

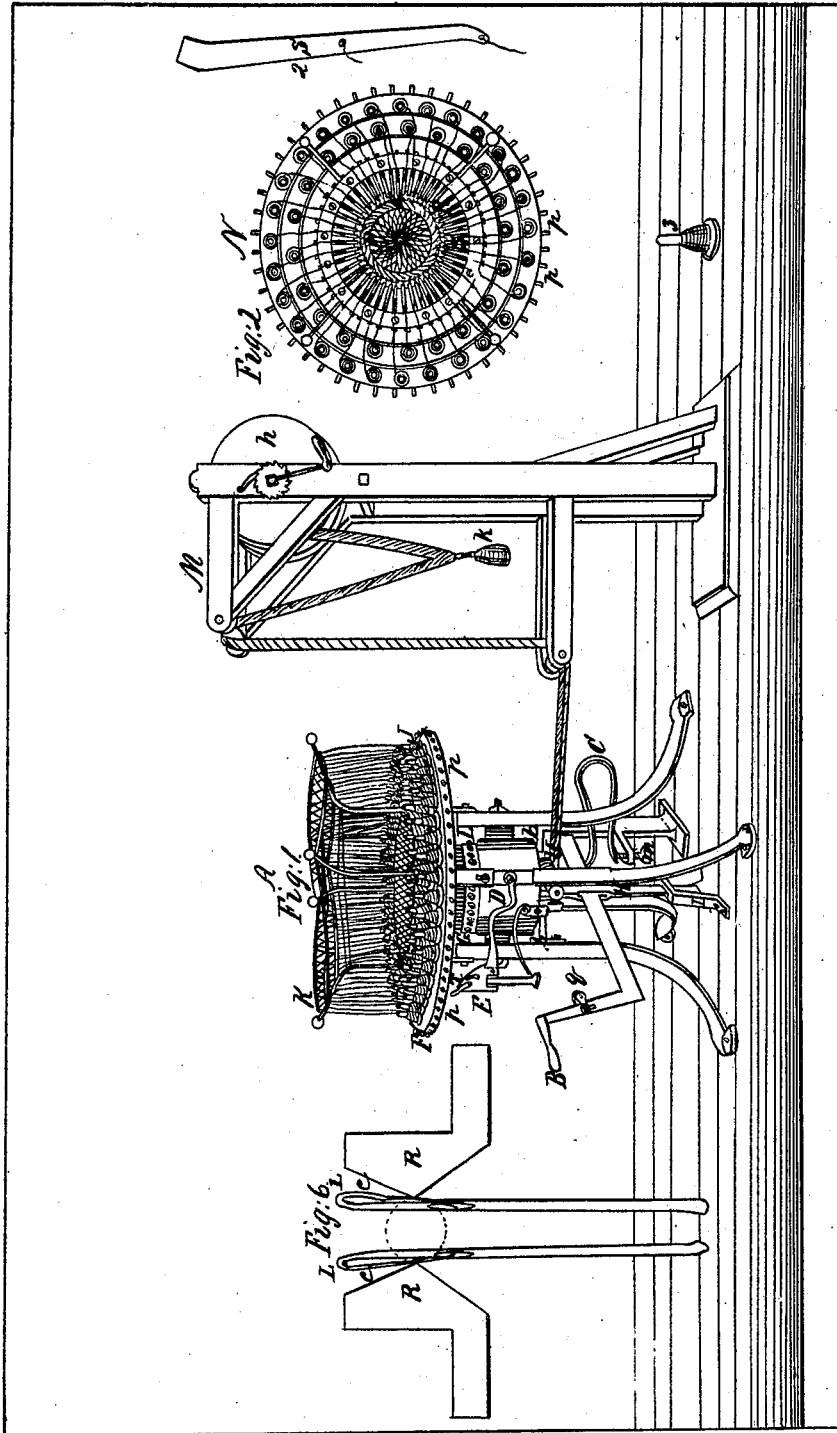
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J. Vickerstaff.

Knitting Mach.

N^o 5,023.

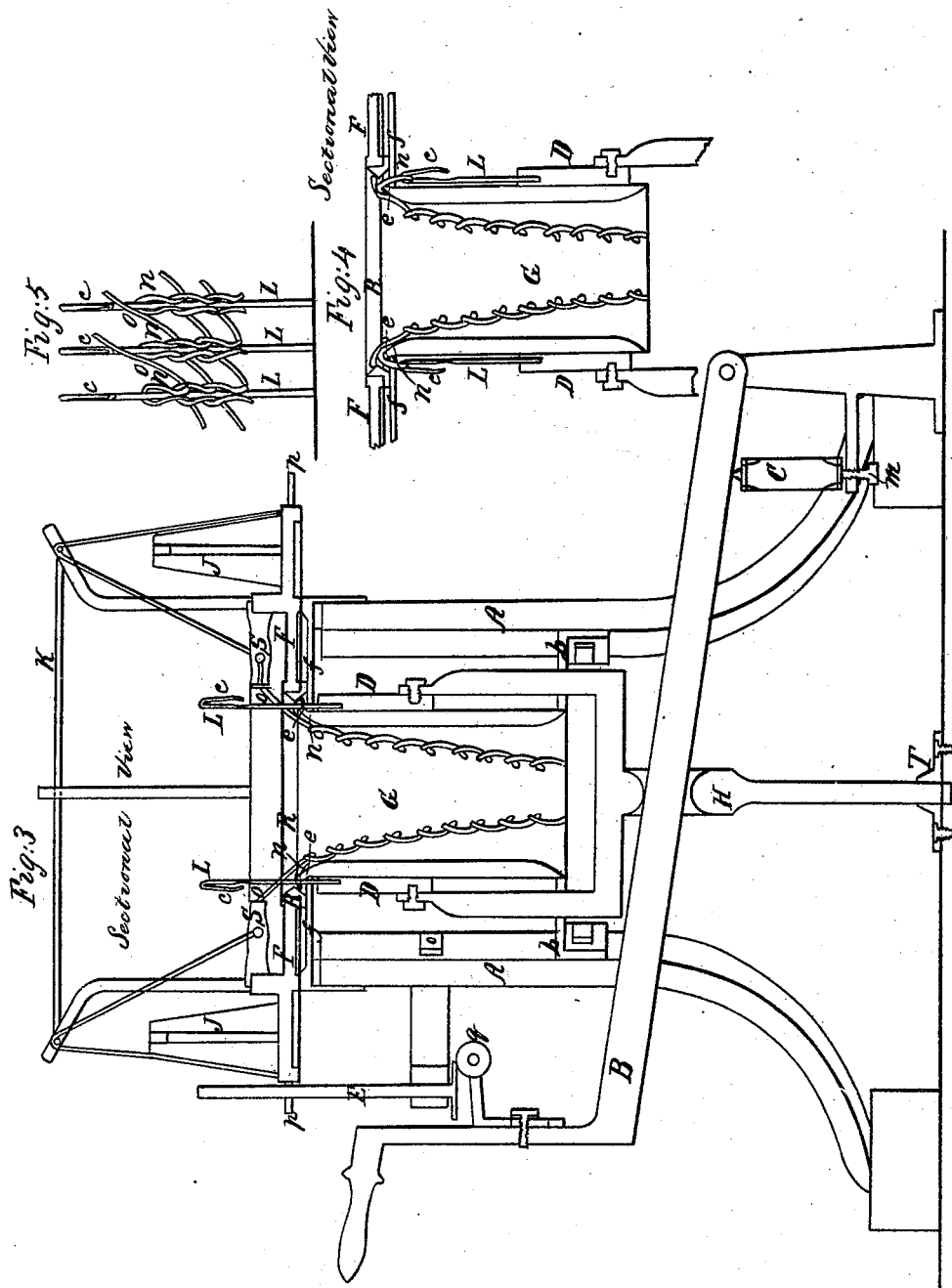
Patented Mar. 20, 1847



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UNITED STATES PATENT OFFICE.

JOSEPH VICKERSTAFF, OF PHILADELPHIA, PENNSYLVANIA.

STOCKING-LOOM.

Specification of Letters Patent No. 5,023, dated March 20, 1847.

To all whom it may concern:

Be it known that I, JOSEPH VICKERSTAFF, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Machine for Making Knit or Looped Fabrics, and that the following is a full, clear, and exact description of the principle or character which distinguishes it from all other things before known and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is a perspective view of the machine; Fig. 2, a plan; and Fig. 3, a vertical section taken through the axis of the machine, on a larger scale than the other views; Fig. 4, a like section of the looping part merely to represent the mode of forming the loops; Fig. 5 represents three needles with the loops thereon, and Fig. 6 a diagram showing two of the needles with the beaks forced in by the presser.

The same letters indicate like parts in all the figures.

The nature of my invention consists in forming the loops from a series of warps by means of a series of needles, arranged in a circle and parallel with each other, made to slide within a ring, that answers the purpose of a presser, so that the threads which are to form the new loops shall be caught under the beaks of the needles, before they are closed by the presser ring to allow the previously formed loops to pass over and be cast off; the bobbins and guides being made to travel around the needles, or to vibrate back and forth alternately according to the design of the figure to be produced.

In the accompanying drawings (A) represents a frame properly adapted to the purpose, and (B) a hand lever by which the mechanism is to be operated. This lever passes through a mortise in a vertical piece (H), the lower end of which slides in a guide standard (T), and its upper end branches out to form an attachment with a sliding tube (D) which slides on an inner tube (G) attached to the standards of the main frame by brackets (b, b, b). The needles (L) are let into, and project from the upper edge of the cylinder (D), so that they are arranged in a circle and parallel with each other, or nearly so. Those needles are made on the same principle as the needles of the well known stacking frame,

with a beak (c), the point of which when depressed lies in a recess so that the previously formed loop may pass over the beak to be cast off. The upper end of the inner tube or cylinder is swelled out as at (e), to form a ridge against which the needles slide, when moved up and down, and to prevent them from yielding when the beaks are forced into the recesses in sliding by the presser (R) which is a metal ring surrounding the range of needles. It is attached to the frame by the arms (f, f) and its inner periphery is beveled up and down to form an edge to depress the beaks of the needles, as they slide by it. A table (F) is made to fit and to turn on the outer surface and shoulder of the presser ring (R); and carries as many bobbins (J) as there are needles. The threads or warps from each bobbin pass over a wire hoop (K) connected with the table by appropriate standards; and from this hoop the threads pass down and through the ends of guides (S), one for each thread, and so arranged on the table as to be a little outside of the needles, so as to present and hold the threads in such manner that they shall be caught by the beaks of the needles to form new loops, as they descend. The fabric as it is woven passes over the upper edge of the inner tube or cylinder and out at the bottom thereof, under a roller (U), and thence around rollers (g, g), in a separate frame (M), to a windlass (h) on which it is to be wound up, a weight (k) being hung by a loop to the fabric between the upper roller (g) and the windlass (h) to keep the fabric in a proper state of tension to insure the casting off of the loops so soon as new ones are formed.

The needles are forced up by a spring (C) which bears on an adjusting screw connected with the frame and on the underside of the lever (B) so that when a new set of loops are to be formed the attendant forces down the lever which is then forced up again by the tension of the spring (C).

At each operation the tube that carries the bobbins and thread guides must be moved around a distance of one needle so that the same thread shall make a loop on each needle in succession; this is effected by having as many radial pins or cogs (p) projecting from the periphery of the table as there are needles, and on the lever (B) there is a roller (q) or a projection, which, as the lever is forced up acts on and forces

up a slide (E) the oblique edge of which acts on one of the cogs or pins (*p*) and forces the table around the required distance. And on the descent of the lever the slide descends by its own weight, and that it may catch onto the next cog it is provided with a jointed piece (*r*) which, as the slide descends, turns on its joint pin to pass the cog, and so soon as its point has descended below the cog it falls back on a line with the oblique edge of the slide and under the next cog, that it may at the next operation act on it to turn the table.

The manner in which the loops are formed is represented in Figs. 3, 4 and 5, where it will be seen that the last formed loop (*n*) of the fabric is on the body of the needle, and below the beak, the needle, in Fig. 3, being supposed to be up at its greatest height, and the fabric drawn down tight onto the upper edge of the inner cylinder, and below the edge of the presser. The thread (*a*) from the last formed loop is drawn up against the needle by the guide (*S*), so that as the needle is drawn down, it (the thread) shall be caught under the beak (*c*), which is then by its continued motion forced into the recess by the presser, and there held that the loop (*n*) may pass over the beak, as represented in Fig. 4, and finally cast off over the end of the needle to hang onto the loop newly formed by the thread under the beak, which in turn is cast off to hang onto another, and so on.

It will be obvious from the foregoing that the table instead of receiving an intermittent motion may receive a continuous movement from an appropriate arrangement of mechanical means connected with the reciprocating motion of the needles, and that instead of moving the table continuously around in the same direction it may have an alternate reciprocating motion so that each

thread will form loops alternately on two, three, or more needles. In this way, by arranging the colors of warp threads, the fabric may be woven with stripes or varying shades of color running obliquely around the fabric, for each thread makes in succession a loop on each needle in the circle, and in that way carries its color around the circle as the fabric progresses; or the stripes or shades may be run zig-zag by moving the table of bobbins and guides for a few loops in one direction and then back.

The lever for operating the machine instead of being worked by hand may receive its motion from some first mover by crank, or cam motion, if desired. In short the mechanism by which the movements are given may be variously changed without affecting the principle or character of my invention.

What I claim as my invention and desire to secure by Letters Patent, is—

1. The arrangement of the needles in a circle, and parallel with each other, or nearly so, in combination with the pressure ring by means of which the beaks of the needles are closed to hold the new and cast off the previously formed loops, substantially as described; and this I claim in combination with the inner tube over which the woven fabric hangs, as herein described.

2. And finally I claim the rotating table which carries the warps and guides, in combination with the needles, arranged as described, whereby the warps can be carried around continuously in one direction, or alternately in opposite directions, for the purpose and in the manner substantially as described.

JOSEPH VICKERSTAFF.

Witnesses:

A. P. BROWNE,
I. H. VANZANDT.