

J. HOLLEN.
KNITTING MACHINE.

No. 25,827.

Patented Oct. 18, 1859.

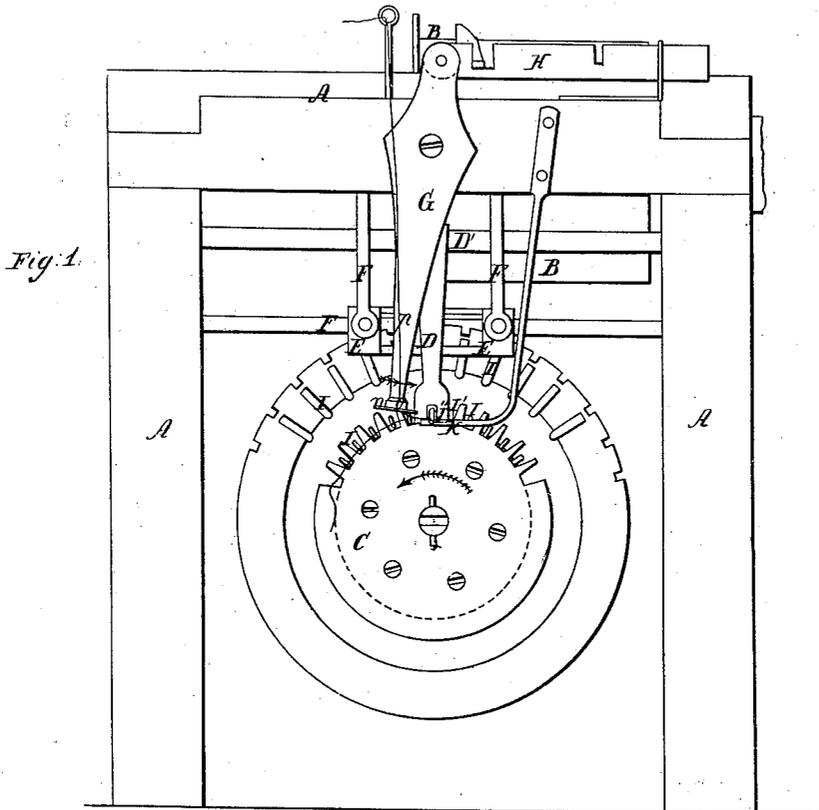


Fig. 1.

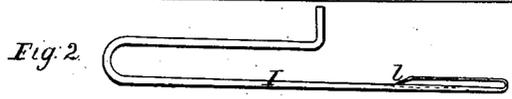


Fig. 2.

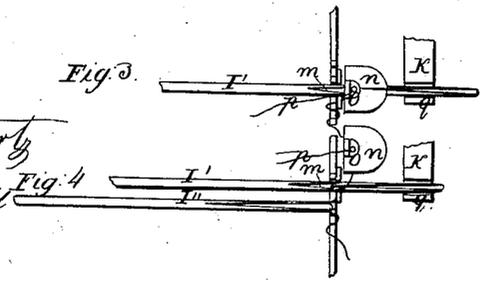


Fig. 3.

Fig. 4.

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JOSEPH HOLLEN, OF FOSTORIA, PENNSYLVANIA.

KNITTING-MACHINE.

Specification of Letters Patent No. 25,827, dated October 18, 1859.

To all whom it may concern:

Be it known that I, JOSEPH HOLLEN, of Fostoria, in the county of Blair and State of Pennsylvania, have invented a new and useful Improvement in Knitting Machines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, represents a sectional, end elevation of a knitting machine having the improvement applied thereto; Fig. 2, a side view of the improved needle; and Figs. 3 and 4, sectional representations of the latter in combination with the thread carrier; like letters in the different figures indicating the same parts.

Letters Patent of the United States having been granted to me for certain improvements in knitting machines, which letters are dated, respectively, the 16th day of July, 1850, and the 28th day of November, 1854, and the present invention being a further improvement in the same, it will not be necessary to describe such parts thereof as have no immediate relation to the present invention, which (invention) consists in the combination of a needle the barb of which is pressed by its own spring into its own groove, with a thread-carrier and a needle supporter, arranged to operate together substantially as hereinafter described, whereby I am enabled to greatly simplify, and therefore to lessen, the cost of constructing and keeping in order such machines; to obviate the, heretofore, difficulty arising from knots or lumps in the thread—the open needles being apt to run into them—and also to “cast on” and to knit either plain or ribbed fabrics therewith, as occasion may require, by simply throwing out, in the one case, or reversing in the other, the feed motion of the machine.

In the drawings, A, represents the usual frame of the machine; B, the operating cylinder carrying the “snail” and cams whereby motion is given to the needles and thread carrier; C, the needle cylinder; D, the “jack” and D', its rock shaft; E, the sliding frame which operates the needles singly, and F—F, its supports; G, the thread carrier, and H, the slide whereby its oscillating motion is given; I, the needles; and K, a

supporting guide for the outer ends of the needles when they are respectively being entered by the thread carrier, in knitting.

The general form of the needles (I) is substantially the same as in those shown in my former patents, but instead of leaving an open space between their, respective, extreme points and shanks, as hitherto, I bend the said points, *l*, downward into contact with the bottom of a shallow groove which is made along in the shank, at *m*, substantially as shown in Figs. 2 and 4, so that, in their normal state they shall each form a close or shut needle, capable of being opened by the thread carrier, to receive the thread for a stitch, and of shutting, automatically, so as to pass out of the preceding loop or stitch, on its return motion.

The thread carrier (G) has its lower end formed into a thin, double edged, semicircular plate, *n*, which has a hole *o*, through it, for the thread, *p*, and is so placed in relation to the stem of the carrier as to be caused to approach, force apart, and pass between the point (*l*) and the shank of each needle (I), as the latter are successively thrust out, and, on its return, to pass the outer ends of the same, carrying the thread (*p*) with it, into position for another like vibration.

As the entrance of the plate (*n*), with the thread (*p*), between the points and shanks of the respective needles has a tendency to force the said projecting parts of the needles in the same direction, the supporting guide (K) is devised to prevent it. It is simply a bar (K) bent, grooved, and fixed so as to receive the lower side of the shank of the needle, within its groove, *q*, as the same is forced out in the operation of the machine, substantially as shown in Figs. 1, 3 and 4.

Operation: Suppose the thread carrier (G) to be in motion, and feeding in the direction of the arrow thereon—Fig. 1. It having just returned across the outer end of the withdrawn needle (I'), it is ready to enter between the point and shank of the next needle (I) as the latter will become thrust out by the forward motion of the slide (E). Fig. 3, shows the plate (*n*) of the thread carrier, as passing between the point (*l*) and the shank of the needle (I'), carrying the thread (*p*) with it; and Fig. 4, the same, after it has passed through, and the needle as on its return, taking the new supply of

thread in, to form a new loop or stitch in the same manner, and as is indicated in the needle (I'') in the same figure. This motion in feeding, produces the plain fabric; 5 but by simply reversing the direction of the feed (by changing the lever which operates the slide (H), the cylinder of needles (C) rotating in the same direction as before) the loop will have a twisted form imparted to it, 10 and so produce a ribbed fabric of a peculiar and very neat and durable character.

To adapt the machine for "casting on" stitches, it is only necessary to throw out of motion the thread carrier (G)—which is 15 done by simply first lifting, and then lowering, the slide (H) so as to disconnect its operating lever from its notch therein.

It will readily be perceived that the needle (I), in consequence of its elastic point being closed down upon its shank, will readily 20 pass through and release the prior loop or stitch thereon, on its return motion, and will form a new loop with the thread (just previously carried through it); and that, for 25 the same reason, the said point cannot run into any knot or lump which may be in the thread; that the thread carrier, from the peculiar construction and mode of operation of its lower end upon the needles, will effectually 30 ally thread the same by entering between their points and shanks, respectively, from either side, as either the plain or ribbed fabrics may be required; and that the devices are much more simple and inexpensive than

those heretofore used to effect the same or 35 similar results.

Another advantage arising, consists in the fact that as the cylinder of needles (C) can be operated in either rotary direction, the required variations in the forms of different 40 garments—as the feet of stockings for instance—can be given and the knitting completed without removing the same from the machine.

Having thus fully described my improved 45 knitting machine, and pointed out its (superior) utility I proceed to state that I am aware that a reciprocating thread carrier has been used in combination with a latched needle in knitting machines, for the purpose of 50 laying the thread to form the loops within the needle, and therefore I make no claim thereto; but—

What I do claim as my invention and desire to secure by Letters Patent of the United 55 States is,

The combination of a needle the barb of which is pressed by its own spring into its own groove, with a thread-carrier to release the barb and lay the thread therein, and a 60 supporting guide to sustain the needles when arranged and operated substantially in the manner and for the purpose described.

JOSEPH HOLLEN.

Witnesses:

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