

(No Model.)

S. BORTON.
SEAM FOR CUT KNIT GOODS.

No. 525,044.

Patented Aug. 28, 1894.

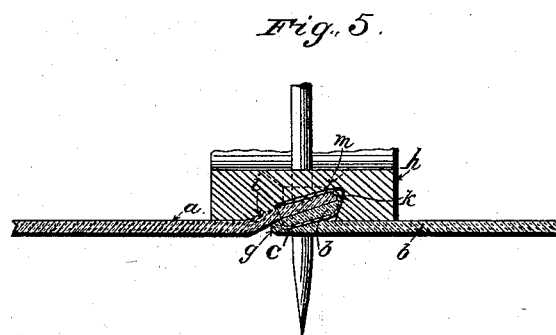
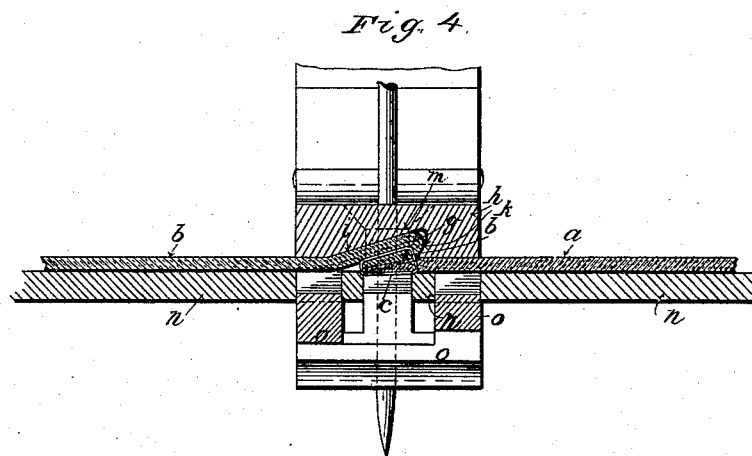
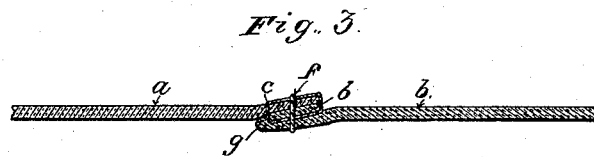
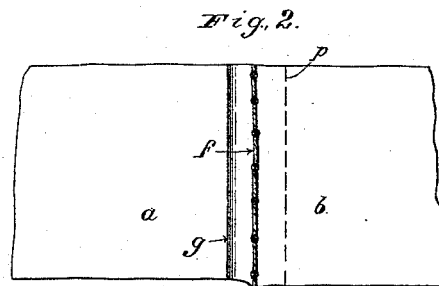
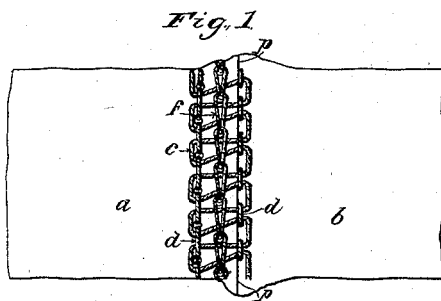
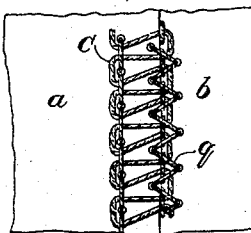


Fig. 6.

WITNESSES
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UNITED STATES PATENT OFFICE.

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SEAM FOR CUT KNIT GOODS.

SPECIFICATION forming part of Letters Patent No. 525,044, dated August 28, 1894.

Application filed January 6, 1894. Serial No. 495,985. (Specimens.)

To all whom it may concern:

Be it known that I, STOCKTON BORTON, of Brooklyn, New York, have invented a new and useful Improvement in Seams for Cut
5 Knit Goods and other Articles, which is fully set forth in the following specification.

This invention relates to seams for uniting two pieces of fabric, and is of special utility in the manufacture of cut knit goods. In this
10 manufacture the results most desirable to realize are strength of seam, neatness in finish and appearance, and minimum discomfort to the wearer of the article. For the sake of neatness and ease in wearing it is desirable
15 to trim the goods as close as possible to the line of stitching reducing the welt or ridge to the smallest possible width; but in so doing the strength of the seam may be impaired, inasmuch as cut knit goods have a decided
20 tendency to ravel, and the stitches easily pull out, if placed too near a cut edge. In the attempt to overcome the difficulties presented in the manufacture of cut knit goods and to realize results referred to, many methods of
25 procedure, peculiar forms of seams, and machines of special construction have been contrived.

The present invention relates particularly to what is known as an overedge or overlock
30 seam, formed by machines having overedge stitching devices and a trimming attachment. Such seams have the requisite strength, and the raveling of the cut threads of the fabric is prevented by the loops of thread passing
35 around and binding the edge. Machines for producing seams of this character are described in Letters-Patent Nos. 472,094 and 472,095, granted to the Willcox & Gibbs Sewing Machine Company April 5, 1892. Goods
40 made upon machines of this and similar types have at the seams ribs or welts equal in width to the length of the loops of the covering thread, and these ribs or welts project about
45 at right angles to the surface of the goods and on the inside or wrong side of the article.

According to the present invention the inconvenience attending the presence of the projecting welt is largely diminished by folding it over or flattening it against the surface
50 of the goods, and holding it in that position

by a line of straight ahead stitches passing through the welt and the body of the goods between the line of stitches of the overedge seam and the edge of the welt, or by means of zig-zag stitches passing preferably through
55 the welt and body of the goods and outside of the welt through the body of the goods only, thus binding down the edge of the welt. This operation produces a seam that is distinctive in appearance, of great strength, and whose
60 presence causes little or no discomfort to the wearer of the article. When an over-edge seam is flattened against the fabric as stated above, the effect is somewhat different from that of similarly flattening the surplus edges
65 or margins of fabric projecting beyond an ordinary seam. This difference is due to the fact that in the latter case the extreme edges of the fabric are not joined, whereas in the former case there is in reality no projecting
70 margin beyond the seam, and the portions of the two pieces of fabric inclosed within the loops of the sewing thread, are bound together and cannot move relatively to each other. Consequently, in folding down the rib or welt
75 of an overseam, it will be found that the piece of goods against which it is folded is bent upon itself inside the seam, while the opposite piece is deflected only slightly from the plane of the body of the piece. When the
80 welt in this position is sewed to the goods, as herein explained, the bend just referred to forms a ridge or shoulder raised above the plane of the goods on the right side of the fabric. This shoulder with the line of stitch-
85 ing along it, gives the seam a distinctive appearance, but its practical importance lies in the fact that the extra thickness, due to the presence of the seam, is now partly on the right side of the fabric instead of wholly on
90 the wrong side.

To carry out this invention practically and commercially requires that the operation should be susceptible of being performed expeditiously and with economy. For this purpose I have devised a form of presser-foot, by
95 means of which, in connection with any suitable sewing machine, the line of straight-ahead or zig-zag stitches, can be accurately placed through the folded over welt. This
100

presser-foot is grooved longitudinally on its under-surface from end to end, the groove being of ratchet form in cross-section. The edge of the groove forms an abutment which receives and guides the shoulder or ridge formed by folding over the welts and the inclined surface of the groove tends to urge the goods, (as they are advanced by the feed mechanism) toward this edge. The fabric is thus automatically guided and the proper location of the stitches insured without special care on the part of the operator, and it will be observed that in this operation the shoulder or ridge above referred to performs an important function. The welt is of such character that it may, if desired, be left on the outside of the garment. In that case, the seam inside or next the wearer is practically flat, and the holding stitches on the outside forms a neat finish for the seam.

The invention will be more fully understood from the following detailed description, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view showing the appearance of the improved seam on the under side of the goods. Fig. 2 is a similar view showing the upper or outside of the goods. Fig. 3 is a section in a plane transverse to the seam. Fig. 4 is a sectional view illustrating the sewing down of the welt with the goods so disposed that the welt is underneath, and Fig. 5 is a similar view with the goods reversed. Fig. 6 is a view similar to Fig. 1 showing the welt held down by means of zig-zag stitches.

In all the drawings the parts illustrated are much enlarged.

The two pieces of fabric *a* and *b* are represented as united by a double-thread overlock seam such as produced by the mechanism described in Letters-Patent No. 472,095, above referred to. In this form of stitch one of the threads *c* extends in loops from a line within and parallel with the edge to and beyond the latter, being interlocked as shown with the loops of the other thread *d* at the edge *p* of the welt. The portions of the two pieces *a*, *b* embraced by these two sets of loops constitute the welt, which ordinarily stands out practically at right angles to the fabric.

f represents the line of straight-ahead stitches by which the welt is held flat against the goods, these stitches being preferably (as represented in Figs. 1 and 2) such as formed by a single-thread chain-stitch machine. For knit-goods this form of stitch is preferred on account of its elasticity and the rapidity with which it can be made. The stitches *f* pass through the welt and through the piece *b* drawing and holding the latter against the former. Besides flattening the seam they obviously contribute to its strength and serve more firmly to anchor the loops *c* and *d* to the fabric. The intersection of the stitches with the loops *c* is clearly shown in Fig. 1. When

the welt is flattened and held down as shown in Figs. 3, 4 and 5, the piece *b* against which it is folded, becomes bent upon itself forming a shoulder *g* upon the right side of the goods, while the piece *a* is but slightly deflected. It results that the bulge due to the presence of the welt is now in great part upon the right side of the goods and that the under surface is more nearly even. It will thus be seen that the approach to flatness or evenness of the under-surface is due not merely to bending over of the welt from its perpendicular position, but also to the fact that when folded and secured as above described, the welt raises a projection on the upper side of the goods, so that the extra thickness at the seam shows partly on the upper and partly on the under side of the article.

As already stated, the improved seam to be commercial and useful must be a machine product and capable of being produced easily and expeditiously. The operation of flattening and securing the welt, as it has been practically carried out by me, will be understood by reference to Figs. 4 and 5. In these figures *h* represents a presser-foot which has in its under surface a groove or depression extending from end to end of the foot in the line of seam. This groove is ratchet shape in cross-section the apex of the angle in the foot being rounded. The side *i* of the groove is inclined slightly from the plane of the work-plate, while the side *k* is nearly vertical. The position of the needle-hole *m* is shown in dotted lines.

The work is introduced under the foot in the manner shown in Fig. 4 or as shown in Fig. 5. In Fig. 4 the goods are sewed with the welt undermost. The ridge or shoulder *g* formed by the bend in piece *b* abuts against the edge *k* of the groove which thereby determines the position of the line of stitches *f*. The work is flattened between the foot on one side *h* and the work-plate *n* and feed-surface *o* on the other, and as the latter advances the work, pressing it at the same time, against the presser-foot, the inclined surface *i* of the latter tends to crowd the goods toward the right, thus keeping the ridge *g* in contact with the guiding edge *k*. The proper guiding of the fabric is thus insured by the aid of the ridge or shoulder which is raised by the flattening of the welt. The position of the fabric may be reversed as shown in Fig. 5 with equally good results in operation. In that case the edge of the welt engages with and is guided by the edge *k* of the groove.

Inasmuch as the seam may be produced by other means than those just described, these means are not claimed as a part of the present invention, but are described and claimed in a separate application of even date herewith, Serial No. 495,983.

In Fig. 6 is represented a seam having the welt secured to the body of the goods by means of a line of zig-zag stitches *q* which, in

the example shown, are placed alternately through the welt and body of the goods, and outside the welt through the goods only.

Having now fully described my said invention, what I claim is—

5 The combination, with two pieces of fabric, of a series of overedge loops or stitches, uniting them and forming a welt, and a line of holding stitches passing through the welt and
10 through one of said pieces and intersecting

the first named loops or stitches, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

STOCKTON BORTON.

Witnesses:

CHAS. H. WILLCOX,
S. A. SWART.