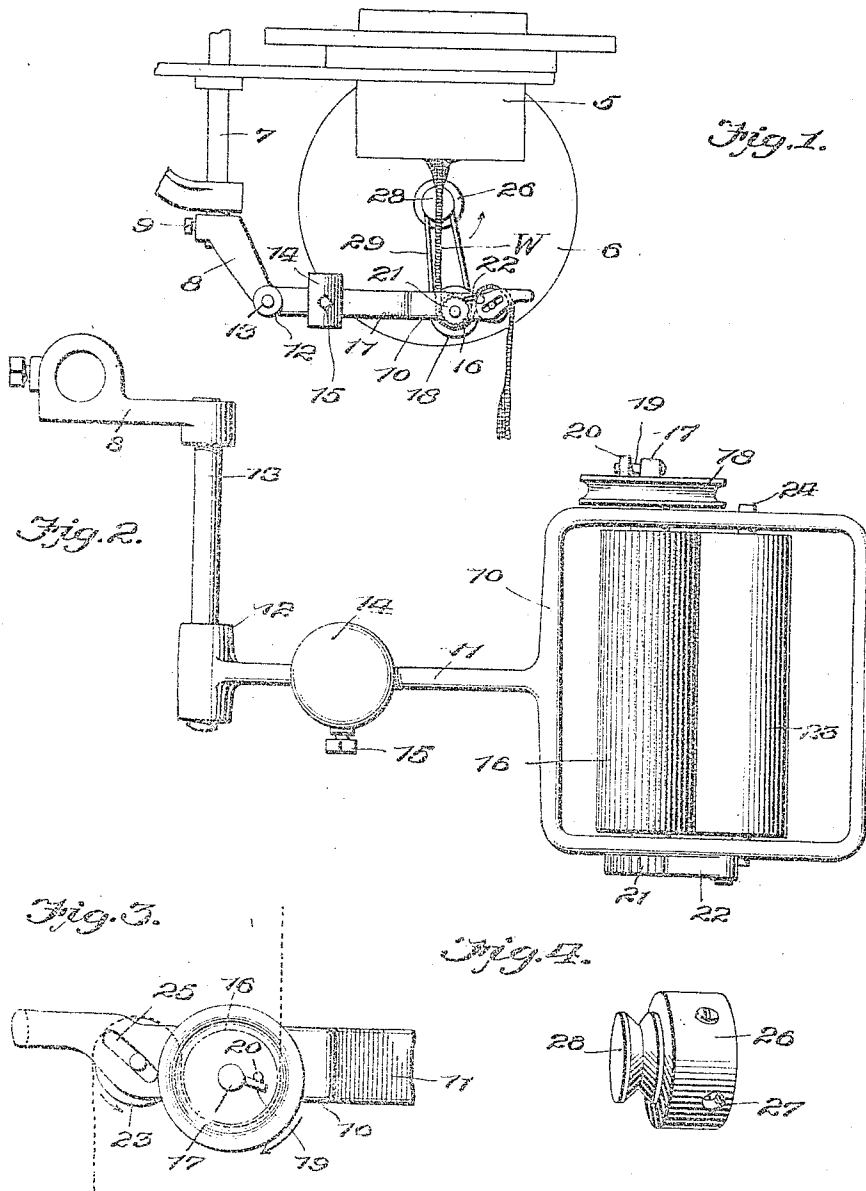


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WEB TAKE-UP DEVICE FOR KNITTING MACHINES.
APPLICATION FILED SEPT. 12, 1912.

1,065,215.

Patented June 17, 1913.



Witnesses

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WEB-TAKE-UP DEVICE FOR KNITTING-MACHINES.

1,065,215.

Specification of Letters Patent.

Patented June 17, 1913.

Application filed September 12, 1912. Serial No. 720,042.

To all whom it may concern:

Be it known that I, WILLIAM H. CHILDREY, a citizen of the United States, residing at Haw River, in the county of Alamance and State of North Carolina, have invented certain new and useful Improvements in Web-Take-Up Devices for Knitting-Machines, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to web take up devices for knitting machines and has for its primary object to provide a device of this character which will not be rendered ineffective or unreliable by changes in the grade or character of the thread used in knitting stockings and analogous articles of wearing apparel.

Another object of the invention is to produce a web take up device for use upon tubular knitting machines of that character used in the knitting of stockings wherein the heel of the stocking is provided with a reinforcement, said device at all times maintaining the web in a taut condition and including a driven friction roller, the operation of which is automatically discontinued when the rotary movement of the main shaft is converted into an oscillating movement in the knitting of the heel reinforcement.

A still further object of the invention resides in the provision of a device of this character which is extremely simple in construction, reliable and efficient in its operation and may be applied to knitting machines of the present construction without necessitating any alteration therein.

With the above and other objects in view as will become apparent as the description proceeds, the invention consists in certain constructions, combinations and arrangements of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawing, in which—

Figure 1 is a side elevation illustrating a portion of a tubular knitting machine and showing the present invention applied thereto. Fig. 2 is an enlarged top plan view of the take up device; Fig. 3 is an enlarged detail elevation; and Fig. 4 is a detail perspective view of the hub cap through the medium of which the friction roller of the take up device is driven.

In the accompanying drawing, I have illustrated only so much of the knitting machine as will enable the application and operation of the invention forming the subject matter of the present application, to be readily understood. To this end, I have shown a portion 5 of the machine from which the knitted tubular web W issues.

6 indicates the crown gear which is fixed upon a main shaft driven from any suitable source of power from which shaft the various elements of the machine are actuated.

7 designates a perpendicular rod to the lower end of which a downwardly extending angularly disposed arm 8 is secured by means of the set screw 9.

My improved take up device includes a frame 10 which is preferably though not necessarily, of rectangular form in plan as clearly shown in Fig. 2. This frame is integrally formed upon one end of a bar 11, said bar being provided at its other end with a sleeve 12 which is loosely engaged upon a transversely disposed rod 13 fixed in the lower end of the arm 8. A weight 14 is longitudinally adjustable upon the bar 11 and may be readily secured in its adjusted position by means of the set screw 15.

A roller 16 is provided with stub shafts at its ends which are rotatably mounted in openings provided in the opposite longitudinal arms of the rectangular frame 10. This roller may be provided upon its periphery with a ribbed fabric or other friction material, though the same is not essential to the operation of the device and may be dispensed with if desired. Upon one of the stub shafts 17 of the roller 16 a grooved wheel 18 is loosely mounted exteriorly of the frame 10. The roller shaft projects beyond the wheel hub and is provided with a pin 19 transversely disposed therethrough. A pin 20 is fixed to the face of the wheel 18 and is adapted for engagement with the pin 19 carried by the roller shaft whereby the roller 16 will be rotated in the movement of the wheel 18 in one direction. The stub shaft at the opposite end of the roller 16 has a ratchet 21 fixed thereon for engagement by a pivotally mounted gravity pawl 22. This ratchet and pawl may be dispensed with if desired as its use is in no wise essential to the successful operation of the device.

It will be noted, from reference to Fig. 3, that one end of the frame 10 is longitudinally offset whereby an unobstructed space

is provided through which the web may move after passing over the roller 23. This offset end of the frame also provides a convenient handle whereby the frame may be
5 lifted when it is desired to detach the web.

A second roller 23 is mounted between the longitudinal arms of the frame 10 in parallel relation to the roller 16, and is provided at its ends with the stub shafts 24 for
10 movement in the oblique slots 25 formed in the arms of the frame 10. It will thus be seen that the roller 23 has a gravity movement downwardly toward the roller 16 so that the peripheries of said rollers would
15 normally be in engagement with each other. In such normal positions of the rollers, the axis of the roller 23 is disposed slightly above the plane of the axis of the driven roller 16.

20 The crown gear 6 is fastened upon the main shaft of the machine by means of a pin, (not shown) which passes through the hub of the gear and the shaft. In the application of my device, I employ a tubular
25 cap 26 which is adapted to be inserted over the hub of the gear 6 and is provided with openings 27 at diametrically opposite points to register with the openings of the gear hub and receive the fastening pin. One end
30 of the cap 26 is closed and provided with a reduced extension 28 which is preferably grooved to receive the driving belt 29, said belt traversing the grooved wheel 18 which is loosely mounted upon one of the stub
35 shafts of the roller 16 as above described.

In the operation of the knitting machine, during the knitting of the leg of the stocking, the crown gear 6 continuously rotates, thereby moving the wheel 18 in the direction
40 indicated by the arrow in Fig. 3, and through the medium of the contacting studs 20 and 19 carried by the wheel and roller shaft respectively, positively rotates the friction roller 16. Thus as the tubular web
45 W issues from the machine, it is held taut and passed around said roller and over the gravity roller 23. By providing the gravity roller 23, the webbing will be held taut irrespective of any change in the character or grade of thread employed, said
50 webbing being at all times held in close engagement with the friction roller 16 by the gravity roller, when either a coarse or fine thread is used. As before stated, in the
55 knitting of the reinforcement for the heel of the stocking, the rotary movement of the crown gear 6 is converted into an oscillating movement. During this portion of the knitting operation there is of course no further
60 discharge of the webbing W from the machine, though it is essential that the same still be maintained in taut condition. This oscillating movement of the crown gear is

permitted without further pull upon the webbing by the loose mounting of the wheel 65 18, the pin 20 carried thereby moving away from the pin 19 in the roller shaft, said wheel thus rotating loosely upon the shaft, while the rollers 16 and 23 remain stationary within the frame 10. In this manner
70 the take up of the knitted web will be automatically discontinued immediately upon the start of the oscillatory movement of the operating gear 6, and liability of injury to the web thus obviated. 75

From the foregoing it is believed that the construction and manner of operation of my improved take up device will be clearly understood. As the same consists of but few elements which are of simple form, it
80 will be apparent that the device will be reliable and efficient in operation and can be produced at comparatively small cost.

The invention is also applicable to knitting machines of various forms now known
85 in the art, without necessitating material alterations in the construction thereof.

While I have shown and described the present preferred embodiment of the invention, it will be obvious that the same is
90 susceptible of considerable modification in the form, proportion and arrangement of the several parts without departing from the essential features or sacrificing any of the advantages thereof. 95

Having thus described the invention, what is claimed is:

The combination with the operating shaft of a knitting machine, of a web take-up device comprising a friction roller to engage
100 the web and provided with stub shafts at its opposite ends, a frame within which the stub shafts of said roller are mounted, a band wheel loosely mounted upon one of the stub shafts, a pin projecting from the outer
105 face of the band wheel and extending in the longitudinal plane of said roller, a pin transversely disposed through one of the stub shafts and extending at right angles to the pin projecting from said band wheel,
110 the pin in said stub shaft adapted to engage said first mentioned pin when said roller is rotated, and a driving connection between said band wheel and the operating shaft whereby the roller is rotated during
115 the rotation of the operating shaft, but such rotation of the roller is discontinued when the rotary movement of said shaft is converted into an oscillatory movement.

In testimony whereof I hereunto affix my
signature in the presence of two witnesses.

WILLIAM H. CHILDREY.

Witnesses:

JULIA BLACKMAN,
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