J. H. MUSGROVE.

KNITTING-MACHINE.

No. 185,345. Patented Dec. 12, 1876.

Fig. 2

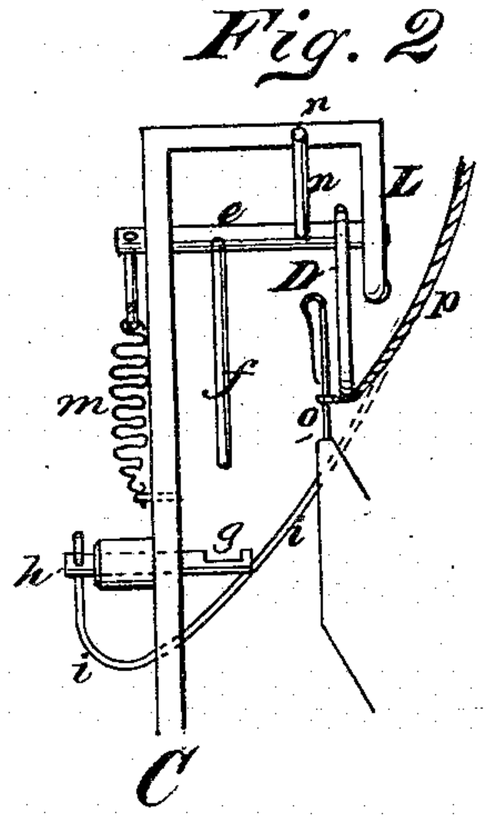
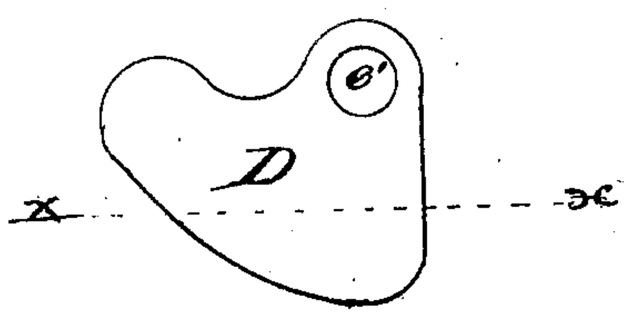


Fig. 1

Fig. 3



Witnesses:

J. McLatchie

C. C. Dimmy

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UNITED STATES PATENT OFFICE.

JOHN H. MUSGROVE, OF STILLWATER, ASSIGNOR OF PART OF HIS RIGHT TO JOHN CLUTE AND GEORGE CAMPBELL, OF COHOES, NEW YORK.

IMPROVEMENT IN KNITTING-MACHINES.

Specification forming part of Letters Patent No. **185,345**, dated December 12, 1876; application filed April 3, 1876.

To all whom it may concern:

Be it known that I, JOHN H. MUSGROVE, of Stillwater, in the county of Saratoga and State of New York, have invented a "Quarter-Saver" for Rotary Knitting-Machines, of which the following is a specification:

The object of my invention is to prevent the disengagement of the knit web from the needles when the yarn is broken, by having the yarn pass over and in contact with two projections, midway between which, and resting upon the paying-in yarn, is a wire of a suitable gage, which is pivoted at its opposite end to a catch or pawl, which engages or holds an arm secured to a rocking shaft, to one end of which is secured a cam, which operates vertically immediately within the revolving needles. A delicate spring facilitates the downward action of the cam, while a shield extends farther inward beyond said cam, the lower edge of which is in a nearly horizontal line with the upper extremity of the needles. Said shield is applied for the purpose of preventing frictional contact of the revolving web with the cam when the yarn continues unbroken. When the yarn breaks, the feeler-wire is let fall by the yarn, the catch is disengaged from the arm connected with the cam-shaft, permitting the cam to roll down on the web, carrying the same below the beards of the needles, which operation, of course, does not knit, but retains the old or previously-formed stitches in contact with the needles.

My device may be applied to any well-known rotary knitting-machine, and is to be located between the "landing" and "cast-off" burrs, and is intended to obviate the tedious and laborious operation of reapplying or readjusting the web to the needles, as has been usually necessary heretofore. It is simply and easily accomplished by the use of my device. The mere tension of the yarn, of course, sustains the pivoted wire or yarn-feeler, while the yarn remains unbroken.

To enable others skilled in the art to fully understand and construct the same, I will proceed to describe it as follows:

Similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of a portion of a rotary knitting-frame, showing the position of my invention as applied thereto. Fig. 2 is a lateral elevation of my invention; and Fig. 3 is a side elevation of the loop-depressing cam used in my invention.

The arrows indicate the direction of motion of the several parts of the machine.

A, Fig. 1, exhibits the needle-cylinder; B, the depresser-wheel for closing the needle-beards. C represents a standard, which supports my device. Said standard may be attached or secured to any convenient portion of the knitting-machine, in order to have the working parts of my device located between the landing and cast-off burrs. The said standard should be so constructed as to admit of vertical and lateral adjustment. A cam, D, Fig. 3, is secured to a horizontal shaft, *e*. Said shaft is fitted to turn or oscillate in suitable bearings affixed to the standard-frame. The shaft *e* is securely driven through the hole *e'* in the cam D. An arm, *f*, is also secured to the shaft *e*, which engages with a catch, *g*, affixed or made a part of the oscillating shaft *h*. A long wire, *i*, of suitable thickness, is secured to the shaft of the catch *g*, and extends forward of, and in close proximity to, the sinker-burr, which receives the yarn from the bobbins, this end of the wire being supported in a nearly horizontal position by means of the tension of the yarn, which passes over two projections at a proper distance from each other, the wire being supported by the yarn-tension. The position of the wire is shown by dotted lines, when the same is supported by the yarn, as will be seen by reference to Fig. 1. *k* represents the yarn drawn from the bobbin. The dotted line *x x*, Fig. 3, shows the position of the upper portion of the needles with relation to the cam D when the latter is depressed. When the arm *f* is engaged with the catch *g* the cam D is, of course, turned upward above the line *x x*, Fig. 3, and then the cam D is above the upper portion of the needles. The shield L is provided to prevent the web or knit cloth from coming in contact with the cam D. A delicate spiral spring, *m*, is connected to a lateral arm secured to the shaft *e*, the other end of the spring *m* being attached to some portion

of the standard-frame C, as shown in Figs. 1 and 2. The spring *m* is applied simply to keep the arm *f* in contact with the catch *g*. An arm, *n*, is also applied to the shaft *e*, which is designed to stop the cam at the proper point in its downward pressure upon the web. When the yarn *k* is broken, the wire *i* is let fall, the catch *g* is disengaged from the arm *f*, the spring *m* partially actuates the rocking movement of the cam D, while the frictional contact of the web with the cam accelerates its rocking motion and downward pressure upon the stitches, thereby retaining the previously-formed stitches on the needles, and preventing the web from being cast off altogether, as would be the result were my invention not applied to the knitting-machine. *o* represents the needles, and *p* the web or knit cloth. All the various parts of my invention should be so constructed as to admit of the requisite adjustment. The wire *i* can be bent to conform to any required position it is to occupy, and may be cut to the required length, in order to extend forward to the yarn-guide, which, of course, is located in front of the sinker-burr. The two projections which support the yarn, as before referred to, may be attached to said yarn-guide.

It will be readily observed that the tension of the yarn, when unbroken, between the bobbin and needles, sustains the end of the wire *i*, as above described.

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

The combination, with a drop-wire, *i*, of the shaft *h*, notched as shown at *g*, arm *f*, cam D, shaft *e*, and spring *m*, operating as set forth.

JOHN H. MUSGROVE.

Witnesses:

J. W. LATCHER,

C. C. WINNEY.