2 Sheets--Sheet 1.

F. BURNS.

Knitting-Machine and Knit Fabrics.

No. 167,301. Patented Aug. 31, 1875.

Fig 1

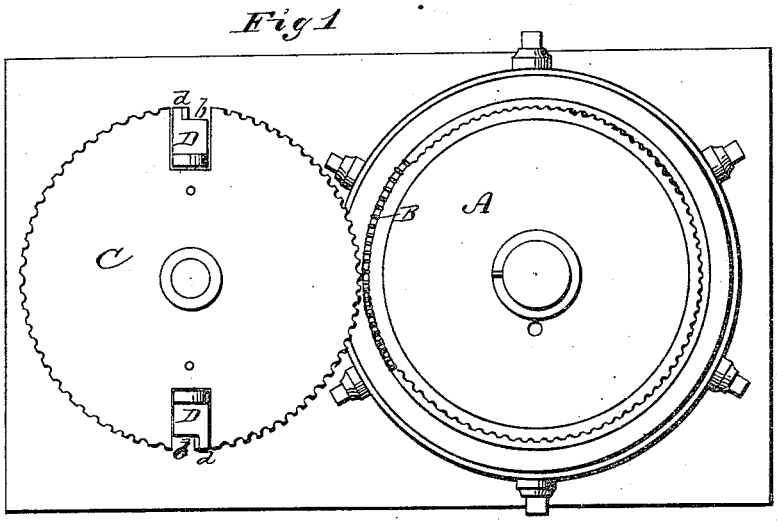
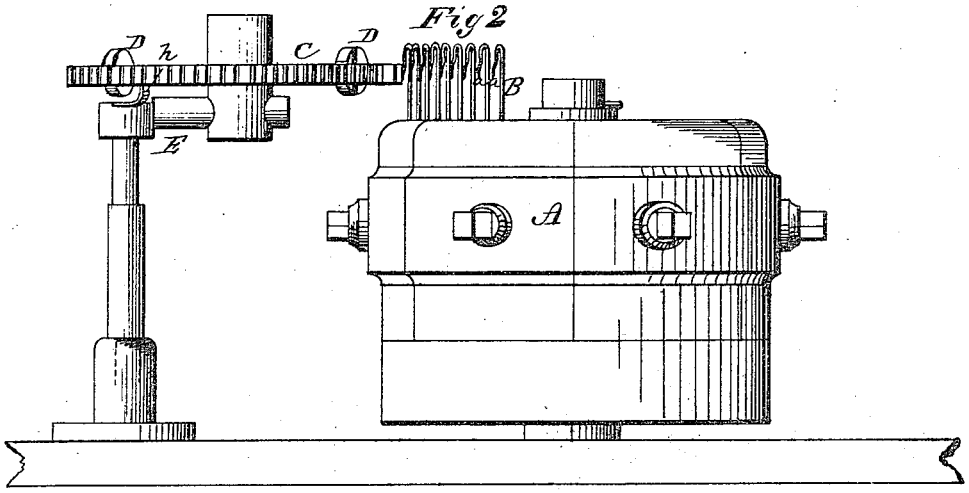


Fig 2



WITNESSES

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2 Sheets--Sheet 2.

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Fig 3

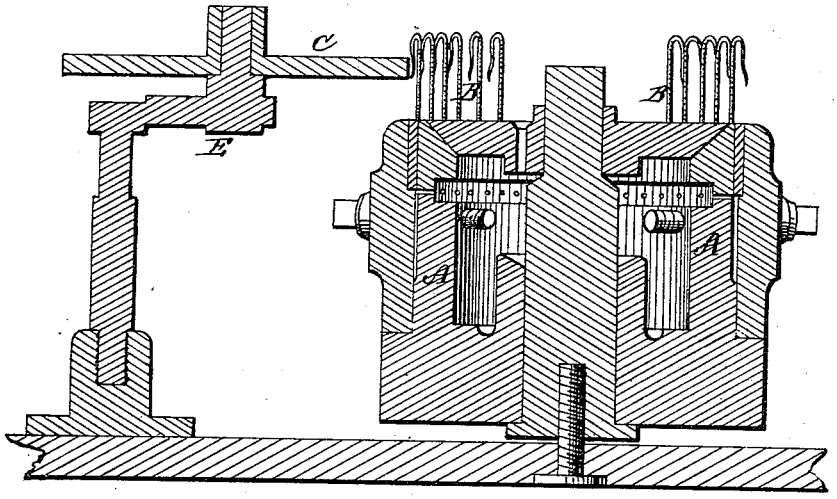


Fig 4

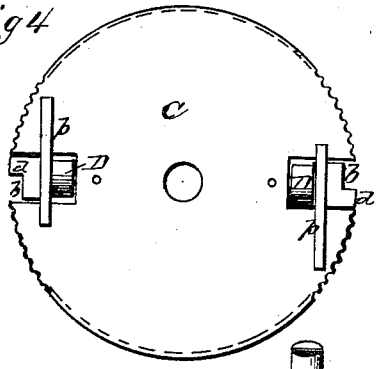


Fig 5

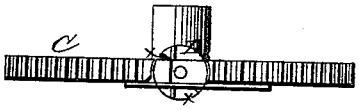


Fig 6

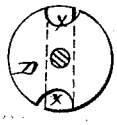
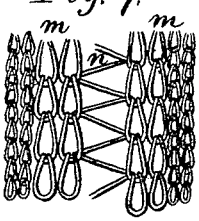
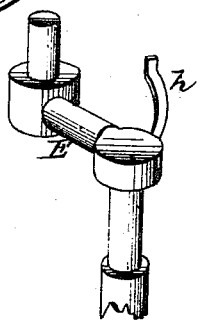


Fig. 7.





WITNESSES

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UNITED STATES PATENT OFFICE.

FRANK BURNS, OF WALTHAM, MASSACHUSETTS.

IMPROVEMENT IN KNITTING-MACHINES AND KNIT FABRICS.

Specification forming part of Letters Patent No. **167,301**, dated August 31, 1875; application filed June 18, 1875.

To all whom it may concern:

Be it known that I, FRANK BURNS, of Waltham, in the county of Middlesex and in the State of Massachusetts, have invented certain new and useful Improvements in Knitting-Machines; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

My invention relates to that class of knitting-machines in which a revolving head carrying the needles is used, in combination with a revolving pressure-wheel; and it consists in two or more intermittingly-revolving rollers arranged in the revolving pressure-wheel, in order to make a peculiar stitch or seam, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a plan view, and Fig. 2 a side elevation, of a knitting-machine embodying my invention. Fig. 3 is a vertical section of the machine. Figs. 4, 5, and 6 are detached views of the improved parts of the machine. Fig. 7 represents the seam or stitch made by the machine.

A represents the revolving head carrying the knitting-needles B B; and C is the revolving pressure-wheel turning on a stud projecting from an arm, E, attached to a stationary stand. In knitting-machines of this class the needles are arranged in a circle all around the head. Attached to the head is a cog-wheel, which turns it from a main shaft underneath. The head is provided with the usual looping, sinking, landing, and knocking-over wheels. Each one has a certain portion of work to do until the needles get to the presser. By the time each needle gets to the presser C there are two stitches on the needle, one under the hook or beard *a*, and the other at the bottom of the needle. The presser works closely against the hooks or beards *a*, pressing their points into small grooves in the needles, allowing the under stitch to be passed over the hook or beard and the top stitch, thus forming a loop. All machines of this class carrying this kind of needles must have a presser, as the work would not pass over the hooks or beards without it. Heretofore a plain wheel has generally been used, which presses every needle alike, thus making plain work all the way around. I arrange two or more intermittingly-revolving rollers, D, in the presser C, in order to form the stitch or seam, as shown in Fig. 7. These rollers are constructed as shown substantially in Figs. 4, 5, and 6, having at their inner ends two notches, *x x*, on opposite sides, and the outer end of the roller is cut out, forming a recess, *b*, and a tongue, *d*, the outer surface of said tongue being flush with the outer periphery of the wheel.

On the arm E is a spring-catch, *h*, which is to enter the notches *x* on the inner ends of the rollers D, and turn them one-half of a revolution. Each roller in the presser, as it changes from one side to the other, crosses over a space of five needles, the center needle of these five being left out to form the seam. The tongue *d* of the roller presses against the two needles on one side of the space left by the removal of the center needle; and at the next revolution of the presser, the roller having in the meantime been turned one-half around, the tongue presses on the two needles on the other side of the center space. Thus the two needles on each side of said center space are only pressed at every other revolution, which makes a stitch of double the ordinary length, forming the rib *m*, which runs up on each side of the seam *n*, as shown in Fig. 7.

As many of these seams with parallel ribs as are desired may be had by using two or more rollers D.

Each roller is held in position after being turned by means of a spring, *p*.

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

1. In combination with a rotary knitting-machine, a rotating pressure-wheel, provided with one or more rollers, D, adapted to rotate intermittingly, and press alternately upon

two needles on each side of the space left by the removal of one needle, substantially as and for the purposes herein set forth.

2. The rotary presser-wheel C, provided with the roller D, constructed as described, with notches *x x*, recess *b*, and tongue *d*, in combination with the hook *h* and spring *p*, substantially as and for the purposes herein set forth.

3. A knitted fabric, having one or more seams, *n*, and a rib, *m*, of long loops on each side of each seam, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 3d day of May, 1875.

FRANK BURNS. [L. S.]

Witnesses:

J. J. SULLIVAN,

MICHEAL MOFFATT.