

(No Model.)

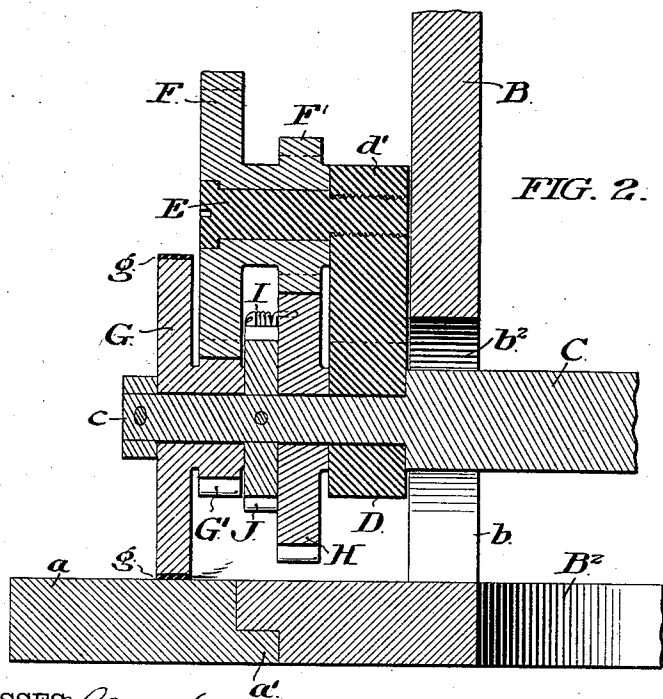
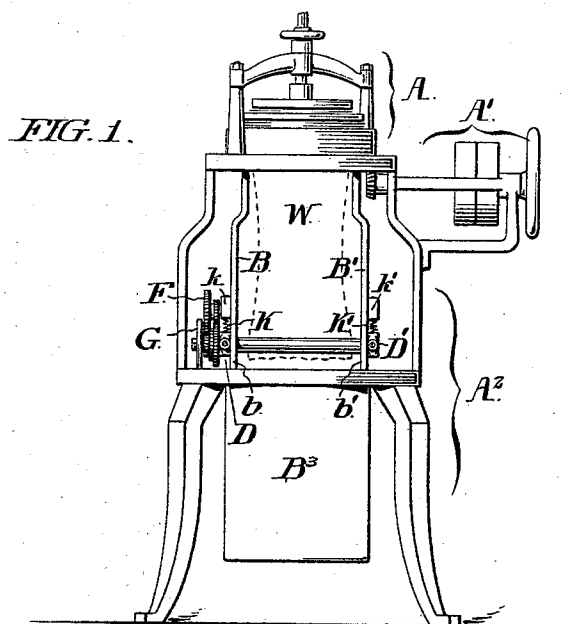
2 Sheets—Sheet 1.

L. JONES, Jr.

TAKE-UP DEVICE FOR KNITTING MACHINES.

No. 538,834.

Patented May 7, 1895.



WITNESSES

WITNESSES:
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(No Model.)

2 Sheets—Sheet 2.

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FIG. 2.

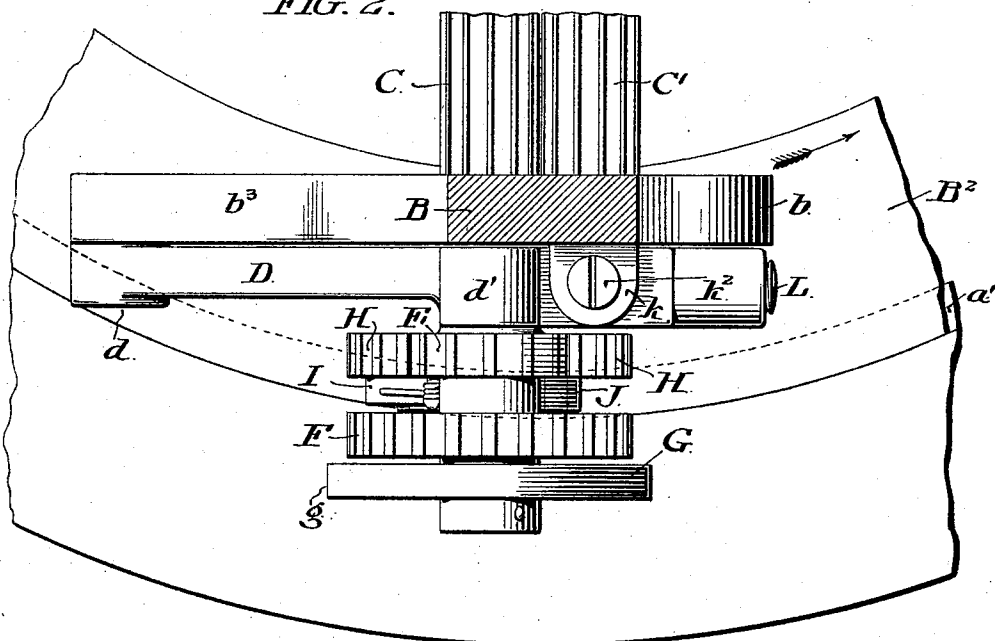
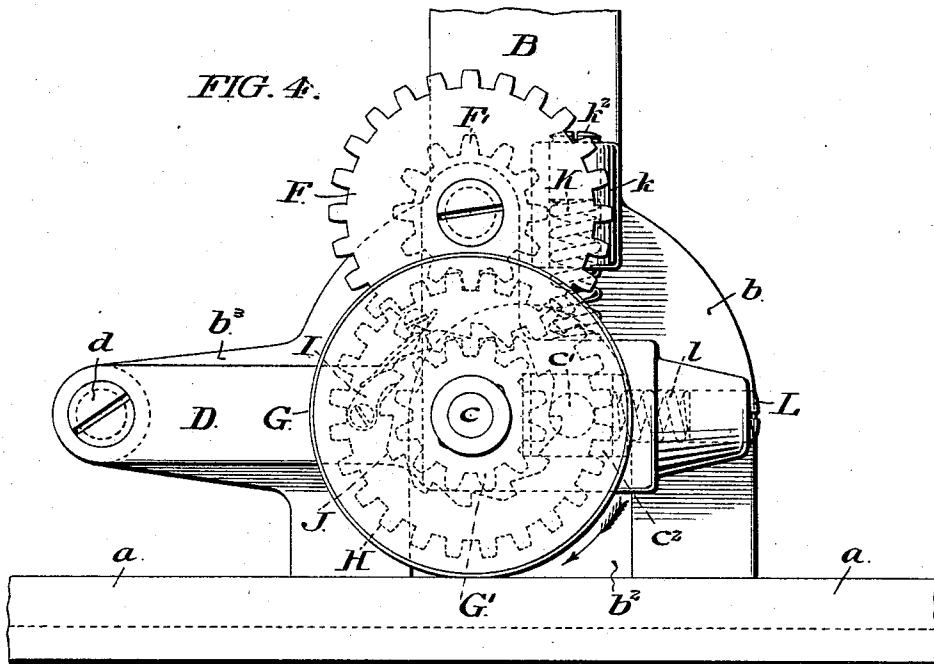


FIG. 4.



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UNITED STATES PATENT OFFICE.

LEWIS JONES, JR., OF PHILADELPHIA, PENNSYLVANIA.

TAKE-UP DEVICE FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 538,834, dated May 7, 1895.

Application filed August 4, 1893. Serial No. 432,335. (No model.)

To all whom it may concern:

Be it known that I, LEWIS JONES, Jr., of the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Take-Up Devices for Knitting-Machines, whereof the following is a specification, reference being had to the accompanying drawings.

My invention relates to that class of circular knitting machines wherein the needle cylinder revolves and the work descends therefrom to take-up rollers carried by a frame rotating with the needle cylinder, the object of my improvement being to provide a means for automatically actuating the take-up rollers in proper relation to the speed of production of the fabric, so that a definite tension shall be maintained.

In the accompanying drawings, Figure 1 represents a general view, in side elevation and on a scale much smaller than that of the other figures, of a knitting-machine embodying my improvements, the details of the knitting mechanism proper being, however, omitted, as they bear no essential relation to the subject of the present invention. Fig. 2 is a partial vertical section through the axis of one of the take-up rollers and through its actuating mechanism, showing the adjacent portion of the frame. Fig. 3 is a top or plan view of one end of the take-up rollers, showing the actuating mechanism and the adjacent portion of the frame; and Fig. 4 is a side elevation of the parts shown in Fig. 3.

Referring now to the general view, A indicates the knitting mechanism proper, consisting of a stationary cam cylinder and rotating needle cylinder, the latter of which is actuated in the usual manner by means of driving mechanism, A'.

A² represents the stand or table of the machine, inclosing the take-up frame, which consists of the downwardly depending arms, B, B', carried by the needle cylinder, and attached at their lower ends to a flanged ring, B², which rests upon an inwardly projecting bearing edge, a', formed upon the inside of a horizontal circular track, a, arranged within the stand, A², about midway of its height. The take-up frame carries a pair of fluted take-up rollers, C, C', respectively, of the

usual form, between which the web, W, passes in its descent from the knitting mechanism, and also carries a subjacent work basket, B³, to finally receive the fabric.

The roller, C', acts merely as an auxiliary or pressure device to hold the fabric against the main roller, C, and may therefore be rotated by frictional contact only with the fabric itself, or may be driven by a gear with elongated teeth adapted to maintain engagement at varying degrees of separation of the rollers, which gear may be carried by the main roller in the usual manner. The main roller, C, is positively driven, by means of the devices which form the subject of my invention and which will hereinafter be described in detail.

The lower ends of the arms, B, B', are enlarged, as indicated at b, b', and elongated arched openings, b², are formed in said enlarged portions to admit the ends of the rollers, C, C', and permit the same to rise and fall freely through a limited distance. The journals, c, c', of said rollers respectively, protrude beyond the arms, B, B', on either side, and have their bearings in vertically swinging bars, D and D', which are pivoted at d to rearward projections, b³, upon the enlarged lower ends of the arms, B and B'.

The journals, c', of the auxiliary roller, C', are mounted in sliding journal boxes, c², (see dotted lines of Fig. 4) which are movable toward and from the journals, c, of the roller, C, and are normally pressed toward the latter by springs, l, mounted in sockets at the front ends of the bars, D and D', the tension of the springs being susceptible of regulation by means of screws, L. The free ends of the bars, D and D', are normally pressed downward by means of springs, K and K', respectively, which are mounted in sockets, k and k', upon the outside of the arms, B and B', the tension being regulated by screws, k².

Upon the left hand side as seen in Fig. 1, the journal, c, of the main roller, C, is prolonged outwardly beyond the swinging bar, D, and carries a freely mounted gear wheel, H, a rigidly attached ratchet wheel, J, and a freely mounted friction disk, G, having a toothed hub-pinion, G'. The periphery of the friction disk, G, is faced with leather, as in-

5 dicated at *g*, and is adapted to run upon the
 circular track, *a*, in frictional engagement
 with the surface thereof. The hub-pinion, *G'*,
 meshes with a gear, *F*, which is freely mounted
 10 upon the pin, *E*, extending outward from the
 face of an upward projection, *d'*, on the bar,
D, and said gear, *F*, has also a hub-pinion, *F'*,
 meshing with the gear, *H*, which is freely
 15 mounted, as above stated, upon the journal,
c, of the roller, *C*. Upon the outer face of the
 gear, *H*, is mounted a spring pawl, *I*, which
 engages with the teeth of the ratchet wheel, *J*.
 The operation of the device is as follows:
 As the arms, *B*, *B'*, and ring, *B²*, rotate in con-
 20 formity with the needle cylinder, the disk, *G*,
 normally travels on the track, *a*, and is fric-
 tionally revolved by contact therewith. The
 rotation of the disk drives the train of gears,
G', *F*, *F'*, *H*, just referred to, actuating the
 25 pawl, *I*, and by means of it the ratchet, *J*,
 which is secured to the journal, *c*, of the main
 roller *C*. As said take-up roller is thus ro-
 tated, it tends to climb up the face of the
 fabric, *W*, producing a downward tension
 30 thereon, not only by the weight of the rollers,
 but by the downward pressure of the springs,
k and *k'*. To the extent that this upward
 movement of the rollers occurs, the frictional
 contact between the disk, *G*, and the track, *a*,
 35 is lessened, and the rotation of the disk and
 consequent action of the take up roller tends
 to cease. So soon, however, as the increment
 of the fabric, *W*, has permitted the rollers to
 descend, frictional contact between the disk
 and the track is resumed and actuation of the

rollers recommences, with the same effect as before.

Having thus described my invention, I claim—

1. The combination with the knitting mech- 40
 anism and the rotating frame beneath the
 same, of a pair of take-up rollers carried by
 said frame but freely mounted therein to per-
 mit vertical movement; a friction disk oper- 45
 atively connected with one of said rollers, sub-
 stantially as set forth; and a track located
 with reference to the path of travel of said
 friction disk, substantially as set forth, where-
 by engagement of the friction disk with said
 track and actuation of the take-up roller are 50
 effected in conformity with the descent of the
 fabric.

2. The combination with the knitting mech-
 anism and the rotating frame beneath the
 same, of a pair of take-up rollers freely sup- 55
 ported in vertical slots within said frame;
 pivoted bars mounted upon said frame and
 affording bearings for said rollers; a friction
 disk mounted upon one of said bars; interme-
 diate gearing comprising a pawl and ratchet 60
 member, substantially as set forth, opera-
 tively connecting said friction disk with the
 shaft of one of said take-up rollers; and a
 track arranged with relation to the path of
 travel of said friction disk, substantially as 65
 set forth.

LEWIS JONES, JR.

Witnesses:

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 JAMES H. BELL.