

D. BICKFORD.

Improvement in Knit-Fabrics and Method of Knitting.

No. 131,386.

Patented Sep. 17, 1872.

Fig. 1.

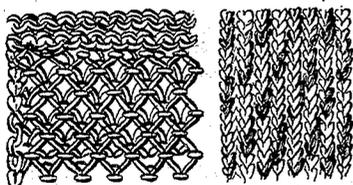


Fig. 4.

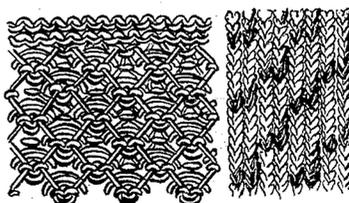


Fig. 2.

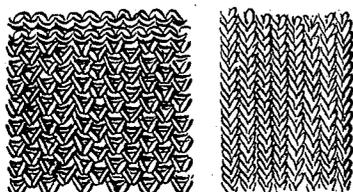


Fig. 5.

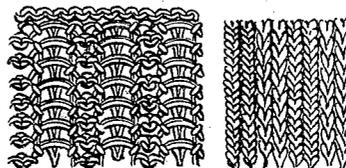


Fig. 3.

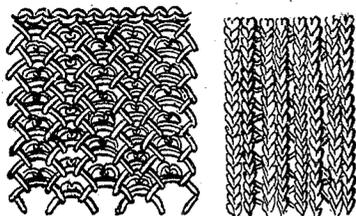


Fig. 6.

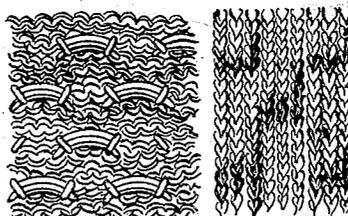
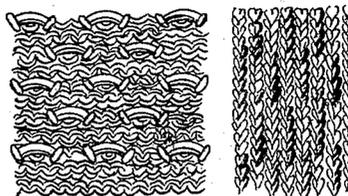


Fig. 7.



Witnesses
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UNITED STATES PATENT OFFICE.

DANA BICKFORD, OF NEW YORK, N. Y.

IMPROVEMENT IN KNIT FABRICS AND METHODS OF KNITTING.

Specification forming part of Letters Patent No. 131,386, dated September 17, 1872.

To all whom it may concern:

Be it known that I, DANA BICKFORD, of the city, county, and State of New York, have invented certain novel machine-knitted stitches and fabrics, and methods of fabricating the same; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

My improved method of knitting fancy stitches and fancy fabrics, and the new styles of stitches and fabrics thereby produced, as hereinafter set forth, may be severally practiced and made on the improved Bickford family knitting-machine, as lately simplified and improved by me, and for which improvements I filed, on March 19, 1872, an application for Letters Patent; and in practicing my present invention, in that or similar machines, I may employ an ordinary latch-needle; but I prefer, in order to secure greater positiveness and certainty of holding any of the needles suspended out of action by the mere stress of its own loop of yarn, to employ the notched-shanked needle described in my application filed May 2, 1872. The spool or bobbin should also be, preferably, so attached to the machine that it may always travel or shift with the yarn carrier or guide, so that the yarn shall never be in the way, shall not become unduly slack, and shall need no tension device or take up.

The principles on which the following improvements in machine-knitting are based are due to this ready change of needles, to the consequent ready stoppage of stitch-making at any point, and to the ready reversal or forward-and-back movement of the machine.

In the drawing is shown a representative group of fancy stitches and fabric made on a machine of the class named, and the manner of fabricating, which I will now proceed to describe.

The entire circle of needles may remain in the machine, or as many only may be left in as will knit the breadth of goods required.

The goods shown in Figure 1 are formed by first knitting a few rows of ordinary knitting as a foundation or starting point, and then raising every alternate needle out of action at

will. So raised, knit across and back; then push all down; then across once (and not back;) then raise the needles which were down before and leave down those which were raised before; then knit across and back; then push down the raised needles, and proceed as before. Continue this order to the end as far as desired. To make it still more close and compact, as shown in Fig. 2, I do not knit across at all when all the needles are down, but only knit when one or the other half of the needles are up, and go across only without returning, changing the needles before the return.

The next variety, shown in Fig. 3, is made by the same general means, except that when one half of the needles are up, I knit across and back, but do not knit across at all while all are down. The hexagon stitch, shown in Fig. 4, is formed by raising every other two needles instead of every other one, and knitting across and back; then lower all the needles that were raised, and raise the alternate pairs that were down, and knit across and back. A variation from this would be effected by knitting once across only before changing; or another variation still, by going across, back, and across again before changing, &c. Another variation from the above is effected by having three adjacent needles up, and the three next adjacent ones down, &c.; or four up and four down. Another modification: Pull up every other two needles and knit across and back, and then push all down and knit across; and then, raising up the same pairs as before, knit across once without return; then put up again the same pairs, using only the same pairs of needles and never alternating with the others, the needles at first left down to knit remaining all the time down and working all the time. As a modification of this last, put one needle up and two down, all across, and proceed just as last above. Still another variety of the above may be made thus: Raise every other two; then knit across and back; then push them all down and go across; then pull up the same two and go across and back; then push down and knit across; now pull up the alternate pairs and do the same with them.

Instead of holding the needles by the notch and yarn, the cam switches may both be put

down so as not to throw off a loop from the latch; and instead, each needle (as required) may be lifted by hand to perfect the particular stitches desired—that is, to free the latch of its loop. This, however, would be in rare cases.

The face sides of the fabrics, shown in Figs. 1, 4, 6, and 7, it will be seen, present an appearance as if composed of narrow knitted strips interwoven with warp-threads in a weaving-loom.

I claim—

1. The described method of knitting fancy stitches and fabrics in reversible knitting-machines, by raising, and temporarily holding elevated out of action, alternate or other needles desired throughout the series, employed at will by the mere stress of the yarn, and then bringing them again into action, as set forth.

2. The described method of knitting fancy stitches and fabrics in rotary knitting-machines, by lowering the switches so that the needles shall not be raised high enough to throw off their loops from the latches, and then temporarily bringing the needles severally into proper action, as wanted, by lifting them by hand.

3. The knitted fabrics herein shown and described, and made by raising, and temporarily holding elevated out of action, needles or sets of needles at will, and then returning them again to operative action, in the manner set forth.

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Witnesses:

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