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MANUFACTURE OF COLLARS FOR PERSONAL WEAR  

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This invention relates to the manufacture of collars for personal wear.

Collars are cut from a sheet or web of material which is flat, and yet in wear they must, in order to fit agreeably on the wearer, be curved around the neck.

Various means have been proposed with this aim in view, such as for instance, weaving the fabric from which the collars are cut as a curved band; this method of manufacture is obviously expensive. In another method the whole of one fold of the collar has been manufactured from cloth having warp threads at a greater tension than the weft threads and of the other fold. This will allow the inner fold of the collar to lie on the surface of an imaginary cylinder but may cause puckering of the outer fold due to the abrupt change in effective length of the two collar folds respective to one another. The same effect will be present where the whole of one fold of a collar is shrunk relatively to the other fold.

By the present invention it is possible to cut collars with a straight template from a sheet or web of almost any weave, and yet obtain a collar with a conical neckband, curved in the plane of the collar without puckering of the outer fold, and the curvature of which will be permanent or substantially so in spite of repeated launderings.

According to this invention collars or the neckbands of collars are cut straight or without the requisite curve from a flat web of material in which the warp threads are parallel, whereupon the length of the major part of the collar fabric is varied as compared with a narrow area adjacent to the lower edge alone of the neckband or inner fold of the collar, for example by applying to the lower part of the neckband a contracting force to produce a contraction of the overall length of the neckband along the line of application greater than the contraction due to shrinkage of the cloth in the rest of the collar, the finished collar remaining substantially in that curvature even after repeated launderings.

One preferred method of applying a permanent contraction to this localized area of the collar is to attach to it by sewing under normal tension a tape or tapes which has or have been dampened, stretched, and then dried in the stretched state. When the collar as a whole or the part to which the tape is attached is then wetted, this tape contracts and draws with it the material of the neckband of the collar to which it is attached. Thus the desired curve is imposed upon the collar.

Prestretched (i.e. possessing potential shrinkage) threads or films may be used instead of, or in conjunction with, pre-stretched woven tape. Such pre-stretched tapes, threads or films may be applied to the localized area to be shrunk by means other than sewing, or they may be incorporated within the localized area during the initial weaving operation; or they may be incorporated in the seams or between the plies in the make up of all ordinary types of collars for example soft, fused (that is to say where threads or a sheet of plastic material fusible by heat is incorporated with the collar material so that this may be stiffened) or starched whether one piece, or 2 piece, single ply, 2 ply or multiply. It is also possible to use threads or tapes made of wool, or creped yarns which have not been pre-stretched but which possess a tendency to contract when washed.

In another method, one or more rows of sewing machine stitches are applied to this area of the neckband under a higher tension or with a coarser needle or with a greater number of stitches per inch or by stitching through a greater number of layers than the stitches in the main or centre seam or a number of these methods used together.

Such seams will shrunk when the collar is first wetted giving the desired curve to the neckband.

A further alternative method is to apply a chemical shrinking liquor to this localized area, e.g. a mercerizing liquor such as caustic soda of m mercerising strength and the curve produced in this way may be made more permanent by the addition of non-extensible seams.

By means of any of these methods, it is easy to vary the curve produced, by varying the number of seams, stitches, threads or tapes added to the collar which are capable of shrinking, or by varying the amount of shrinkage of which the seams, stitches, threads or tapes are capable, for example, by varying the way in which the seam is sewn or the extent to which the tape is stretched before setting.

By way of example the invention is further set forth with reference to the accompanying drawings, in which:

Figure 1 is a plan view of a double collar prior to treatment to produce the curve.

Figure 2 is an end sectional view of one form of collar as in Figure 1.

Figure 3 is an end sectional view of another form of collar as in Figure 1.

Figure 4 is an end sectional view of a further form of collar as in Figure 1.
Figure 5 is a similar view to Figure 1 showing the collar after treatment and finishing. Figure 6 is an end view of the finished collar of Figure 5.

Figure 7 is a plan view of a double collar treatment in a modified way. Figure 8 is a plan view of a double collar treated in another way.

A collar (Figure 1) is cut out from a piece of continuous web (preferably a well shrunk cotton line cloth) with the warp threads at right angles to the weft and running parallel to the length of the collar in both outer fold 2 of the double collar and also inner fold or neckband 3.

The collar may be edged with tape 4 which is an ordinary woven tape (as shown in Figure 2) or where a two ply collar is required, the two pieces may be stitched together as in Figures 3 and 4. The fold line or centre seam of the double collar can be strengthened or demarcated by an ordinary woven tape 6 or by rows of stitching 7 (Figure 9).

Instead of applying to the lower edge of the neck band of the collar a tape similar to the tape 4 or 6, a specially prepared tape 8 is applied. This tape 8 is one which possesses considerable contracting force when wetted, i.e., a shrinkage greater in excess of the natural slight shrinkage of either the fabric 2, 3 or the tapes 4, 6. This can be obtained by taking a tape having the warp yarns well cramped in the loom state, bleaching this and drying without tension; it is then a tape capable of considerable lengthwise extension. For instance, a 3/4 inch wide cotton tape of this character capable of 23% extension before breaking in the wet state is wetted and stretched 20% by any convenient tensioning means and then dried while under tension. A tape 8 of this kind is then attached to the lower edge of the neck-band of the collar by stitching it under normal tension.

On wetting the whole collar or the part to which the tape is attached or more usually on washing and dressing in finishing, the tape 8 will contract and bring the neck band 3, and particularly its lower edge into a curved shape. This curve is particularly resistant against laundry processes and a considerable force is required to remove the curve. If any of this curve is removed by excessive stretching of the lower edge of the neck band, this stretching reinstates the potential laundry shrinkage in the tape 8 so that the curve is reproduced when the collar is again wetted.

An alternative method is to set a stretched tape with a material such as resin, attach it to the collar fabric, and then release the set or the like. A method for incorporating the tape 8 within the plies of a three ply collar is shown in Figure 4, where 13 indicates an interlining whether fusible or not.

The shape assumed by the collar after the wetting treatment is shown in Figures 5 and 6.

In an alternative method shown in Figure 7, a piece of ordinary tape can be sewn at 8 and 9 with for instance a 5 cord 120's sewing cotton twine to five stitches to the linear inch using a No. 11 Simanco needle in a Singer 95 K machine with less thread tension than usual, whilst along the bottom of the neck band at 10 a seam is sewn with, for instance, a six core 24's cotton twenty-four to twenty-six stitches to the inch using a Wilcox & Gibbs No. 6 needle in an Adler needle-feed machine with excess tension on both shuttle and needle threads. Buttonholing may be done at this stage. This seam may be sewn on the collar material, or may be sewn on an ordinary tape fixed to the neckband or may be one or more parallel lines of stitching as shown.

In the dressing and washing of the collar the highly tensioned closely stitched seam will contract very little, whereas the parts not sewn on the under side are drawn up and the collar is thus made more inert with respect to shrinking and more resistant to the influence of the said liquor. This mercerising of this localised area of the fabric will result in a differential shrinkage in the same manner as the method described above.

An important advantage of this invention is that if the fabric includes a stripe pattern, this will still in the finished collar run parallel to the curve of the fold along the centre seam as defined by the tape 8 or stitching 7 without losing the advantage of a space between the folds for the liquor. It is also evident that the stitching 7 or seaming of the tape 8 and of tape 6 or other work upon these seams of the collar, for example fixing a special ridge or carrying out other processes to make the collar fold over easily is simple to carry out when these parts are sewn or attached as compared with the making of seams or fold lines on the curve as is necessary when for instance, the fabric is woven on the curve or cut curved. Where reference is made to a collar blank this relates to the cut piece of collar material in any stage of the manufacture of the collar.

I declare that what I claim is:

1. A method of manufacturing collars consisting in cutting a collar blank from a flat web of material in which the warp threads are straight and are parallel to one another, and subsequently imparting a permanent longitudinal contraction solely over a narrow area situated along the total length of one longitudinal edge alone of the blank which will form the lower edge of the neckband.

2. A double collar in which the whole of the outer fold and the major part of the inner fold are of similar material in which the warp threads are straight and are parallel to one another whilst the lower part of the neckband alone is of material which has been shrunk so that the edge of this part assumes a curvature.

3. A collar having a tape capable, on wetting of the collar, of greater contraction in length than the material of the collar, secured to and parallel with the lower edge of neckband alone of the collar.

4. A collar having a tape which has been wetted, stretched and dried, while stretched, attached to the lower edge of the neckband alone.

5. A collar having an area adjacent the lower edge of the neckband alone, treated with a chemical shrinking agent.

6. A method of manufacturing collars including the step of securing to that part alone of the neckband, threads set whilst tensioned, and then releasing the setting after the cutting of the collar blank.

7. A method of manufacturing collars including the step of securing to that part alone of the
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8. A method of manufacturing collars consisting in cutting a collar blank from a web of material, setting a tensioned tape to prevent its contraction, securing said set tape to the whole of the lower longitudinal edge of the neckband of the collar blank between the stud holes, and then releasing the setting of the tape.

9. A method of manufacturing collars consisting in cutting a collar blank from a web of material, stretching a length of tape, setting said length of tape in the stretched condition, securing said set tape along the lower longitudinal edge of the neckband of the collar blank between the stud holes substantially parallel with the fold line and then releasing the setting of said tape.

10. A method of manufacturing collars consisting of cutting a collar blank from a web of material, weaving a length of tape, moistening said tape, stretching said tape whilst so moistened, drying said tape whilst stretched in order to set it, securing said set tape along the lower longitudinal edge of the neckband of the collar blank between the stud holes and then releasing the setting of the tape by dampening the collar and the tape.

11. A method of manufacturing collars, consisting in cutting a collar blank from a web of material, weaving a length of tape under tension, setting said length of tape whilst in tension, securing said set tape along the lower longitudinal edge of the neckband of the collar blank between the stud holes alone, and then releasing the setting of the tape.

12. A method of manufacturing collars consisting in cutting a collar blank from a web of material, applying longitudinal rows of stitches under high tension parallel with and along that part of the lower edge of the neckband of the cut collar blank which lies between the stud holes and then wetting the blank.

13. A method of manufacturing collars consisting in cutting a collar blank from a web of material, applying to that part of the lower edge of the neckband alone, which lies between the stud holes, and parallel with that edge, rows of densely associated stitches capable of contraction on wetting, and then wetting the blank.

14. A collar having a narrow area on the lower edge of the neckband alone, which lies between the stud holes, artificially contracted as compared with the remainder of the neckband, the lower edge of the neckband being curved.

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