 10 and

at its other end upon a nut, preferably of such formation as to be held from rotation within said support, but capable of longitudinal movement therein toward and from the bearing-box 5. In the present type of the invention said nut is held from rotation, as by engagement with the support 4. The screw 6 and the nut 12 are in the present type of my invention relatively rotatable, and while in the present instance I prefer to rotate the screw and to restrain the nut from rotation I may, if desired, rotate the nut while restraining the screw from rotation. By the rotation of the screw 6 in the proper direction, as by the use of a screw-driver applied to the slotted head thereof, the nut 12 is moved toward or from the shoulder 11 to increase or diminish the pressure that the said spring exerts through the pressure-screw 6 upon the bearing-box 5, and hence upon the roll 3'. The rotation of the said pressure-screw 6 in a direction to draw the nut 12 toward said shoulder 11 compresses the said spring 9, thereby increasing the pressure of the said screw 6 through the bearing-box 5 upon the roll 3'. It will thus be observed that by the described construction a continual pressure is exerted by the device against the feed-rolls when the take-up is in operative use or position. When the desired degree of pressure for a certain class of knit goods is obtained, the adjustment of the pressure-screw 6 need not be disturbed during the production of such class of goods. It is frequently desirable, however, to draw the fabric 2 from between the take-up rolls 3 3'. I contemplate the provision of means for facilitating the accomplishment of this purpose without altering the pressure-bearing adjustment of the pressure-screw 6 against the roll 3'. To that end I may employ any suitable mechanism; but in the present type of the invention I contemplate the provision of means for withdrawing the pressure-screw 6 axially and non-rotatively from its engagement with the bearing-box 5 and to that end have herein shown as a suitable means to accomplish the result a thimble 13, concentrically disposed with respect to said pressure-screw 6 and seated within an enlarged axial opening in the outer end of said casing 7, said thimble being provided with means to prevent the rotation thereof, such result being accomplished in the present instance by the employment of a pin 14, which may be secured in the inner end of the said thimble and extending into the corresponding socket in the casing 7. Said thimble operatively engages the screw 6 and is here shown as so closely surrounding the said screw that the head of the latter overlies the end of the thimble.

While the thimble 13 may be axially moved in any desired manner, I preferably employ for the purpose a thumb-screw 15,

having threaded engagement with the casing 7 and having an inwardly-extending annular flange 16, herein shown as interposed between the end of the casing 7 and the flanged head 17 of the thimble, said thumb-nut having, preferably, a knurled periphery. By the rotation of the nut 15 in the proper direction the thimble 13 may be moved longitudinally outward or from the bearing-box 5, and owing to the engagement between the head of the pressure-screw 6 and the end of said thimble the said pressure-screw is moved axially and non-rotatively outward or to the right viewing the drawing, and without relative movement between said pressure-screw and the nut 12, which moves in the same direction in the support 4 without altering the pressure adjustment of the spring 9, for while the same is temporarily compressed to a greater degree upon the return of the nut 15 to its former position the said spring is likewise restored to its position of adjustment, this being accomplished by reason of the fact that no relative movement occurs between the said pressure-screw and the nut 12 during the described outward movement of the said pressure-screw. It will be observed that the nut 15 occupies when the device is in operative condition a predetermined location, as at the inner limit of the screw-threaded portion of the casing 7, and that no relative longitudinal movement occurs during the described adjustment of the parts between the said nut and the pressure-screw 6. Therefore since the inner abutment for the spring 9 is not altered when pressure is withdrawn from the roll 3' and since the nut 15 occupies when the device is in operation a predetermined position the operator cannot make a mistake affecting the tension of the spring 9. It is apparent that the extent of outward movement of the screw 6 may be varied as desired within the limits shown or that suitable provisions may be afforded for any necessary or more extended outward movement of said pressure-screw. When said pressure-screw is outwardly moved, as by the type of mechanism shown, the bearing-box 5 is relieved from pressure, and the roll 3' being thus freed from pressure the fabric 2 may, if desired, be withdrawn from between the rolls. It will be observed that the tension of the spring 9 may be altered without movement of the nut 15.

Having thus disclosed one type or embodiment of the invention, I wish it to be understood that although I have described a preferred form of mechanism specifically, yet such specific reference is for descriptive purposes merely and is in no sense a limitation of the invention to the mechanism herein shown, which may be varied as desired within the scope of the invention, which is defined in the following claims.

I claim—

1. A fabric-take-up mechanism for knitting or other machines comprising a plurality of fabric-contacting devices to receive the fabric from the knitting or other mechanism, pressure means operatively related to said contacting devices, pressure-adjusting means coöperating with said pressure means to regulate the degree of pressure exerted thereby upon the fabric and pressure-withdrawing means operatively connected with said pressure means to withdraw the same from operative relation to said fabric-contacting devices, said pressure-withdrawing means and pressure means being maintained in fixed relation whether the take-up mechanism be operative or inoperative.

2. A fabric take-up mechanism for knitting or other machines comprising a plurality of fabric-contacting take-up rolls to receive the fabric from the knitting or other mechanism, pressure means operatively related to said take-up rolls, pressure-adjusting means coöperating with said pressure means to regulate the degree of pressure exerted thereby upon the fabric and pressure-withdrawing means operatively connected with said pressure means to withdraw the same from operative relation to said take-up rolls, said pressure-withdrawing means and pressure means being maintained in fixed relation whether the take-up mechanism be operative or inoperative.

3. A fabric-take-up mechanism for knitting or other machines comprising a pair of fabric-take-up rolls to receive the fabric from the knitting or other mechanism, pressure means engaging the journals of one of said rolls, pressure-adjusting means coöperating with said pressure means to regulate the degree of pressure exerted thereby upon the fabric and pressure-withdrawing means operatively connected with said pressure means to withdraw the same from operative relation to said take-up roll, said pressure-withdrawing means and pressure means being maintained in fixed relation whether the take-up mechanism be operative or inoperative.

4. A fabric-take-up mechanism for knitting or other machines comprising a plurality of fabric-contacting devices to receive the fabric from the knitting or other mechanism, pressure means operatively related to said contacting devices, pressure-adjusting means coöperative with said pressure means to regulate the degree of pressure exerted thereby upon the fabric and pressure-withdrawing means operatively connected with said pressure means to withdraw the same from operative relation to said fabric-contacting devices without altering the adjustment of said pressure means, said pressure-withdrawing means and pressure means being maintained

in fixed relation whether the take-up mechanism be operative or inoperative.

5. A fabric-take-up mechanism for knitting or other machines comprising a plurality of fabric-contacting devices to receive the fabric from the knitting or other mechanism, pressure means operatively engaging one of said fabric-contacting devices, means for adjusting the degree of pressure engagement of said pressure means, and pressure-withdrawing means operatively connected to said pressure means to withdraw the same from engagement with said fabric-contacting devices without altering the adjustment thereof, said pressure-withdrawing means and pressure means being maintained in fixed relation whether the take-up mechanism be operative or inoperative.

6. A fabric-take-up mechanism for knitting or other machines comprising a pair of relatively movable fabric-contacting devices to receive the fabric from the knitting or other mechanism, pressure means operatively engaging one of said fabric-contacting devices, means for adjusting the degree of pressure engagement of said pressure means, and pressure-withdrawing means operatively connected to said pressure means to withdraw the same from engagement with said movable fabric-contacting device without altering the adjustment thereof, said pressure-withdrawing means and pressure means being maintained in fixed relation whether the take-up mechanism be operative or inoperative.

7. A fabric-take-up mechanism for knitting or other machines comprising a plurality of fabric-contacting take-up rolls, a movable bearing-box for one of said rolls, a pressure device bearing upon said bearing-box, means for adjusting the degree of pressure of said pressure device upon said bearing-box, and pressure-device-withdrawing means to withdraw said pressure device from engagement with said box without altering the adjustment thereof.

8. A fabric-take-up mechanism for knitting or other machines comprising a plurality of fabric-contacting take-up rolls, a movable bearing-box for one of said rolls, a pressure-screw bearing upon said bearing-box, a spring operatively connected to said screw to force the same into contact with said bearing-box, tension-adjusting means to adjust the tension of said spring and withdrawing means to withdraw said screw from said bearing-box without altering the tension adjustment of said spring.

9. A fabric-take-up mechanism for knitting or other machines comprising a plurality of fabric-contacting take-up rolls, a movable bearing-box for one of said rolls a rotatable pressure-screw bearing upon said box, a spring operatively connected to said screw to

force the same into contact with said bearing-box, tension-adjusting means relatively rotatable with respect to said screw to adjust the tension of said spring, and pressure-screw-withdrawing means to withdraw said screw from said bearing-box without rotation of said screw.

10. A fabric-take-up mechanism for knitting or other machines comprising a plurality of fabric-contacting take-up rolls, a movable bearing-box for one of said rolls, a rotatable pressure-screw bearing upon said box, a spring operatively connected to said screw to force the same into contact with said bearing-box, tension-adjusting means relatively rotatable with respect to said screw to adjust the tension of said spring, and pressure-screw-withdrawing means to withdraw said screw from said bearing-box without relative movement of said screw and said tension-adjusting means.

11. A fabric-take-up mechanism for knitting or other machines comprising a plurality of fabric-contacting rolls to receive the knitted fabric from the knitting or other mechanism, a movable bearing-box to hold one of said rolls in engagement with said fabric, pressure means impinging upon said bearing-box, pressure-adjusting means relatively rotatable with respect to said pressure means to adjust the degree of pressure of said pressure means, and means for withdrawing said pressure means from said bearing-box without relative movement between said pressure means and pressure-adjusting means.

12. A fabric-take-up mechanism for knitting or other machines comprising a plurality of fabric-contacting rolls to receive the knitted fabric from the knitting or other mechanism, a movable bearing-box to hold one of said rolls in engagement with said fabric, pressure means impinging upon said bearing-box, pressure-adjusting means relatively rotatable with respect to said pressure means to adjust the degree of pressure of said pressure means, and means for withdrawing said pressure means from said bearing-box without relative rotative movement between said pressure means and said pressure-adjusting means.

13. A fabric-take-up mechanism for knitting or other machines comprising a plurality of fabric-contacting rolls to receive the knitted fabric from the knitting or other mechanism, a movable bearing-box to hold one of said rolls in engagement with said fabric, a rotatable screw impinging upon said bearing-box, a spring in operative engagement with said screw to force the same into yielding engagement with said box, a nut wherein said screw is rotatable to adjust the tension of said spring and means to withdraw said screw from engagement with said bearing-box without rotary movement thereof.

14. A fabric-take-up mechanism for knit-

ting or other machines comprising a plurality of fabric-contacting rolls to receive the knitted fabric from the knitting or other mechanism, a movable bearing-box to hold one of said rolls in engagement with said fabric, a rotatable screw impinging upon said bearing-box, a spring in operative engagement with said screw to force the same into yielding engagement with said box, a nut wherein said screw is rotatable to adjust the tension of said spring, means to restrain said nut from rotation and means to withdraw said screw from engagement with said bearing-box without rotary movement thereof.

15. A fabric-take-up mechanism for knitting or other machines comprising a plurality of fabric-contacting rolls to receive the knitted fabric from the knitting or other mechanism, a movable bearing-box to hold one of said rolls in engagement with said fabric, a rotatable screw impinging upon said bearing-box, a spring in operative engagement with said screw to force the same into yielding engagement with said box, adjusting means to adjust the tension of said spring and axial screw-withdrawing means to withdraw said screw from said bearing-box by axial non-rotary movement thereof.

16. A fabric-take-up mechanism for knitting or other machines comprising a plurality of fabric-contacting rolls to receive the knitted fabric from the knitting or other mechanism, a movable bearing-box to hold one of said rolls in engagement with said fabric, a pressure-screw in engagement with said bearing-box, a nut upon said screw and confined from rotation thereon, a spring engaging said nut thereby to force said screw into operative engagement with said bearing-box, the tension of said spring being adjusted by the rotation of said screw, and screw-moving means to impart axial movement to said screw without rotation in said nut.

17. A fabric-take-up mechanism for knitting or other machines comprising a plurality of fabric-contacting rolls to receive the knitted fabric from the knitting or other mechanism, a movable bearing-box to hold one of said rolls in engagement with said fabric, a screw in engagement with said bearing-box, a nut upon said screw, a spring in operative engagement with said nut to force said screw into engagement with said bearing-box, relative rotation of said screw and nut tending to adjust the tension of said spring, and screw-withdrawing means to withdraw said screw axially from said bearing-box without rotation thereof relative to said nut.

18. A fabric-take-up mechanism for knitting or other machines comprising a plurality of fabric-contacting rolls to receive the knitted fabric from the knitting or other mechanism, a movable bearing-box to hold one of said rolls in engagement with said fabric, pressure means impinging upon said bearing-

box, pressure-adjusting means relatively rotatable with respect to said pressure means to adjust the degree of pressure of said pressure means, and rotary withdrawing means axially to withdraw said pressure means from said bearing-box without relative movement between said pressure means and said pressure-adjusting means.

19. A fabric-take-up mechanism for knitting or other machines comprising a plurality of fabric-contacting rolls to receive the knitted fabric from the knitting or other mechanism, a movable bearing-box to hold one of said rolls in engagement with said fabric, a pressure-screw adapted to bear upon said bearing-box, a casing wherein said screw is mounted, a nut upon said screw and confined from rotary movement, a coil-spring upon said screw interposed between said nut and said casing and rotary withdrawing means to withdraw said screw from said bearing-box without relative rotation of said screw and said nut.

20. A fabric-take-up mechanism for knitting or other machines comprising a plurality of fabric-contacting rolls to receive the knitted fabric from the knitting or other mechanism, a movable bearing-box to hold one of said rolls in engagement with said fabric, a pressure-screw adapted to bear upon said bearing-box, a casing wherein said screw is mounted, a nut upon said screw and confined from rotary movement, a coil-spring upon said screw interposed between said nut and said casing, and a thimble in engagement with said screw and adapted for axial movement, thereby to move said screw in said casing without rotary movement thereof.

21. A fabric-take-up mechanism for knitting or other machines comprising a plurality of fabric-contacting rolls to receive the knitted fabric from the knitting or other mechanism, a movable bearing-box to hold one of said rolls in engagement with said fabric, a pressure-screw impinging upon said bearing-box, a casing wherein said screw is mounted for rotary and axial movement, a nut upon said screw and restrained from rotation, a coil-spring interposed between said nut and said casing, a thimble mounted for axial movement in said casing but restrained from rotation therein, said thimble engaging said screw to impart axial movement to the latter, and a nut mounted upon said casing and engaging said thimble, whereby rotation of said nut imparts axial movement to said thimble.

22. A fabric-take-up mechanism for knit-

ting or other machines comprising a pair of relatively movable fabric-contacting devices to receive the fabric from the knitting or other mechanism, pressure means operatively engaging one of said fabric-contacting devices, means for withdrawing said pressure means from operative relation with said fabric-contacting device, and means for adjusting the degree of pressure engagement of said pressure means without alteration of position of said withdrawing means.

23. A fabric-take-up mechanism for knitting or other machines comprising a pair of relatively movable fabric-contacting devices, pressure means operatively engaging one of said devices, adjusting means to adjust the degree of pressure engagement of said pressure means, and pressure-withdrawing means operatively connected to said pressure means and having a predetermined position when the mechanism is in operation.

24. A fabric-take-up mechanism for knitting or other machines comprising a pair of relatively movable fabric-contacting devices, pressure means operatively engaging one of said devices, means to adjust the degree of pressure engagement of said pressure means, and pressure-withdrawing means operatively connected with said pressure means to withdraw and maintain withdrawn the pressure means without differential movement of said pressure means and pressure-withdrawing means.

25. A fabric-take-up mechanism for knitting or other machines comprising a pair of relatively movable fabric-contacting devices to receive the fabric from knitting or other mechanism, pressure means operatively engaging one of said fabric-contacting devices, means for adjusting the degree of pressure engagement of said pressure means, and pressure-withdrawing means operatively connected to said pressure means, said pressure means and pressure-withdrawing means having longitudinal movement from said take-up devices and said pressure-withdrawing means for withdrawing and maintaining withdrawn said pressure means by longitudinal movement of said members.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

BERNARD T. STEBER.

Witnesses:

FRANK STEBER,

AGNES M. GEARY.