

(No Model.)

2 Sheets—Sheet 1.

G. SOWTER.

FASHIONING APPARATUS FOR STRAIGHT KNITTING MACHINES.

No. 478,527.

Patented July 5, 1892.

Fig. 1.

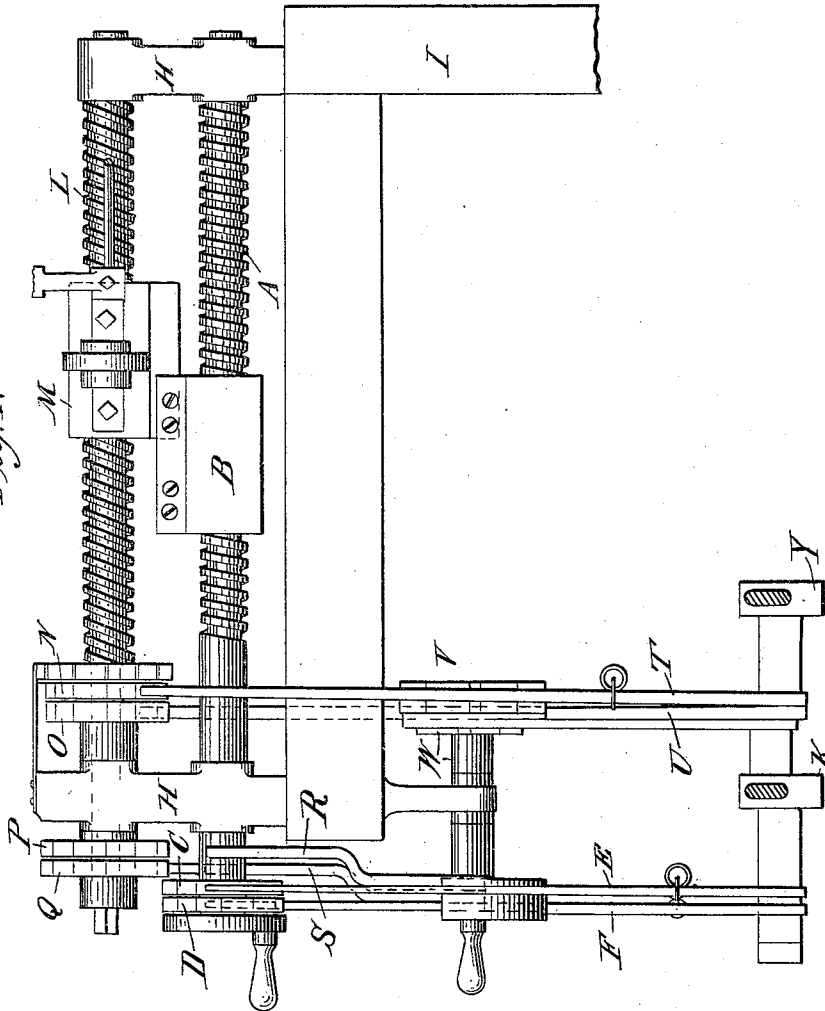
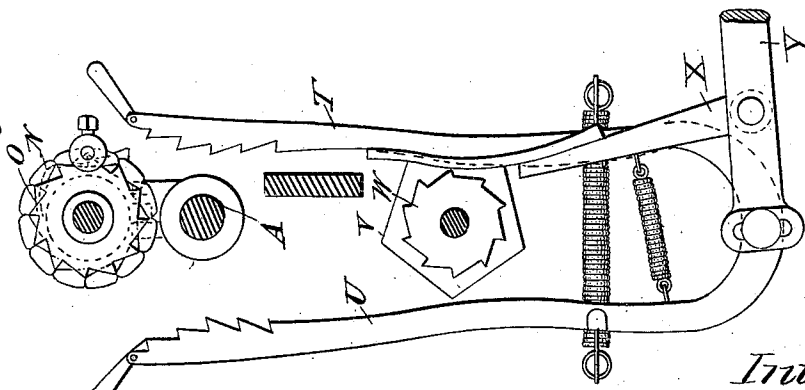


Fig. 2.



Witnesses:
Joseph Hill Davis
Thomas Bernard Redgate

Inventor.
George Sowter

(No Model.)

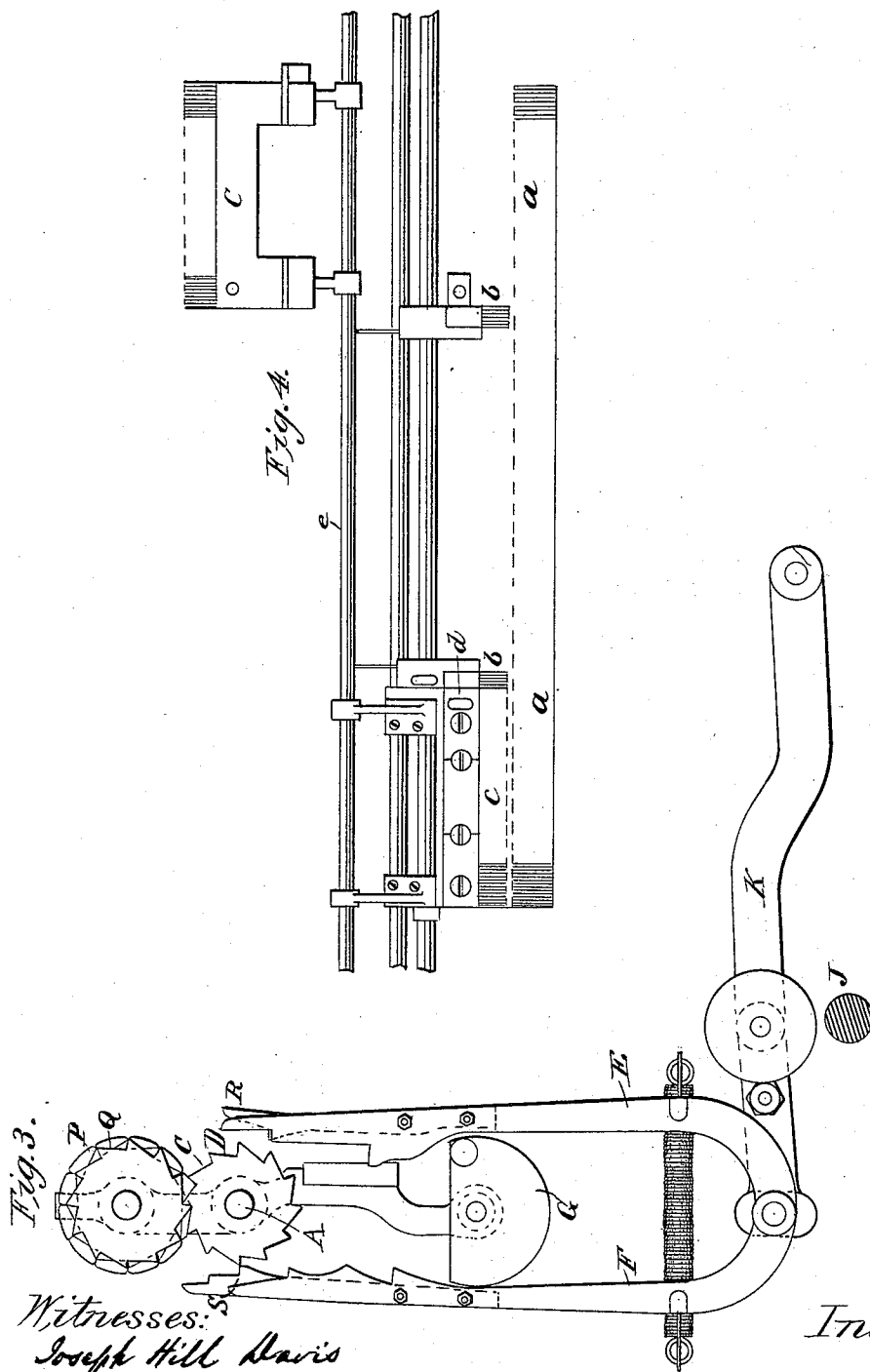
2 Sheets—Sheet 2.

G. SOWTER.

FASHIONING APPARATUS FOR STRAIGHT KNITTING MACHINES.

No. 478,527.

Patented July 5, 1892.



Witnesses:
Joseph Hill Davis

Thomas Bernard Redgate

Inventor,

George Gowen

UNITED STATES PATENT OFFICE.

GEORGE SOWTER, OF NOTTINGHAM, ENGLAND.

FASHIONING APPARATUS FOR STRAIGHT-KNITTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 478,527, dated July 5, 1892.

Application filed October 22, 1889. Serial No. 327,868. (No model.) Patented in England December 18, 1888, No. 18,461.

To all whom it may concern:

Be it known that I, GEORGE SOWTER, hosiery-manufacturer, a subject of the Queen of Great Britain, residing at 88 The Chase, St. Ann's
5 Well Road, Nottingham, England, have invented certain Improvements in Fashioning Apparatus for Straight-Knitting Machines, (for which I have obtained a patent in Great Britain, No. 18,461, bearing date December 18,
10 1888,) of which the following is a specification.

My improvement relates to knitting-machines, known as "Cotton's system," employed in producing articles known as "hose," "socks,"
"pants," "vests," or similar articles in which
15 widenings and narrowings are required at any distance from the selvage. The usual mode of working the widening and narrowing instruments, which are carried by rods or bars, is by attaching such rods or bars to the screw-
20 box carrying the selvage-stops and moving them at the same time. By this mode only one uniform set of widenings or narrowings can be made—that is, if the instruments are set to work four heads or eight needles from
25 the selvage they traverse with the stops and remain at one uniform distance from the selvage of the fabric. I propose to lengthen the brackets carrying the screw upon which the stops for the thread-layer are traversed to the
30 right or left and carry with these brackets a separate screw, upon which a box with arm is attached to traverse the points or instruments to the right or left independently of the selvage-stops by the following means: The outer
35 end of axle of the top screw is provided with two ratchet-wheels and clawers. The clawers are fastened with bolts to the ordinary clawers, which drive the screw, upon which stops for the thread-layers are traversed, thus
40 giving a simultaneous movement to widen or narrow from the selvage in the usual manner. A second pair of ratchet-wheels is placed on the axle of the top screw inside the end bracket, driven by clawers hinged to a lever
45 rocking on an axle carried by the framing of the machine, the lever having a rising-and-falling movement given it by a cam to traverse the instruments to the right or left before the screw and stops for the thread-layers are
50 put in motion. The axle for the cam for narrowing and widening, which is moved by hand between the outside clawers, is made longer

to carry a pentagonal cam and ratchet-wheel inside to throw the clawers in gear in one side and out of gear on the other alternately by a
5 small ratchet hinged to the outside lever, which has a rising-and-falling movement and is automatic in its action. I also propose to use a wide set of points or instruments for transferring the loops to the right or left, as
6 required. These leads and instruments are carried on rods or bars attached to the narrowing-machine and fitted up to the ordinary instrument or coverers used on the selvage
when in action. By this arrangement the
65 ordinary instrument used on the selvage can be traversed by the top screw to the required distance inside the fabric from the selvage and the wide set of instruments brought
70 down to the instruments used on the selvage to transfer the loops when widening or narrowing is required any distance from the selvage of the fabric, so as to form pockets or
gores without seams, being required in ladies' vests, or forming the heels of stockings with-
75 out seams, and such like articles.

Figure 1 is a front view with cam-shaft removed; Fig. 2, a sectional end elevation; Fig. 3, an end elevation; Fig. 4, a front elevation of one set of needles, showing one set of points
80 or instruments attached to the selvage points or instruments and one set separated from the selvage points or instruments.

A, Fig. 1, is the screw for working the selvage-points, as in the ordinary machine, with
85 its box B, ratchet-wheels C and D, clawers E and F, while I is part of machine-standard.

For working my improvement I lengthen the bracket H H to carry the ordinary screw
A with its box B, also to carry the special
90 screw L with its box M. On the end of screw L are two pairs of ratchet-wheels N and O and P and Q, the latter being worked from clawers E and F by attaching to them additional
95 clawers R and S, which have a rising-and-falling movement, as in the ordinary machine. The other pair of ratchet-wheels N and O, I work from clawers T and U by means of a cam and lever Y, similar to those used for
clawers E and F, to traverse points or in-
100 struments five needles to the right or left alternately before the instruments reach the needles, to transfer the loops one needle to the right or left to extend or contract the fabric.

I also lengthen the axle of the cam G, Fig. 3, to carry a cam V, Fig. 2, with an odd number of faces and a ratchet-wheel W, having twice as many teeth as the cam V has faces. In the drawings they are shown as ten and five, respectively, the wheel W being attached to cam V. To lever Y, Fig. 2, which operates the clawkers T and U, I pivot a pawl X, which in rising works the ratchet-wheel W and turns the cam V half the length round of the odd face, thus insuring the automatic revolution of the cam V, and throws out of gear the clawkers T and U alternately, causing the screw L to traverse box M to the right or left five needles at each upward movement.

In Fig. 4, *a a* are the needles on which the fabric is made; *b b*, the points or instruments for narrowing or widening, which are connected to the box M on screw L in the usual manner. The bars or rods carrying the points *b* are each attached to a box M in the usual manner, and one of said rods is shown in Fig. 1 of the drawings as broken off. At each end of the machine, as shown in Fig. 4, in addition to these narrow points *b*, I use a wide set of points *c c*, eight inches long, on each side of the division of the machine. Fig. 4 shows one division of the machine. These wide points I secure to the ordinary points *b b* by screws *d*, so that they can both be moved as one piece from the top screw, and are carried by a shaft *e*, attached to the machine. The points *c* on the right-hand side, Fig. 4, are shown separated from the selvage-points, being partially revolved about the shaft *e* when out of action; but I do not confine myself to any particular method of separating the points or instruments.

Having described the drawings of my apparatus which is applied to each end of the knitting-machine, I will proceed to explain the working of the same, so that it may be fully understood. In making a lady's vest, fashioned gore, or bosom without a seam in the gore, I make the bottom portion of the body in the usual manner to the commencement. To widen and form the gore, the instruments *b* are traversed in five or six inches, as required, from the selvage. The wide set of instruments *c* is then secured by screws *d* to the instruments *b b*. Clawkers E and R, Fig. 1, acting on ratchet-wheels P and C, attached to screws A and L, traverse the boxes B and M and points *c b* simultaneously, extending the selvage and stops B one needle outward. At the same time the pawl X in rising works the ratchet-wheel W on cam V, throws in gear clawker U, and clawker T out of gear. I then draw two or more courses. Clawker U rises, acting on ratchet-wheel O, and traverses box M and points *c b* five needles inward from the last widening. Clawkers E and R come into operation again, extending the selvage one needle. At the same time pawl X, acting on ratchet-wheel W on cam V, throws in gear

clawker T and out of gear clawker U. I then draw two or more courses. Clawker T, coming into action on ratchet-wheel N, traverses box M and points *c b* four needles outward, thus making two rows of fashioning and leaving the points one needle inward from the selvage. When eighteen or more widenings, as required, are made, I turn the cam G by hand and bring into action clawkers F and S to narrow the fabric in the same manner, the number of courses required forming the gore without a seam, leaving the same width on the machine. I then disconnect the points or instruments *c*, traverse the points *b* on to the selvage, and proceed to make the remaining portion of the body in the usual manner. To make pants with what are known as "split hips" and "twisted ankles" without a seam in the hips or ankles, I traverse in the points six or seven inches, secure the wide instrument *c* to points *b* by screws *d*, and proceed to widen out the two selvages, same as in gore, six or seven leads, as required. I then disconnect instruments *c*, traverse points *b* on to the selvage, widen out the pants in the usual manner to the gusset and narrow them down the thigh, make five or six inches plain, traverse in the points *b* on one side only four or more inches, secure instruments *c* to point *b*, and proceed to narrow the ankle, same as gore, in vest for ten or more leads, as required.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. The combination, in a straight-bar knitting-machine, of the lengthened brackets H, screws A and L, respectively carrying selvage-stops B and fastening-box M, and pawls and ratchet-wheels for operating said screws, substantially as described.

2. The combination of the screws and their ratchet-wheels with the clawkers E and F, having attached thereto the clawkers R and S to move the screws at the same time, substantially as described.

3. The combination of the clawkers U and T with the cam V, ratchet-wheel W, and pawl X to control said clawkers, substantially as described.

4. The combination of shaft E and wide sets of points *c*, hinged thereto, with selvage-points *b* and screws *d* to connect said wide points and selvage-points, substantially as described.

5. The combination of screw A and selvage-stop B with screw L, box M, ratchet-wheels N and O, and clawkers U and T to revolve said screw L independently of said screw A, substantially as described.

GEORGE SOWTER.

Witnesses:

H. W. BULL,

H. J. L. CROSBY.