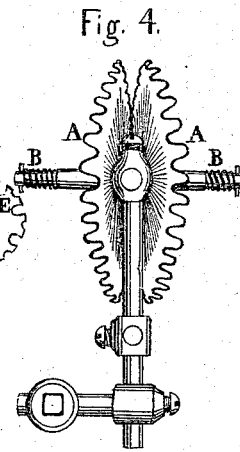
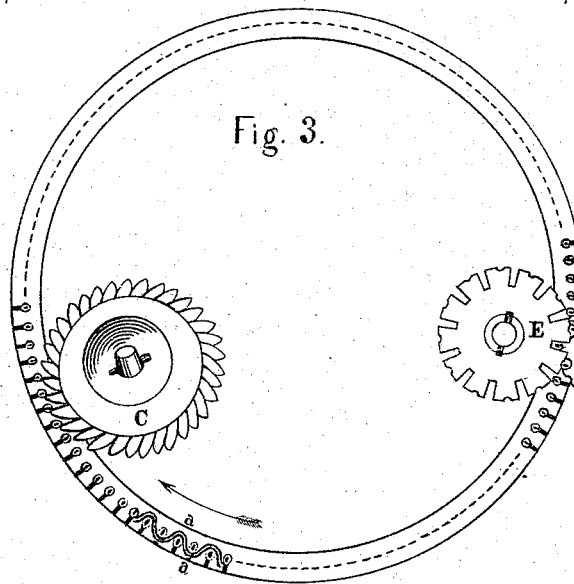
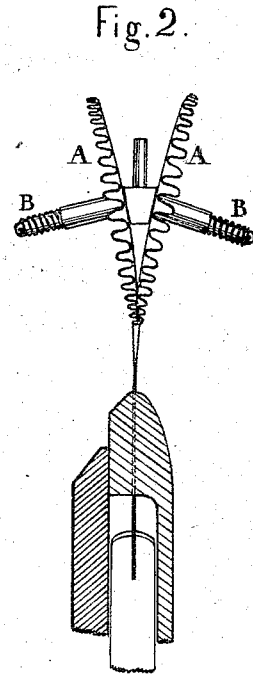
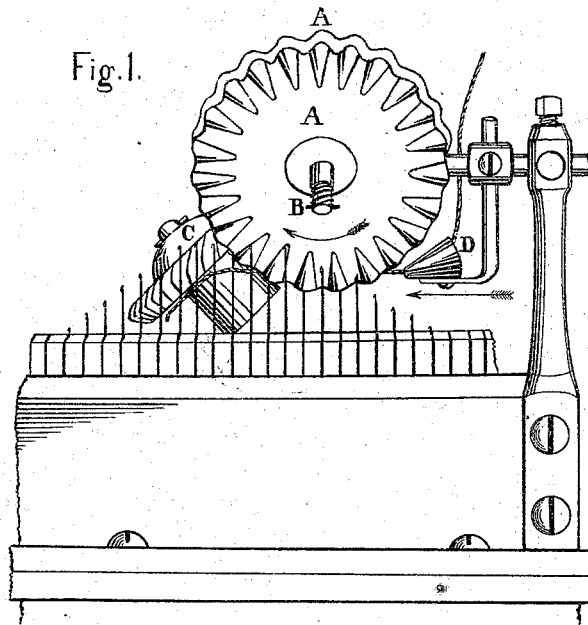


C. L. SPENCER.  
 Weft-Thread Knitting-Machine.

No. 160,478.

Patented March 2, 1875.



WITNESSES,

*Thomas F. Cosgrove*  
*John D. Thurston*

INVENTOR,

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# UNITED STATES PATENT OFFICE.

CHARLES L. SPENCER, OF PROVIDENCE, RHODE ISLAND.

## IMPROVEMENT IN WEFT-THREAD KNITTING-MACHINES.

Specification forming part of Letters Patent No. 160,478, dated March 2, 1875; application filed June 24, 1874.

*To all whom it may concern:*

Be it known that I, CHARLES L. SPENCER, of the city and county of Providence, in the State of Rhode Island, have invented certain new and useful Improvements in Weft-Thread Knitting-Machines, of which the following is a full, clear, and exact description, which will enable others skilled in the art to make and use my invention, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 represents a front or side elevation of a portion of the upper part of one machine-head with my improvement attached; and Fig. 2 represents my improvement as an end view, showing the dividing of the needles. Fig. 3 represents the top or plan view of the revolving cylinder, having two corrugated lines, to show more fully the needles to be divided as they enter the corrugations on either side of the wheels. Fig. 4 represents the corrugated wheels from the top as a plan view, showing their adjustable connection.

My invention consists, first, in mechanism, as hereinafter described, for separating or dividing the needles of a knitting-machine for the insertion of a weft or filling, and for crimping the thread or filling-yarn before it reaches the needles, whereby the weft-yarn is introduced without undue strain, as hereinafter more fully described.

In the accompanying drawings, A A, Fig. 2, represent two thin dividing-wheels, made corrugated at their edges, the corrugations or wrinkles being the same distance apart as the reciprocating needles of the machine to which said wheels are to be applied. These corrugations or wrinkles are formed on an angle, so that in connecting or combining the aforesaid wheels for use they may turn together, bringing the lower edges of their corrugated sides in close proximity to each other, while at the same time the upper edges are held apart. Said corrugations are made the proper depth at the edge or periphery of the wheels, so that the hooked end of every other advancing or rising needle, Fig. 1, may pass up into the inward corrugations or wrinkles of the outside dividing-wheel A, and the remaining alternate advancing or rising needles pass up into the outward corrugations or wrinkles of

the inside dividing-wheel A, as represented by the two corrugated lines *a a* in Fig. 3. As the ends of the needles slide up into or through the corrugations, Fig. 1, said needles are sprung apart, as represented in Fig. 2. At the same time they impart motion to the dividing-wheels A A, and in passing off from said wheels they resume their regular line with the weft or filling thread inserted. The two dividing-wheels A A are arranged to turn on the studs B B, which studs are set on an angle in reference to the angle of the corrugations of said wheels. By this arrangement the two dividing-wheels are made to turn together, the corrugations of one running into the corrugations of the other, similar to cog-wheels. The weft or filling thread is inserted through the trumpet-guide D, passing from its delivering end into the corrugations between the two dividing-wheels A A, preceding the lower advancing edges of said wheels, and is delivered between the reciprocating needles at the lower receding edges of the aforesaid wheels, as represented in Fig. 1, the corrugations being made the deepest at the edges or periphery of the dividing-wheels A A, and tapered off toward the center of said wheels. The weft or filling thread may be crimped as required by raising or lowering the trumpet-guide D, or carrying it to or from the center of said dividing-wheels A A.

The crimping of the filling-yarn before the needles take it is a very essential and important point in the manufacture of woolen goods, as the liability of straining or breaking said yarn from the needles returning into line is obviated thereby.

Similar corrugated wheels may be used for crimping the yarn as inserted, in combination with such devices as wheels E E. (Represented in Fig. 3.)

The filling-thread is passed down onto the old loops or forming stitches, in the ordinary way, by the use of the well-known device or presser-wheel C. (Shown in the drawing.)

I am aware that it is not new in the process of knitting fabrics to introduce a straight weft-yarn, which yarn is necessarily crimped under considerable tension by the return of the needles into line.

Having thus described my invention and its

use, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The corrugated wheels A A, for separating the needles of a knitting-machine and crimping the filling-yarn when inserted, substantially as herein described.

2. The combination of the wheels A A, trumpet-guide D, and the reciprocating needles of a knitting-machine, substantially as herein described, and for the purpose specified.

3. In combination with a weft-thread knitting-machine, mechanism, substantially as described, for crimping or corrugating the filling-yarn previous to its presentation to and between the needles, substantially as and for the purpose set forth.

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Witnesses:

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