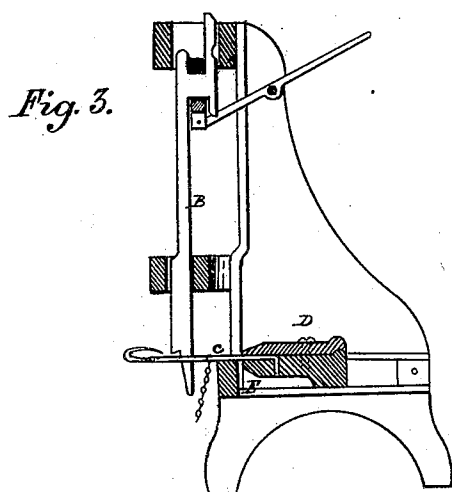
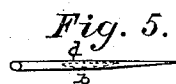
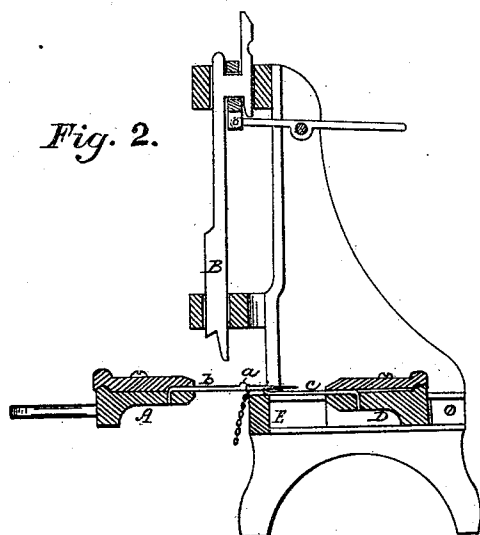
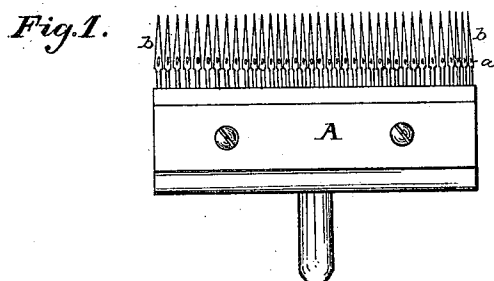


E. H. DAVISON & W. CHAPMAN.
 METHOD OF PUTTING UNFINISHED WORK ON KNITTING MACHINES.
 No. 179,403. Patented July 4, 1876.



Attest.
 Philip W. Yale,
 C. P. Felt,

Inventors:
 E. H. Davison & W. Chapman
 By Parker H. Sweet, Jr. atty
 for James Shepard.

UNITED STATES PATENT OFFICE.

EDWARD H. DAVISON AND WILLIAM CHAPMAN, OF NEW BRITAIN, CONN.,
ASSIGNORS TO AMERICAN HOSIERY COMPANY, OF SAME PLACE.

IMPROVEMENT IN METHODS OF PUTTING UNFINISHED WORK ON KNITTING-MACHINES.

Specification forming part of Letters Patent No. **179,403**, dated July 4, 1876; application filed
December 23, 1874.

To all whom it may concern:

Be it known that we, EDWARD H. DAVISON and WM. CHAPMAN, both of New Britain, in the county of Hartford and State of Connecticut, have invented certain Improvements in the Art of Putting Unfinished Work upon Knitting-Machines, of which the following is a specification:

Our invention is designed for use with that class of machines known as the "straight or flat knitting loom." In manufacturing the various articles of knit goods, such as shirts, drawers, stockings, &c., upon this class of machines, the product of which is commonly called "fashioned goods," it is necessary, in knitting the different parts of the garments, (such as the bodies and sleeves of shirts, the legs, heels, and feet of stockings, &c.,) to remove the work when only a portion of it is complete, and then place a series of loops or stitches other than those last removed from the needles upon the machine, to knit the rest of the article.

Our invention consists of putting a series of selvage-loops of a piece of fabric upon a series of points secured to a detachable bar, and then transferring the loops from the series of points to the needles of a knitting-machine, and after starting said machine removing the bar, so that the operator may secure or "run on" another series of loops to the series of points while the machine is in operation, all as hereinafter described.

In the accompanying drawings, Figure 1 is a plan view of a bar provided with a series of points for use in the practice of our invention. Fig. 2 is a side elevation of said bar and parts of a knitting-machine. Fig. 3 is a side elevation of the same parts of a machine, and Figs. 4 and 5 are detached views of the points named in description of Fig. 1.

The operation of placing the loops of a knit fabric on the ordinary knitting-needles, or "running on," as it is termed, is attended with some difficulty, from the fact that the end of the common bearded needle is necessarily blunt, and this difficulty is increased when it is desired to run on the outside or selvage loops—for example, to knit a sleeve to a body already formed, when a sufficient number of loops in

the selvage of the body at the shoulders, to give the sleeve the desired width, must be placed upon the needles.

When the sleeve is to be knit from the extreme or selvage loops, it has heretofore been necessary for the operator to take loops with a hook or working needle, and pass them over the heads or beards of the needles, one loop at a time. This operation is necessarily slow, and occasions much loss of time, as the machine is idle during this process of transferring by hand.

We employ a series of points, *b*, shown in Figs. 1, 2, 4, and 5, which are secured by their hooked ends to a bar, *A*. There are as many of these points *b* as there are needles in the machine, and their gage and position should correspond. These points are held in place by grooves cut in the bar *A*, the clamped or hooked ends entering holes drilled in the bar to receive them, when a cap or bar is screwed down upon them. The manner of securing them to the bar is immaterial, and it may be done in any ordinary manner of securing similar pieces. Each of the points *b* has a groove or recess, *d*, Fig. 5, upon its under side, which groove is large enough to receive the head or beard of the needle, and on the upper side said points have a small projection, *a*, the use of which will be hereinafter explained. The bar *A* is made as light as is consistent with strength, and may be provided with a handle, if desired. This bar, with its series of points facing the operator, is temporarily secured by a clamp or button to the framing of the machine, or in other convenient position near the machine, and while the machine is at work knitting a piece previously put upon it, the operator may be employed in taking up or running on the selvage-loops of another piece upon the points of the bar *A*, which, being sharp, readily enter the stitches or loops, which are then pushed back upon the stems of the points until they are brought into line by the projections *a* on the top of the points *b*. Having now the loops of the fabric hanging on the points of the bar *A*, it is ready for transferring to the machine so soon as the latter is ready to receive the said loops.

In the drawings we have shown the parts

of the machine (except the bar A) patented to Arthur Paget May 21, 1867; but our process is adapted for use with other machines of a similar character. We have only shown such portions of the machine as are necessary to exhibit the manner of transferring the loops from the bar to the needles.

C represents the ordinary bearded needle, which, in this machine, is fixed in a movable bar, D. B designates a sinker, the office of which is well known, and moving vertically, as usual, in a support. (Not shown.) E designates the knocking-over bar, on the upper side of which is a comb, through which the needles pass, and by means of which the knocking over of the loops is effected.

In order to transfer the stitches to the needles *c* of the machine, they are brought into the position shown in Fig. 2. The sinkers B are elevated out of the way, and the workman takes the bar A in his hand and places it over the needles in such a manner that each point covers the head of its corresponding needle, the beards of the needles being received in the groove at the under side of the points *b*. While the bar is held in this position the sinkers B are depressed, when the lower end of each sinker passes between two of the points *b* in front of the loops thereon, and when the points are being withdrawn said sinker prevents the work from coming forward. The operator now brings the needle-bar forward, the sinkers still being depressed, to prevent the work coming forward, as shown in Fig. 3. During this forward movement of the needles their heads are guided into the

loops on the points *b*, and the bar A is removed, leaving the loops hanging on the stems of the needle *c*, as shown in Fig. 3. Yarn is supplied to the needles, and the knitting proceeds. The attendant now runs on the points *b* another piece of work, and, when the knitting of the previous one is completed, has the bar loaded ready to put the work upon the machine, as before described.

By our improved method of putting on work the machine is delayed but a short time after finishing each piece of work before commencing another, and an experienced workman can keep several machines at work, using only a single bar.

The points *b* for other uses, and when permanently secured in a machine, are old, and not claimed by us.

We claim as our invention—

That improvement in the art of putting the selvage of knit fabrics upon the needles of flat-knitting looms, consisting in placing a series of selvage loops or stitches upon a series of grooved points, secured to a portable bar, placing the bar over the bearded needles with the beards resting in the grooves of the points, and then, by aid of the sinkers, transferring the loops or stitches from the points to the needles, all substantially as described, and for the purpose set forth.

EDWARD H. DAVISON.
WILLIAM CHAPMAN.

Witnesses:

C. E. MITCHELL,
F. L. HUNGERFORD.