

(No Model.)

J. J. ADGATE.
TAKE-UP FOR KNITTING LOOMS.

No. 546,987.

Patented Oct. 1, 1895.

Fig. 1.

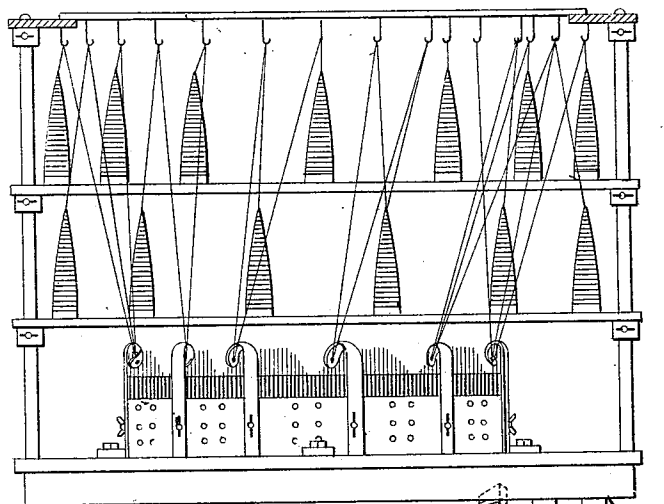


Fig. 2.

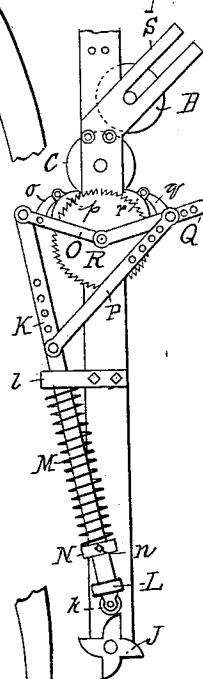
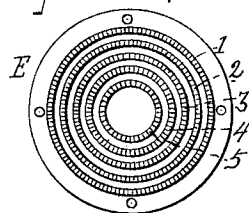


Fig. 3.



WITNESSES:

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TAKE-UP FOR KNITTING-LOOMS.

SPECIFICATION forming part of Letters Patent No. 546,987, dated October 1, 1895.

Application filed November 5, 1894. Renewed July 9, 1895. Serial No. 555,450. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH J. ADGATE, of Liberty, Sullivan county, New York, have invented certain new and useful Improvements
5 in Take-Ups for Knitting-Looms, of which the following is a specification.

My invention relates particularly to the mechanism for rotating the rollers which draw down and wind up the cloth as it is knit
10 upon a rotary knitting-loom; and it consists particularly in the matter hereinafter set forth.

Similar letters and figures of reference designate similar parts in all the views.

15 Figure 1 is an elevation of a loom, showing my improved take-up mechanism. Fig. 2 is a view of the take-up mechanism, taken at right angles to Fig. 1; and Fig. 3 is a plan view of the toothed track.

20 A is a take-up frame, which is attached to the lower part of the needle-cylinder of the loom and revolves with it. This frame is provided with a series of cloth-rollers B C D, which draw down the cloth as it is woven and
25 roll it upon the roller B. It is to the mechanism for rotating these rollers at the proper speed and tension that my invention relates.

Beneath the frame A, I attach to the frame of the loom a circular plate E, provided with
30 concentric series of toothed tracks 1, 2, 3, 4, and 5, separated by grooves of a width greater than the thickness of the cog-wheel F, which is adapted to travel upon said tracks. The wheel F slides upon the shaft G and is secured
35 at any desired point by the set-screw *g*. The shaft rotates in bearing H I. The rate of rotation of the wheel and shaft will vary with the diameter of the track upon which the wheel travels, and by loosening the set-screw
40 *g* the wheel F may be slid off of one track into the groove intervening between that and the next track, when it can be rotated to adjust its cogs to the next track, slid into place, and again secured by the set-screw *g*. The
45 shaft G carries a four-armed cam J, which revolves with the shaft and operates against the antifriction-roller *k* on the rod K, which slides in the guides L L, attached to the frame A. This rod K is raised by the cam J against
50 the resistance of the spring M, the tension whereof is adjusted by the collar N and set-

screw *n*. The rod K is pivoted to the ratchet-lever O, which is loosely journaled on the shaft of the roller D and carries the pawl *o*, which has pivoted to its end the toothed shoe
55 *p*. The rod K is also pivoted to the connecting-rod P, which is pivoted at its other end to the ratchet-lever Q, loosely journaled on the shaft of the roller D and carrying a pawl
60 *q*, with a toothed shoe *r* pivoted thereto similar to *o p*. The stroke of the pawl *q* is adjusted by changing the pivotal points between the rods K P Q, as may be desired. The pawl-shoes *p r* engage with the ratchet-wheel R, which is secured to the shaft of the
65 roller D.

The roller C is actuated by the friction of the cloth around it as the cloth is drawn down by the roller D, and the roller B, the bearings of which are in the inclined slotted arms S S,
70 is rotated by traveling against the roller C and is enabled to adjust its rotation to the increased size of the roll of cloth by traveling upward in the slotted arms.

The operation of my invention is as follows:
75 As the needle-cylinder revolves, carrying with it the frame A, the cog-wheel F will travel around the track on the plate E, rotating the shaft G, with its four-armed cam J. Each arm of the cam, after raising the rod K by
80 engaging with the friction-roller *k*, leaves the rod to the action of the spring M, which, against the tension of the cloth, rotates the roller D through the ratchet-wheel R, pawl *o* and shoe *p*, and ratchet-lever O. When the
85 rod K has descended so that its roller *k* encounters the next arm of the cam J, it ceases to turn the ratchet-wheel R through the ratchet *o* and shoe *p*, and the roller D would cease to revolve or would be reversed by the
90 tension of the cloth during the upward stroke of the rod K but for the ratchet operating upon the opposite side of the ratchet-wheel R. As soon as the upward stroke of the rod K begins, the ratchet-shoe *r* engages the ratchet-wheel R, being actuated through the pawl
95 *q*, arm Q, and rod P, and it continues to rotate the ratchet-wheel R so long as the upward stroke of the rod K continues, the length of its stroke being adjusted by changing the
100 points of connection of the rods or the track upon which the cog-wheel F travels, or both,

as may be desired. The opposite pawl then comes into action, while r q is taking up, and the operation is repeated. The strain upon the end of a single pawl is considerable, and by making use of the toothed shoe pivoted to the end of the pawl I secure increased firmness of grip and reduce the liability of slips and breakage.

By my improvement I secure a continuous feed which is not so far positive in its motion as to endanger the cloth by excessive tension, for the reason that any slight excess or lack of tension occasioned by the direct-acting pawl and shoe q r will be compensated for by the succeeding spring-actuated stroke of the pawl o and shoe p .

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination of a revolving take-up frame, a series of cloth rollers journaled therein, a ratchet wheel attached to the shaft of one of said rollers, two pawl-arms journaled on said shaft and provided with pawls engaging with said ratchet wheel, a driving rod connected with one of said pawl-arms, a connecting rod connecting the other of said pawl-arms with said driving rod, a coiled spring operating to depress said driving rod, an anti-friction roller carried by the lower end of said driving rod, a shaft journaled in said take-up frame, a four armed cam carried upon said shaft and operating against said anti-friction roller to intermittently raise said driving rod, a stationary series of concentric toothed

tracks, and a cog wheel carried upon said last mentioned shaft and traveling upon one of said tracks, substantially as and for the purposes set forth.

2. The combination of a revolving take-up frame A, provided with the slotted arms S, S, a series of cloth rollers D, C, B, carried by said frame, a ratchet wheel R carried upon the shaft of the roller D, two pawl-arms O, Q, journaled on said shaft, and provided with the pawls o , q , and shoes p , r , engaging on opposite sides of said ratchet wheel, a driving rod K, pivoted to the pawl-arm O, a connecting rod P connecting the pawl-arm Q with the driving rod K, guides L, l , to guide the rod K, a coiled spring M around said driving rod and operating to depress the same, a collar N and set screw n to regulate the tension of said spring, an anti-friction roller k carried by the lower end of said driving rod K, a shaft G journaled in bearings H, I in said take-up frame, a four armed cam J carried upon said shaft G and operating against said anti-friction roller to intermittently raise said driving rod K, a stationary series of concentric toothed tracks E with intervening grooves, a cog wheel F adjustable upon the shaft G, and provided with the set screw g and traveling upon one of said tracks and adjustable from one to another thereof, substantially as and for the purposes set forth.

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Witnesses:

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