

(No Model.)

W. T. BARRATT.
STITCH FORMER FOR KNITTING MACHINES.

No. 577,610.

Patented Feb. 23, 1897.

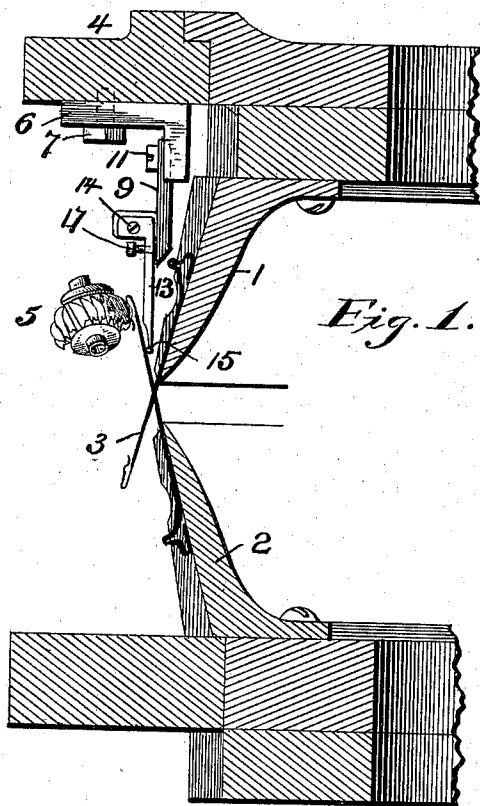


Fig. 1.

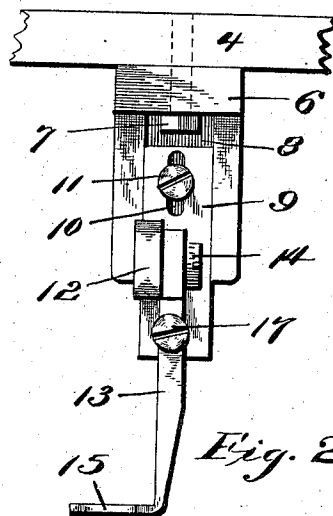


Fig. 2.

Fig. 3.

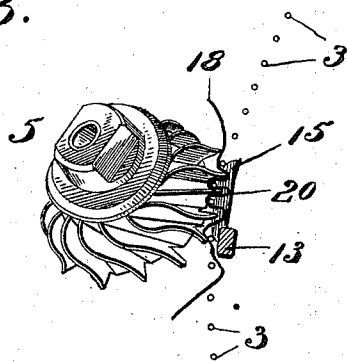
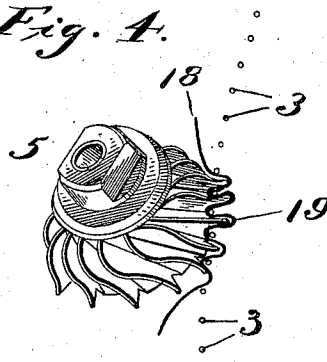


Fig. 4.



Witnesses:

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Fig. 5.



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By

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UNITED STATES PATENT OFFICE.

WILLIAM T. BARRATT, OF BENNINGTON, VERMONT, ASSIGNOR TO CHARLES COOPER, OF SAME PLACE.

STITCH-FORMER FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 577,610, dated February 23, 1897.

Application filed November 9, 1896. Serial No. 611,496. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM T. BARRATT, a citizen of the United States, residing at Bennington, in the county of Bennington and State of Vermont, have invented certain new and useful Improvements in Stitch-Formers for Knitting-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to the stitch-forming mechanism of knitting-machines, and is applied particularly to that class in which there are upper and lower needle-cylinders employed which have uniform rotation.

The object of my invention is to relieve the yarn of undue strain where it is formed into loops by the blades of the stitch-wheel and the needles of the lower cylinder to make stitches of desired length, and in my mechanism for accomplishing this I employ a cam supported in the path of travel of the lower-cylinder needles, which forces the needles in regular succession a short distance outwardly from their normal line of travel between the blades of the stitch-forming wheel, with the effect that a less number of needles will be between the blades of the stitch-wheel, and the yarn will consequently be in engagement with a less number of blades and needles than is the case where my device is not used, and therefore will be subjected to less strain; and to this end my invention consists in the construction hereinafter described, and more particularly pointed out in the claims.

Referring to the drawings, Figure 1 is an elevation, partly in section, of a portion of a knitting-machine embodying my invention. Fig. 2 is a front view of the cam, on enlarged scale, showing the manner in which it is supported and the means for its adjustment. Fig. 3 is a plan view showing the relative position of the needles and the blades of the stitch-forming wheel when my invention is applied. Fig. 4 is a similar view of the needles and blades when my invention is not used, and Fig. 5 is a top view of the cam.

Similar reference-numerals indicate corresponding parts in each figure of the drawings.

1 represents the upper cylinder, and 2 the lower one. The needles are indicated by 3, and 4 is the ring in which the upper cylinder is supported.

5 indicates the stitch-forming wheel in front of the needles, which is properly supported in position on the frame of the machine in order that the needles of the lower cylinder, as the two cylinders revolve, will successively engage the blades of the wheel.

6 represents a bracket secured to the ring 4 by the screw 7. The vertical arm of the bracket is recessed in its front face, as indicated at 8, and in this recess the plate 9 is fitted to have vertical adjustment. The plate 9 is provided with an elongated opening 10, through which a set-screw 11 passes into the bracket 6 to hold the plate 9 in the desired adjusted position. From the front face of the plate 9, below the opening, a lug 12 projects, and to this lug the upper end of an arm 13 is pivoted on a pin 14. The lower end of the arm 13 carries the cam 15, which may be integral with the arm or secured to it in any suitable manner.

17 is a set-screw working through the arm 13 below its pivotal connection to the lug 12 and engaging the face of the plate 9.

It will be observed by reference to Figs. 1 and 3 that the cam 15 is supported to engage the upper portions of the lower-cylinder needles and force them a short distance outwardly from their normal line of travel. It will also be observed that by turning the set-screw 17 the extent of this outward movement will be increased or diminished, as desired.

Referring now to Fig. 4, it will be observed that in order to get the proper length of stitch in the yarn 18 it will be necessary for the blades of the stitch-wheel to project inwardly between the needles a considerable depth, and in order to do this the stitch-wheel must be set up close to the needles, with the result that from four to six blades of the wheel will be between the needles to a greater or less depth at the same time, and that consequently the yarn will be drawn

over two or three blades and as many needles before the stitch is formed of the proper length, as shown at 19. This necessarily subjects the yarn to great strain and frequently
5 causes the needles to spring out of position and make uneven stitches, or the yarn will break or the blades of the stitch-wheel will overreach and get under the barbs of the needles and cause what is known as a "smash-
10 up," when usually quite a large number of needles are broken. By the use of my invention, however, these difficulties are avoided, for as the needles in their travel reach the cam they will be forced outwardly in between
15 the blades of the stitch-wheel, as shown in Fig. 3, with the result that a stitch of sufficient length will be formed, as indicated at 20, after passing over one blade of the stitch-wheel and one needle. The stitch-wheel can
20 therefore be set farther away from the needles, and consequently as many blades will not be between the needles at one time, and the strain on the yarn will be correspondingly reduced.
25 By simply turning the screw 17 the cam 15 can be adjusted to force the needles outwardly to a greater or less extent, and the length of stitch can thereby be varied as may be desired for different fabrics.
30 It will also be observed that the cam 15 forms a support for the needles against the

strain exerted on them by the yarn and they cannot be sprung out of position by the strain, thereby insuring uniformity in the stitches, and consequently greater elasticity of the
35 fabric.

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

1. In a knitting-machine having revoluble
40 needle-cylinders the combination with the stitch-wheel, and the needles of one of the cylinders, of a cam supported in the path of the travel of said needles to force them successively between the blades of the stitch-
45 wheel, substantially as and for the purpose set forth.

2. In a knitting-machine having revoluble needle-cylinders, the combination with the
50 stitch-wheel and the needles of one of the cylinders, of a cam supported in the path of the travel of said needles to force them successively between the blades of the stitch-wheel, and devices to adjust the cam vertically and laterally relative to said needles,
55 substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM T. BARRATT.

Witnesses:

WM. L. LONG,

CHARLES S. KEHOE.