(Model.)

J. BIGELOW.

METHOD OF WELTING OR HEMMING FABRICS.

No. 266,751. Patented Oct. 31, 1882.

Fig. 1.

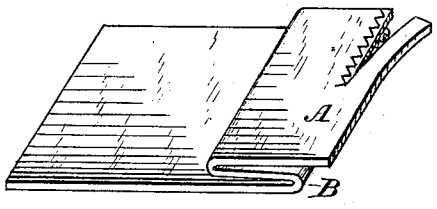


Fig. 2.

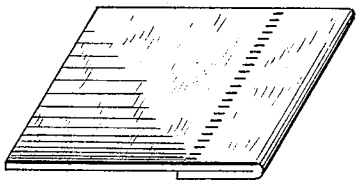


Fig. 3.

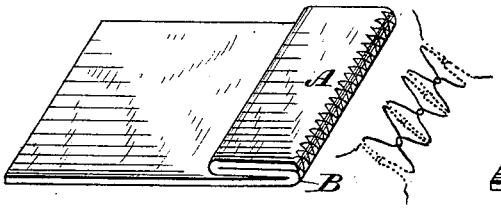


Fig. 4.

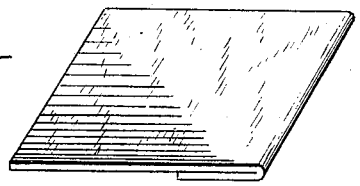


Fig. 5.

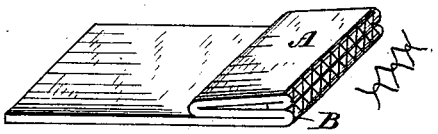


Fig. 6.

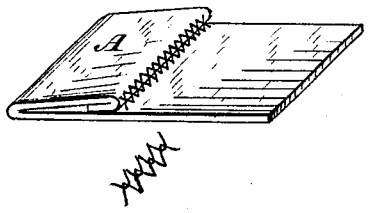


Fig. 8.

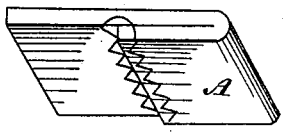


Fig. 7.

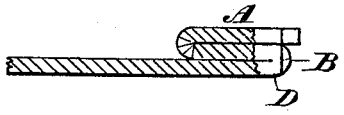
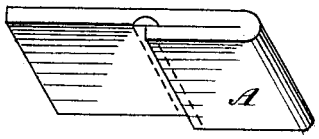


Fig. 9.



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METHOD OF WELTING OR HEMMING FABRICS.

SPECIFICATION forming part of Letters Patent No. 266,751, dated October 31, 1882.

Application filed September 10, 1881. (Specimens.)

To all whom it may concern:

Be it known that I, JOHN BIGELOW, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Methods of Welting or Hemming Knit Fabrics and other Material; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

In the accompanying drawings, Figure 1 is a perspective view, showing the edge folded back and the surplus fabric trimmed close to the line of sewing. Fig. 2 shows the reverse side of Fig. 1, the material being unfolded or flattened out and the stitch appearing. Fig. 3 shows the hem or welt secured with an over-edge stitch. Fig. 4 shows a reverse side, similar to No. 2, the stitch not appearing. Fig. 5 shows the cut edge folded back upon itself and the hem or welt seamed with an over-edge stitch. Fig. 6 shows Fig. 5 flattened out. Fig. 7 shows an enlarged sectional view of the line of perforation of the needle within the folded edge of the material when sewed with a straight line of stitches, so that when opened or flattened the stitch will not appear on the outside surface. Fig. 8 shows the welt side when the sewing is done with a zigzag stitch. Fig. 9 shows the welt side when secured by a straight line of stitches, and the parallel lines of thread connecting the points of perforation of the needle.

This invention relates to the formation of welts or hems upon knit fabrics—such as the bottoms of undershirts or the tops of hose, and other pliable fabrics or materials—in a new manner and by mechanical means. I use the word "welt" as synonymous with the word "hem," because in hosiery manufacture it is used to indicate the same finish for a cut edge as in other textile goods—such as handkerchiefs—would be called "hem."

The old method of hand "hemming" by a needle and thread, with the slowness of the process and labor attending it, hardly needs a reference; but I will explain somewhat in detail the state of the art in hosiery manufacture, simply wishing to remark that I do not confine the limits of my invention to knit fabrics, because it is equally applicable to other suitable materials requiring a finished or hemmed edge.

Heretofore cut knit goods have been welted or hemmed by simply folding the material back upon itself and securing the fold by a line of ordinary straight stitching, which passed through the same at a suitable distance from the edge to prevent raveling, and through the body to the outside of the material. Hems or welts thus made were inelastic, bulky, wasteful of material, and uncomfortable. "Full regular made" goods were welted or hemmed by picking all the loops on the edge of the fabric onto pin-points, and also a row of loops in the body of the fabric—one loop on each of the same points—and then by a peculiar mechanism consecutively uniting the two loops held on each point to the two held on the adjoining point—the close equivalent of knitting. This gave a very perfect result, but was slow, tedious, expensive, and only applicable to high-priced fabrics. Still another method was in "setting up" on the knitting-machine to make the first "course" with long loops, and to retain it upon the set-up comb until a sufficient length for the hem had been knit, then to transfer the loops from the set-up comb back onto the knitting-needles and allow them to be regularly knit into the fabric. This method required special and high-cost machinery, was applied to high-priced articles of manufacture, and could not be applied to what is known as "cut knit goods."

By using an ordinary sewing-machine and without materially reducing its production, by my invention I am able to welt or hem the lower and cheaper grades of knit fabrics known as "cut goods," with the stitches hidden or so slightly apparent that on the outside the welt or hem appears quite similar to that of the goods described as "full regular made," and on the inner or folded side, while the difference of manufacture is easily distinguishable by the fact that each loop is not secured, yet practically the merits will be the same, because the seam is perfectly elastic. There is but little surplus edge to the folded part beyond the seam, and thus no bulkiness or waste of material, and consequently no discomfort occasioned thereby to the wearer.

In carrying out my invention I fold the part to be welted or hemmed back upon itself, as shown in Figs. 1, 3, and 5, and so present the same between the presser-foot and work-plate of the sewing-machine to the stitch-forming mechanism that the line of stitching will pass through the first fold, A, Fig. 1, and either through or partly through the bend or edge B. This can be done with or without gages. Should the stitches pass through the bend or edge B, they will appear on the outside as straight lines, Fig. 2. If they do not pass through the bend or edge B, they will not appear on the outside at all. (See Fig. 4.) In either instance it will be noticed that the needle, in penetrating the fold, passes in and out on the same side of the fabric, so that in straight sewing, when the material shall have been sewed and straightened out, the threads connecting the points of perforation of the needle will appear as parallel straight lines, and will show only on the welt or folded side. (See Fig. 9.) By proper care of the tension and the depth of the stitch in the bend or edge B the completed seam will unfold perfectly flat, be as elastic as the material itself, and the surplus edge of the fold A need extend but little beyond the line of sewing. (See Figs. 8 and 9.)

This method of welting or hemming is adapted to any ordinary sewing-machine. By proper guiding on goods of a firmer texture than knit fabrics any desired surplus edge beyond the line of sewing can be given to the fold A, and on knit goods the surplus edge can be properly trimmed.

Having thus described my invention, what I consider new, and desire to secure by Letters Patent, is—

1. The improvement in the art of making a welt or hem on knit goods or other fabrics, which consists in folding the goods on the line at which the seam is to be made, turning back the outer portion upon the fold so as to leave a welt of the desired width, holding the work by clamping devices—such as the presser-foot and work-plate of a sewing-machine—and uniting the superposed layers by stitches which pass through the goods parallel with the folded edge and at a suitable distance from said edge, as stated, so that the folded material can be flattened out, substantially as described.

2. The method herein described for welting or hemming material, which consists in folding the same back upon itself, as shown, next folding the edge of the material back and under, with the fold thus made in line with and over the first edge or fold, as shown, and then uniting the parts with a line of sewing-machine stitches, substantially as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN BIGELOW.

Witnesses:

G. W. BALLOCH,

GEORGE CORNELL.