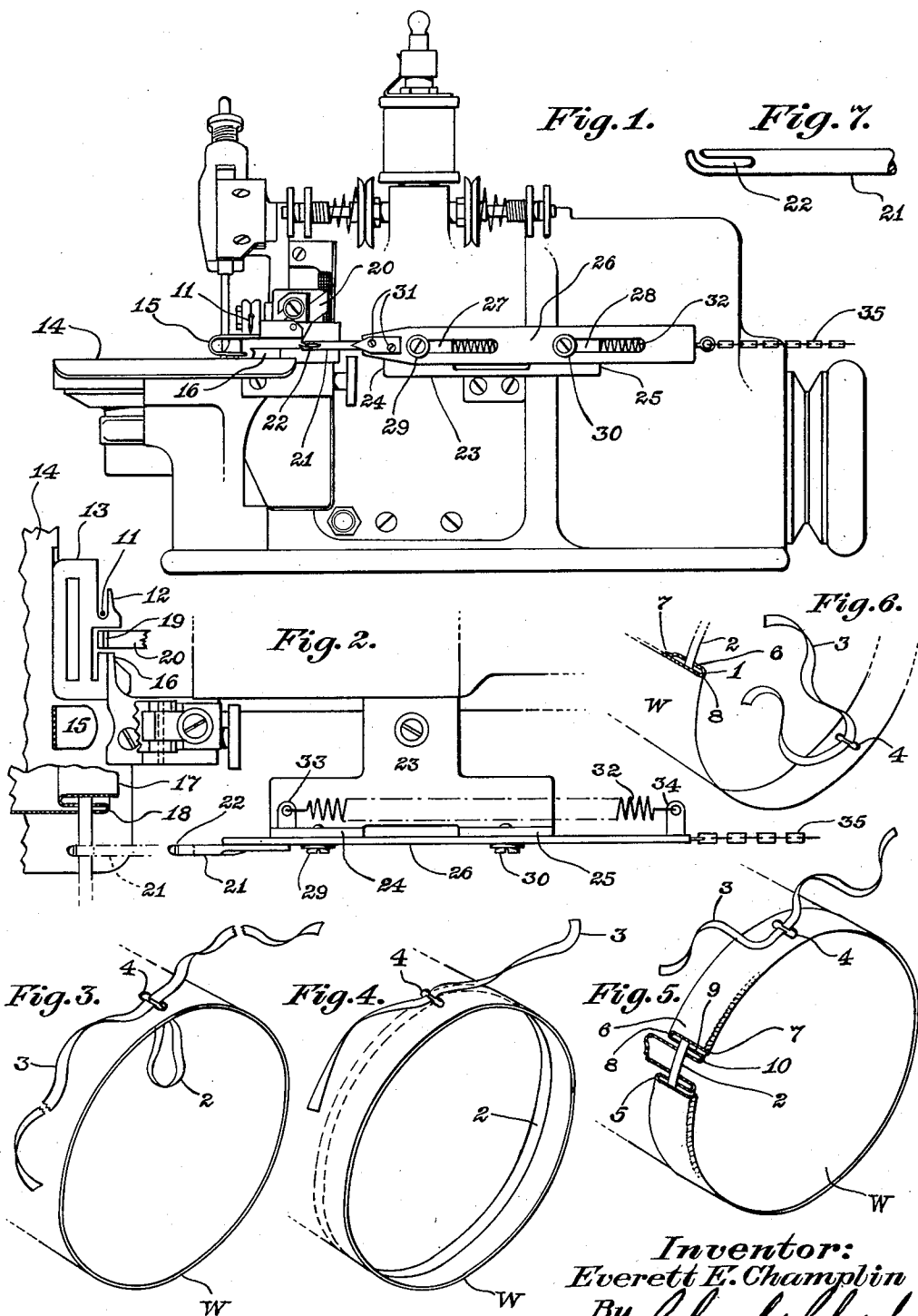


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E. E. CHAMPLIN
METHOD OF INSERTING DRAWSTRINGS
WITHIN A HEMMED MATERIAL
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METHOD OF INSERTING DRAWSTRINGS
WITHIN A HEMMED MATERIAL

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This invention relates to production of a hemmed finish around an end of material of tubular form with a draw string loop freely included within the hem while the ends thereof emerge from the hem through a suitably placed eyelet. An example of useful application of the arrangement of materials indicated is found in the hemmed and taped bottom and sleeves of infants' sleeping gowns.

Primarily the object of the invention is to provide a method particularly designed to facilitate the production at the end of a tubular portion of fabric of a hem with a tape included therein, with the free ends of said tape emerging through an eyelet in the margin of fabric included in the hem.

In accordance with the invention, a loop of a tape is inserted through an eyelet in the tubular fabric. Next the loop may be enlarged until it conforms to the periphery of the tubular fabric, leaving the free ends of the tape extending from the loop through the eyelet. Then a hem fold is formed at the end of the fabric with the loop of tape lying within the fold, and the fabric is stitched to form a hem containing the loop of tape as a draw string.

For a more detailed explanation of my method, and an illustration of apparatus by which it may be practiced, reference may be had to the accompanying drawings wherein:

Figure 1 is a front view of a sewing machine showing certain devices associated therewith, useful in practicing the method of my invention;

Fig. 2 is a top view of the machine shown in Fig. 1, with some parts removed for purposes of clearness;

Figs. 3, 4, 5, and 6 are diagrammatic views illustrating progressive steps comprising a preferred form of my method for forming a hem with draw string included therein;

Fig. 7 is an enlarged detail view of a tape guiding finger.

For disclosure of the method comprising my invention, reference is made to Figs. 3, 4, 5, and 6, in which an end of tubular material is indicated by "W." This tubularly formed article may consist of fabric woven or knitted in tubular form or of flat section or sections sewed together lengthwise in the process of forming a garment such as a skirt, shirt or infant's sleeping gown. A completed end of such a garment is indicated in Fig. 6, where the hem 1 encloses a loop 2 of a length of tape 3, of which the free ends emerge from a hole or eyelet 4 to serve their capacity in a well known arrangement which includes the extensively em-

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ployed draw string as a means of garment adjustment.

To produce the result indicated in Fig. 6, according to my improved method, a piece of tape 3 of suitable length is passed from the exterior to the interior of the tube W through eyelet 4 in loop form as shown in Fig. 3. This loop 2 is then enlarged to suitably match in circumference the perimeter of tube W (see Fig. 4). A hem fold 5 (see Fig. 5) is then made including the expanded loop 2 within the fold. This hem fold is preferably made by forming a double fold so that margin 6 adjacent edge 7 is folded at 8 to overlie a band 9 of the tubular fabric, which band 9 is in turn folded at 10 to overlie the tubular fabric. In this way, three thicknesses are formed with loop 2 between margin 6 and band 9. Next, edge 7 is stitched to fold 10 to form the hem with loop 2 secured therein. Finally the hem is turned from the outside, as shown in Fig. 5, to the inside, as shown in Fig. 6.

In putting into practice the method comprising my invention, a sewing machine suitable for conveniently stitching the fabric may be of the well known "Merrow" type provided with guiding, gauging and trimming devices effective in the formation of a blind stitch hem. Furthermore there may be associated with the sewing machine mentioned, means adapted to facilitate certain of the steps performed in the method comprising my invention.

Referring to Figs. 1 and 2, the stitch forming mechanism of the overseaming machine illustrated includes the needle 11. This cooperates with loopers (not shown) and stitch finger 12 of needle plate 13 to form overedge stitching in a manner well known. Serving to support the work W (see Fig. 2) a plate 14 supplements the needle plate 13. In the formation of a blind stitch hem, uniformity in the width of hem and accuracy in advancing the folded edge of the fabric to the stitching mechanism are respectively controlled by a hem fold gauge as 15 and an edge guide as 16. For trimming the free edge 17 of fabric to attain an evenness thereof suitable for stitching it to the underlying fabric fold 18, trimming cutters 19 and 20 are provided for simultaneous operation with the stitching and in close proximity to the needle. For a more detailed disclosure of an overedge sewing machine equipped with adjuncts effective for blind stitch hemming reference may be had to U. S. Patent No. 1,649,360, issued to Joseph M. Merrow, November 15, 1927, or to U. S. Patent No. 1,941,452, issued to John M. Washburn, January 2, 1934.

Serving a purpose that will hereinafter more fully appear, a tape finger 21 provided with slot 22, is movably supported at the front of the machine frame by means including a bracket 23 having upstanding aligned flanges 24 and 25. A bar 26 provided with elongated slots 27 and 28 is slidably supported on flanges 24 and 25 by respective stud screws 29 and 30. The finger 21 is secured to sliding bar 26 as by screws 31. Bar or slide 26 is endwise movable to opposite extreme limits permitted by the length of slots 27 and 28. With slide 26 moved to its forward limit, finger 21 is located in the position, relative to work W, in which it is shown in dotted lines in Fig. 2, and in its rearward limit the finger is in the position in which it is shown in full lines in said figure. Normally the slide 26 together with finger 21 is held in the forward position by a spring 32 which is attached at one end to an eye stud 33 extended from flange 24 and at the other end to an eye stud 34 extended from the rear end of the slide. Means for holding the bar 26 in its retracted position against the tension of spring 32 may be any suitable device such as a knee lever or foot treadle (not shown) to which the bar may be attached as by chain 35.

In carrying out my improved method with the above-described sewing machine, tape engaging finger 21 while in its retracted position (see full lines in Fig. 2) may be advantageously utilized in threading tape 3 through eyelet 4 as with a bodkin. Also finger 21, when in its forward position (see dotted lines Fig. 2), serves as a guide for keeping the tape as it passes therethrough properly aligned during stitching of the hem fold edge as the work advances past the hem fold gauge 15, edge guide 16 and trimming cutters 19 and 20.

The sequence in which the tape engaging finger 21 is made use of is as follows: with the finger in its retracted position, a tape of suitable length is inserted in slot 22 approximately midway of its length; the work is passed over the finger through eyelet 4 beyond slot 22 while the bight of the tape is engaged in the slot to thereby form loop 2 within the tube comprising the work; the finger is disengaged from the loop of tape; the loop is adjusted and the work formed in a hem fold thereabout; the adjusted material is applied to the stitching and associated mechanism; the finger, under the urge of spring 32 is then permitted to advance to its forward position where it is engaged again with the tape to serve as a guide for the tape while the stitching progresses; when the stitching being applied approaches the point of its beginning the finger is disengaged from the tape and the stitching operation is completed; the finger being now in its retracted position is ready for a repetition of the sequence.

Upon completion of the stitching the material is removed from the machine, and the hem fold is turned to the inside as previously described.

Having thus described my invention, what I claim is:

1. In the production, at the end of a portion of fabric forming a tube, of a hem with a tape included therein with free ends of said tape emerging from the hem through an eyelet in the fabric, the method which consists in inserting a loop of a length of tape through the eyelet from one side to the other of the fabric of the tube, folding the fabric edge at the end of the tube into a hem fold

with the loop of tape lying within the fold, and stitching the fabric to form the hem fold into a hem adapted to maintain the tape therewithin in a manner permitting the tape to serve as a draw string.

2. In the production, at an end of a portion of fabric forming a tube, of a hem with a tape included therewithin with free ends of said tape emerging from the hem through an eyelet formed in the margin of fabric included in the hem, the method which consists in inserting a loop of a length of tape through the eyelet from the outside to the inside of the fabric tube, enlarging the loop of tape to substantially match the perimeter of the fabric tube, folding the fabric edge at the end of the tube into a hem fold with the loop of tape lying within the fold, and stitching the fabric at the folded edge to form a hem adapted to maintain the tape therewithin in a manner permitting the tape to serve as a draw string.

3. In the production, at an end of a portion of fabric forming a tube, of a hem with a tape included therewithin with free ends of said tape emerging from the hem through an eyelet formed in the margin of fabric included in the hem, the method which consists in inserting a loop of tape through the eyelet from the outside to the inside of the fabric tube, enlarging the loop of tape to match the perimeter of the fabric tube, forming a hem fold in the fabric edge with the edge margin of the fabric overlying a band of the fabric turned outside adjacent said edge margin with the loop of tape lying within the fold between said band and said edge margin, and stitching the fabric at the folded edge to form a hem enclosing the portion of tape between where the free ends thereof emerge from the eyelet.

4. In the production, at an end of a portion of fabric forming a tube, of a hem with a tape included therewithin with free ends of said tape emerging from the hem through an eyelet formed in the margin of fabric included in the hem, the method which consists in engaging a length of tape with a threading tool, inserting the threading tool with the bight of tape engaged thereby through said eyelet from the outside to the inside of the fabric tube, thereby forming a loop, enlarging the loop to substantially match the perimeter of the fabric tube, disengaging the threading tool from the loop of tape, folding the fabric edge into a hem fold with the loop of tape therewithin, engaging the threading tool with the tape within the hem fold to serve as a guiding finger, stitching the fabric fold to close the hem with the tape included therewithin from a point adjacent one side of the eyelet through which the free ends of the tape emerge around the fabric to a point on the opposite side of said eyelet, disengaging the threading tool or guiding finger from the tape, and stitching the fabric fold to complete the hem entirely around the fabric tube.

EVERETT E. CHAMPLIN.

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