

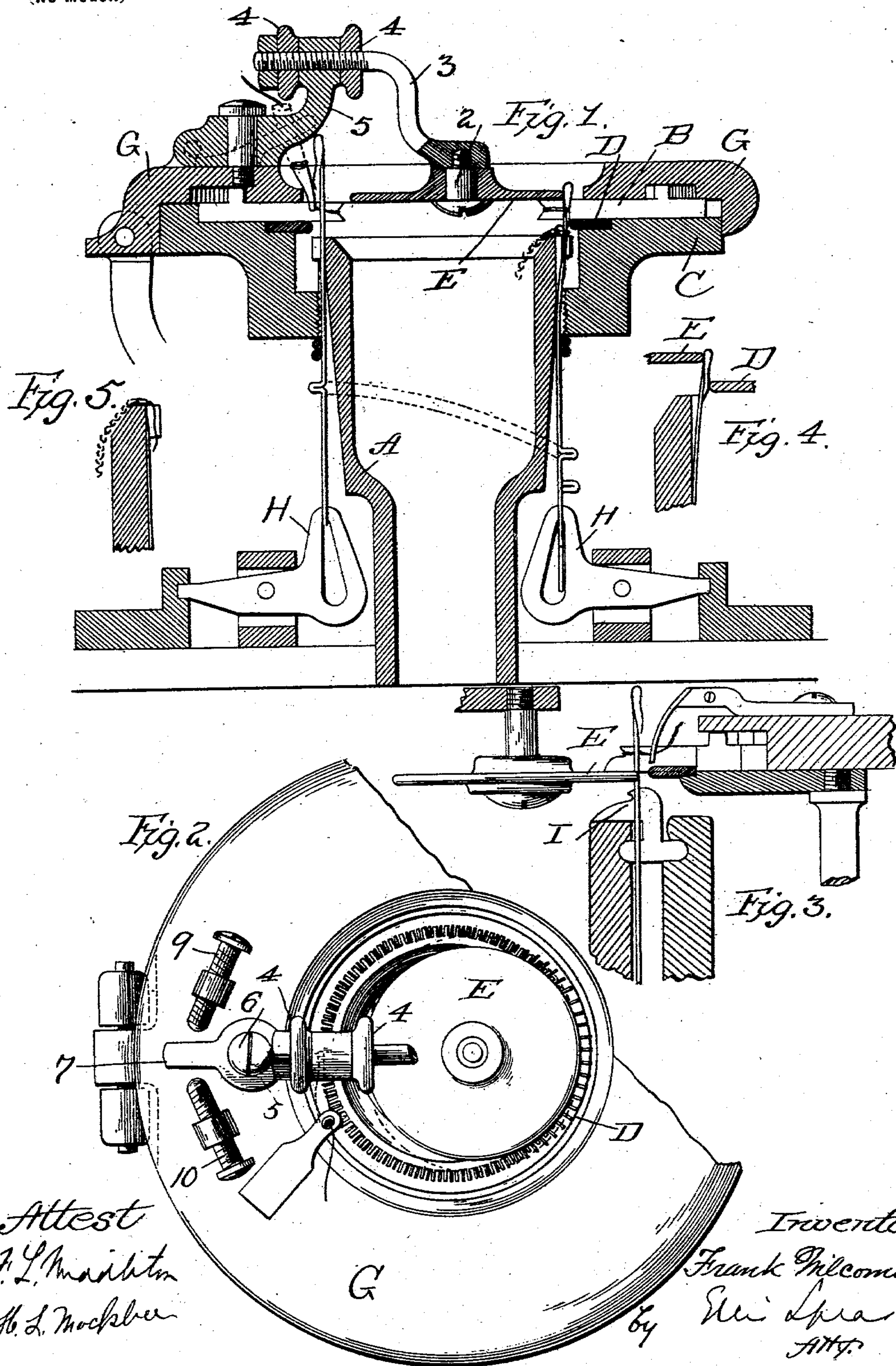
No. 629,116.

Patented July 18, 1899.

F. WILCOMB.
CIRCULAR KNITTING MACHINE.

(Application filed Aug. 30, 1898.)

(No Model.)



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UNITED STATES PATENT OFFICE.

FRANK WILCOMB, OF PAWTUCKET, RHODE ISLAND.

CIRCULAR-KNITTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 629,116, dated July 18, 1899.

Application filed August 30, 1898. Serial No. 689,848. (No model.)

To all whom it may concern:

Be it known that I, FRANK WILCOMB, a citizen of the United States, residing at Pawtucket, Rhode Island, have invented certain new and useful Improvements in Circular-Knitting Machines, of which the following is a specification.

My invention relates to knitting-machines of the circular spring-needle type having independently-operated needles; and the object of my invention is to provide an improved arrangement of presser means in connection therewith, said means consisting of a presser-ring arranged outside of the needle-circle and a presser wheel or plate arranged inside of the needle-circle to press the needle out of its normal position and against the presser-ring as the needle is being retracted to cast off the old loop and draw the new loop through it. I have also provided means of adjusting and swiveling the presser wheel or plate to press harder upon the needles or to allow the device to adjust itself laterally, as may be necessary.

In the drawings, Figure 1 is a central vertical section of the machine; Fig. 2, a plan view, and Fig. 3 a view of a modification in which web-holders are shown. Figs. 4 and 5 represent the different positions of the needles.

In the drawings, A is the cylinder, and B the sinkers, held in a bed C, which, together with the cylinder, is stationary in the present instance. The presser-ring D is supported by the stationary sinker-bed outside of the circle of needles and below the sinkers. Inside of the needle-circle a presser-wheel E is arranged, (though I do not limit myself to this wheel form of pressing device,) which is supported to rotate about its journal-pin 2, carried by the arm 3, adjustably held at its threaded end by nuts 4 in a bracket 5, pivoted to turn horizontally on a pin 6 and having a tailpiece 7 in the range of adjustable stop-screws 9 10, so that the lateral swing of the presser and its support can be regulated. These parts are carried by the sinker cam-ring G to revolve therewith. In action when the point of the beard of the needle is retracted below the plane of the presser-ring the presser wheel or plate, as the case may be, engages the stem of the needle and forces

it out from its normal vertical plane, and thus causes the beard to be depressed by coming in contact with the outer presser-ring. This pressure is directly in the radial plane in which the needle with its beard stands, and there is no pressure of the beard laterally of the needle and no tendency to force the beard to one side of the needle.

Formerly in circular machines where independently-operated spring-needles were used the presser-plate has been arranged to press the beards of the needles by sliding laterally across the said beards. This form is objectionable on account of the wear on the delicate beard of the needle and the tendency to force the beards sidewise and to break them. By the use of the stationary ring arranged outside of the needle-circle and a presser wheel or plate traveling against the stem of the needle and forcing the beard against the stationary plate as the needle is being retracted there is no side pressure on the beard.

The presser-wheel of my machine is made adjustable to get more or less pressure by means of its bracket and thumb-nuts, and it is also pivoted so as to allow it to swing automatically on its pivotal point as the machine is being reciprocated when knitting on half of the needles, as would be the case when making the heel and toe of a so-called "seamless" stocking. This swinging movement will vary in extent according to the form of knitting-cams used in the cam-ring. It might be used in connection with knitting-cams where no swiveling motion would be necessary, in which case the adjusting devices might be dispensed with.

I have shown the invention in connection with a stationary cylinder, sinker-ring, and presser-ring, and a traveling presser wheel or plate inside the cylinder, it being understood, however, that a rotary cylinder, sinker-bed, and presser-ring, and a non-rotating support for the presser wheel or plate may be used.

Instead of a rotating wheel, which I consider the best form, I may use a plate or non-rotating device.

In the drawings I have shown a well-known form of machine in which there are devices (shown at H) for making some of the needles inoperative in a retracted position, with the nose of the needle below the sinker, so that

in knitting with a portion of the needles in active operation and others inoperative the thread being fed by the sinkers will pass over the tops of the inoperative needles. I have also shown in Fig. 3 my new pressing devices in connection with web-holders I, and I desire to be understood that the new pressing devices are applicable to any of the well-known forms of circular-knitting machines having independent needles of the spring-needle type with or without web-holders or means for making the needles inoperative.

I claim—

1. In combination, in a circular-knitting machine having independently-operated spring-needles, a presser-ring outside of the needle-circle and a pressing device inside of the needle-circle to press the beard outwardly against the ring, said needle-circle and presser-ring having no movement relative to each other in a circumferential direction, substantially as described.

2. In combination in a circular-knitting machine having independently-operated spring-needles, a presser-ring outside of the needle-circle and a rotating presser-wheel inside of the needle-circle to press the beards outwardly against the ring, said needle-circle and presser-ring having no movement relative to each other in a circumferential direction, substantially as described.

3. In combination in a circular-knitting machine having independently-operated spring-needles, a presser-ring outside of the needle-circle, an inner presser device to press the beards against the presser-ring, the sinkers with operating means and the web-holder, said needle-circle and presser-ring having no movement relative to each other in a circumferential direction, substantially as described.

4. In combination in a circular-knitting machine having independently-operated spring-needles, the presser-ring outside of the needle-circle, the presser device inside of the needle-circle to press the needles outwardly and

means for making the needles inoperative, said needle-circle and presser-ring having no movement relative to each other in a circumferential direction, substantially as described.

5. In combination in a circular-knitting machine having independently-operated needles, the presser-ring outside the needle-circle, the presser device inside of the said circle and means for adjusting the device toward and from the needle-circle, said needle-circle and presser-ring having no movement relative to each other in a circumferential direction, substantially as described.

6. In combination in a circular-knitting machine having independently-operated needles, the presser-ring outside the needle-circle, the presser device inside of the said circle and means for allowing adjustment of the presser device to either side of the centerline of the needle-cams, said needle-circle and presser-ring having no movement relative to each other in a circumferential direction, substantially as described.

7. In combination in a circular-knitting machine having independently-operated needles, the presser-ring outside the needle-circle, and the presser device inside of said circle pivotally supported to swing automatically to either side of the center line of the needle-cams, substantially as described.

8. In combination, in a circular-knitting machine having independently-operated spring-needles, a presser-ring extending completely around the needle-circle and at a slight distance outside the vertical plane of the needle-beards, and a pressing device inside of the needle-circle to press the needles in succession outwardly against the ring, substantially as described.

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

FRANK WILCOMB.

Witnesses:

HENRY E. COOPER,
L. B. MIDDLETON.