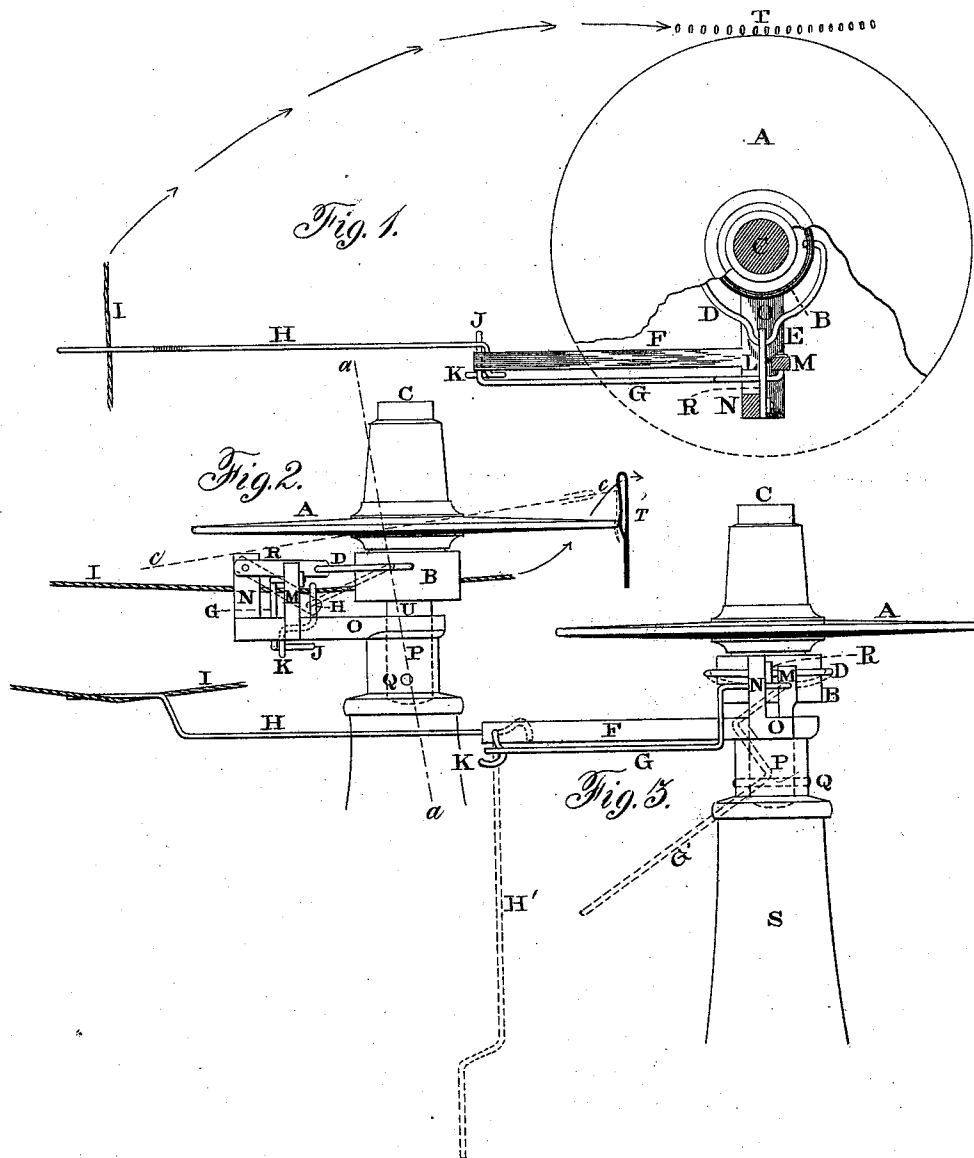


G. W. CUMMINGS.
 ROTARY KNITTING-MACHINE.

No. 177,695.

Patented May 23, 1876.



Witnesses,
 M. B. Scott
 Chas. J. Phillips.

Inventor,
 George W. Cummings,
 by Franklin Scott,
 his Attorney.

UNITED STATES PATENT OFFICE.

GEORGE W. CUMMINGS, OF BENNINGTON, VERMONT.

IMPROVEMENT IN ROTARY KNITTING-MACHINES.

Specification forming part of Letters Patent No. **177,695**, dated May 2, 1876; application filed December 15, 1875.

To all whom it may concern:

Be it known that I, GEORGE W. CUMMINGS, of Bennington, in the county of Bennington and State of Vermont, have invented an Improvement in Rotary Knitting-Machines, whereby the presser-wheel may be thrown out of action, whenever the feed-thread breaks or runs out, without stopping the machine, of which the following is a specification:

This invention is adapted to be applied to the ordinary cylinder knitting-machines, and has for its objects, first, the prevention of the detachment of the knit fabric from the needles by the landing-wheel of the class of machines to which it is applicable; and, secondly, the accomplishment of the aforesaid result without stopping the machine, or interfering with the progress of the knitting, when applied to machines having more than one feed.

The elements of the invention consist in attaching the presser-wheel to a short stud, which has its lower extremity pivoted in the upper portion of a stationary socket, radially adjustable, in connection with a drop-wire and such other mechanical attachments as will secure the recession of the presser-wheel from the spring-barbs of the needles whenever the continuity of the thread or yarn, which is essential to support the drop-wire, and upon which support in proper position the performance of the functions of the presser-wheel depends, shall be broken or cease altogether.

Reference is had to the accompanying drawing, which forms a part of this specification, in which—

Figure 1 shows a plan view of my invention; Fig. 2, a view in elevation, as seen from the right of Fig. 1, looking toward the left, and Fig. 3 a front elevation of Fig. 1.

In place of the ordinary stand, having a socket arranged radially with reference to the axis of the needle-cylinder, for receiving the shank or stem of the arbor of the presser-wheel and the helical spring which keeps the presser-wheel to its work, I have substituted a shorter stand, S, provided at its upper end with a socket, P. From the upper edge of this socket P projects radially the arm O, which is provided with the lateral arm F, to the extremity of which is attached the drop-wire H. Upon the upper surface of the piece

O are erected two studs, M and N. To the stud M the supporting-wire G is pivoted, and to the stud N one end of the lever R is pivoted. This lever R, in connection with the bail-lever D—the forked end of which is pivoted to the collar B of the arbor C—forms a toggle or compound lever, the action of which is regulated by the drop-wire and supporting-wire aforesaid. The part B forms a shoulder, on which rests the lower end of the hub of the presser-wheel A, and also a collar to which the bail-lever D can be attached. C is the arbor upon which the presser revolves, and oscillates upon the pin Q, by means of which it is attached to the socket P. The outer extremity of the supporting-wire G has a bent projection, J, and the drop-wire H is provided, at its pivot end, with a hook, K, which hook operates, in conjunction with the aforesaid projection J, as a lock to hold in position the several parts when the knitting is progressing properly.

The projections shown in full lines are of the several parts when properly at work. The broken or dotted lines indicate the positions assumed by the several co-operative parts when thrown out of operation by interruption in the continuity of the feed-thread.

The operation of the invention is as follows: Elevate the supporting-wire G from the position indicated at G' to its normal position at G. This brings the upper edge thereof, near its pivotal point, to bear on the under side of the lever R, thus bringing this lever and its co-ordinate D into such a position that the periphery of the wheel A is brought to bear on the barbs of the needles, pressing the points into the slots thereof, as seen at T, Fig. 2, so as to allow the stitches which have previously been shoved down onto the shanks of the needles by the press-plate, prior to the introduction of a new feed-thread, to recede by the retractile force of the knit fabric above, upward, over, and outside of the points of the needles, preparatory to being thrown off entirely by the cast-off wheel. The drop-wire H being then brought into position, as seen in Figs. 1 and 3, the projection J of wire G is secured and locked by hook K of the drop-wire H. The drop-wire is held in this position by passing the thread I through the outer aperture of the thread-guide of the feed-stand, under the

outer extremity of the drop-wire I, as seen in Figs. 2 and 3, to the loop-wheel, the ordinary tension of the yarn, in process of feeding in, being ordinarily sufficient to maintain the drop-wire in position. When the thread breaks or runs out the drop-wire falls, thus releasing the projection J of the supporting-wire G, which also falls, thereby removing all support from beneath the levers D R, which consequently drop, carrying with them the wheel A from its working position to that indicated by the dotted line *c c*, Fig. 2, and all pressure being removed from the barbs of the needles at this point, they spring out to the dotted position shown at T, Fig. 2, and when the landing-wheel comes to act on the depressed stitch it throws it up under the barb, instead of outside and over it, as when in process of knitting, thus leaving the fabric properly attached to the needles, ready to proceed to and receive the next feed.

I therefore claim as new and desire to secure by Letters Patent—

1. The standard S, having socket P, in combination with the wheel A and arbor C, pivoted at Q, and mechanism, substantially as described, whereby, upon the breaking or running out of the yarn, the wheel A is caused to recede from the needles, as and for the purposes set forth.

2. The combination of the presser-wheel A, pivoted arbor C, socket P, toggle R D, supporting-wire G, and drop-wire H, as and for the purposes described.

In testimony whereof I have hereto set my hand at Bennington, Vermont, this 15th day of November, 1875.

GEORGE W. CUMMINGS.

Witnesses:

C. WATSON DUNHAM,

J. W. WILLIAMS.