

(No Model.)

E. H. GODSHALK.

TAKE-UP FOR KNITTING MACHINES.

No. 345,130.

Patented July 6, 1886.

Fig. 1.

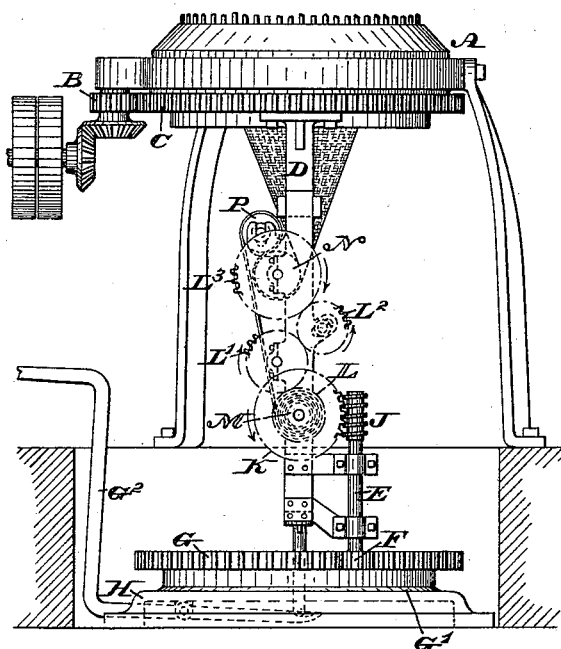


Fig. 2.

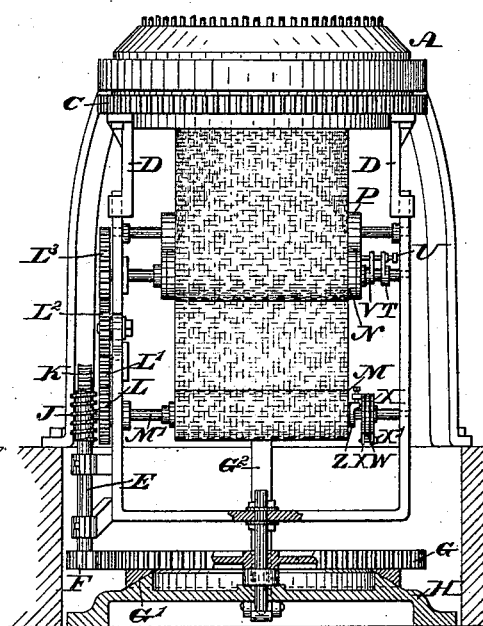


Fig. 4. Fig. 5.

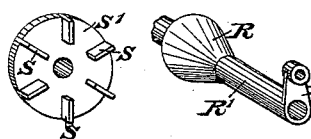


Fig. 3.

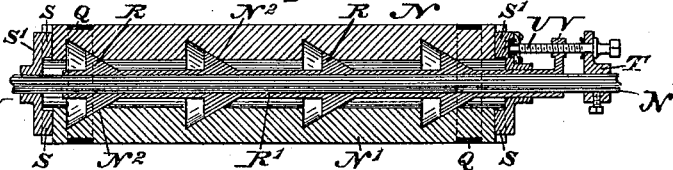


Fig. 6. Fig. 7.

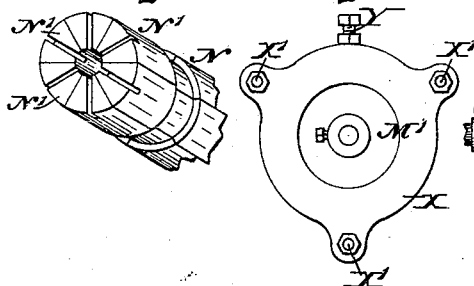
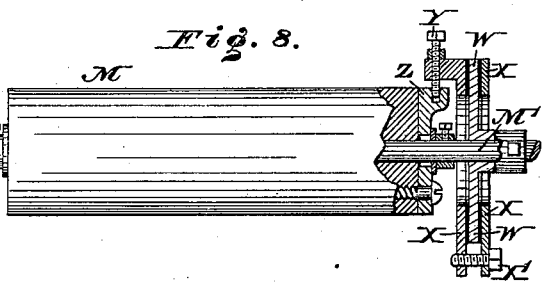


Fig. 8.



WITNESSES:

L. Douville
H. F. Archer

INVENTOR:

E. H. Godshalk
John A. Diederichsen
ATTORNEY.

BY

UNITED STATES PATENT OFFICE.

EDWARD H. GODSHALK, OF PHILADELPHIA, PENNSYLVANIA.

TAKE-UP FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 345,130, dated July 6, 1886.

Application filed September 19, 1885. Serial No. 177,535. (No model.)

To all whom it may concern:

Be it known that I, EDWARD H. GODSHALK, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Take-Ups for Knitting-Machines, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 represents a side elevation of the rotary head of a knitting-machine with operating mechanism, in connection with a take-up device for the same embodying my invention. Fig. 2 represents a partial vertical section and partial side elevation thereof at a right angle to Fig. 1. Fig. 3 represents a central longitudinal section of one of the feed-rollers thereof and adjacent portions on an enlarged scale. Figs. 4 and 5 represent perspective views of detached portions thereof. Fig. 6 represents a perspective view of a portion of the roller shown in Fig. 3. Fig. 7 represents an end view of the parts shown in Fig. 8. Fig. 8 represents a partial side elevation and partial longitudinal section of the winding-roller with supporting-shaft, and frictional clutch mechanism connecting said shaft and roller.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists of means for causing a fabric to be drawn from a knitting-machine and wound with a uniform speed and tension, avoiding improper stretching or breaking of the goods, injury to the machinery, &c., as will be hereinafter set forth.

Referring to the drawings, A represents the rotary head of a knitting-machine, and B represents a pinion which meshes with a gear-wheel or toothed rim, C, on the said head, the said pinion B being connected by bevel-gearing to a driving-shaft, which receives motion by means of a pulley operated by power from any suitable source, all as well known, and forming no part of the present invention.

Connected with the rotary head or cylinder of the machine is a frame, D, which depends therefrom and carries at its lower end a shaft, E, to which is secured a pinion, F, the latter meshing with a toothed wheel, G, which is mounted on the base H and prevented from

rotation thereon. The shaft E has also secured to it a worm, J, which meshes with a worm-wheel, K, the shaft whereof carries a pinion, L, which imparts motion to a gear-wheel, L', and consequently to gear-wheels L² L³.

To the shaft M' of the pinion L is secured a winding drum or roller, M, and to that of the pinion or gear-wheel L³ is secured a feed-roller, N, above which roller is a feed-roller, P, it being noticed that the shafts of said drum and rollers are mounted on the frame D.

When the machine is set in motion, the pinion F is carried around with the frame D, which, as has been stated, is connected with the machine, and as said pinion meshes with the wheel G, and rotates around the same, motion is imparted to the worm and worm-wheel J K and gearing L L' L² L³, and consequently to the rollers N P and winding-drum M, whereby the fabric knitted by the machine may be wound on the drum, it being drawn forward and guided thereto by the rollers N P.

It is important to adjust the feed-rollers so that the fabric is fed at the proper speed to the drum. For this purpose the roller N is made expansible and formed of segments N', (see Fig. 6,) which are grooved circumferentially to receive rubber bands Q, so that the segments are properly held together, said bands expanding and contracting in accordance with the adjustment of the segments. The roller is hollow and has wedge-shaped shoulders N² on its inner peripheries of its segment, against which bear cone-shaped blocks R, the latter being secured to a sleeve, R', which is fitted on the shaft N³ of the roller. The ends of the roller are grooved radially, the grooves N⁴ freely receiving radial tongues S on the inner faces of caps S', which are rested against said ends, it being seen that the shaft passes through one of the caps S', and the shaft and sleeve pass through the opposite cap. The outer end of the shaft carries an arm, T, to which is swiveled a screw, U, the latter engaging with an arm, V, on the outer end of the sleeve R', and the point of the screw being sustained in the adjacent cap S'. It will be seen that by rotating the screw U the sleeve R', and consequently the blocks R, may be moved out or in to cause the segments to expand or contract, and thus the di-

ameter of the roller may be adjusted with nicety for imparting proper speed to the knitted fabric in its passage to the winding-drum, assisting in preserving the tension of said fabric.

In order to adapt the drum M so that should there be any strain on the fabric the same may be relieved, said drum is mounted loosely on its shaft M', the latter carrying near one end a friction-disk, W, which is held between friction-plates X, the latter being loosely mounted on the shaft M' and clamped together by bolts X', one of said plates carrying a screw or bolt, Y, which engages with a cap, Z, the latter being screwed or otherwise secured to the end of the drum, and freely encircling the shaft M'. It will be seen that when the shaft is rotated its power is communicated to the disk W, and thence by the plates X, screw Y, and cap Z to the drum. Suitable washers are interposed between the disk W and plates X to hold the parts sufficiently firm, so that they move as one, the friction being adjusted by the bolts X'. It is evident that should there be any strain on the fabric while it is being wound on the drum, so that it resists winding, the plates X will slip on the disk W, although the shaft M' continues its rotation, and thus the winding is prevented until the strain is relieved. By this construction the fabric is prevented from being stretched or broken and the machinery injured, and the fabric is wound with a uniform tension on the drum. The wheel G is held on the base by a friction-rim, G', and may be raised by a lever or treadle, G², which engages with the shaft of said wheel.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a rotary knitting-machine, the base A, having the depending frame D connected therewith, in combination with the feed and guide roller N, journaled in bearings in the said frame D, mechanism, substantially as described, for imparting rotary motion to said roller N, and means, substantially as described, for adjusting the diameter of said roller N, all substantially as and for the purpose set forth.

2. A rotary knitting-machine having a guide and feed roller adjustable in diameter, and a winding-drum with frictional clutch attachments, and means, substantially as described, for operating said parts, said feed-roller and winding-drum being journaled in a frame pending from the said rotary head of said knitting-machine, substantially as described.

3. In a knitting-machine, the combination of the rotary head with a depending frame carrying a shaft having at its upper end a worm and at its lower end a pinion, a toothed

wheel meshing with said pinion, and having loosely passed through its center a shaft, a train of gearing connected to and adapted to be operated by said worm, and shafts suitably mounted in said frame and rotated by said gearing, and carrying feed-rollers, one of which is adjustable in diameter, and a winding-drum having frictional clutch mechanism connecting the same to the shaft, all substantially as and for the purpose set forth.

4. The feed and guide roller adjustable in diameter, having adjusting-cones in the interior thereof, in combination with the arm T on the shafts of the rollers, a screw, U, connected with the arm, a sleeve, R', on the shaft, and an arm, V, on the sleeve, the screw engaging with the said arm V, substantially as and for the purpose set forth.

5. In a knitting-machine, the rotary head A, having depending frame D, in combination with the shaft E, having worm J and pinion F mounted thereon, toothed wheel G, meshing with said pinion F, a shaft passing loosely through the center of said wheel G and base H, the worm K, mounted on the shaft M', the shaft M' carrying the winding-drum M, having the frictional clutch mechanism, substantially as described, the shaft N³, the gearing L³, L², L', and L, connecting the said shaft N³ to said shaft M', and the feed-roller N, all substantially as and for the purpose set forth.

6. A winding-drum and a shaft on which it is loosely fitted, in combination with the friction-disk W, the plates X, bolts X', screw Y, and cap Z, substantially as and for the purpose set forth.

7. In a knitting-machine, the rotary head with depending frame, in combination with the shaft M', means, substantially as described, to operate said shaft, the winding-drum loosely mounted on said shaft, the friction-wheel W, attached to said shaft, the adjustable friction-plates X, and means, substantially as described, for attaching said plates to said drum M, all substantially as and for the purpose set forth.

8. In a rotary knitting-machine, the adjustable roller N, formed in sections, the inner peripheries thereof having inclined shoulders, the outer, circumferential grooves, and the ends, radial grooves, in combination with elastic bands, caps S', having blocks S, the shaft N³, the sleeve R', having cone-shaped blocks R and interior threaded arm, V, and the arm T, secured to the shaft, and having swiveled to it the screw U, the point of which bears against the end cap, S', all substantially as and for the purpose set forth.

EDWARD H. GODSHALK.

Witnesses:

JOHN A. WIEDERSHEIM,
A. P. GRANT.