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FA FABRIC CUTTING SYSTEM

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Fig. 1

Fig. 2

Fig. 3

Fig. 4

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My invention relates to machines for handling flat, open, woven or knitted fabrics after processing and finishing and is particularly useful in connection with flat knitted rayons which because of their structure are easily pulled out of shape and so require special care to prevent distortion. I have found that such flat knitted fabrics may be more uniformly treated if the cloth is in tubular form so that it may be uniformly spread to width while allowed to contract lengthwise, then processing and finishing such fabric while in tubular form and then restoring the fabric to open form prior to final winding.

The object of the invention is to provide rotary cutting means adjacent and prior to the final rolling up of the fabric for removal of the sewn edge and thereby restoring the material to open form. My invention is illustrated in the annexed drawing, in which

Fig. 1 is a top view of my improved rotary cutter, the top of the housing thereof being removed; Figs. 2 and 3 are sections taken along lines 2—2 and 3—3 of Fig. 1 respectively; and

Fig. 4 is a side view of the apparatus in place between the finishing and final rolling operations.

The fabric after doubling, trimming and sewing is subjected in flat form to the usual finishing operations such as dyeing, drying, shrinking, stretching, steaming and finally pressing. During these operations the material may be handled on the usual type of machine for finishing tubular fabrics such as that shown, for instance, in Cohn and Walter Letters Patent No. 2,109,469 granted March 1, 1938, and in Butterworth et al. Letters Patent No. 2,301,249 granted November 10, 1942.

Having passed through finishing and drying machinery, the fabric is drawn over spreaders (not shown), is flattened again and run in flattened condition and travels between calendering rollers 54, 55 (Fig. 4) and drops upon moving belt conveyor 62 which carries the material to cutting machine 58 (Figs. 1, 2, 3).

After traveling a short distance on belt 62 the sewed edge 57 of the fabric comes in contact with cutter guide 56 (Figs. 1, 2, 3). This guide leads the edge into operative position with cutter wheel 60 at a point slightly above the plane of the moving conveyor belt and acts to position and support the fabric while the sewed edge is trimmed off by the cutter.

The cutting machine 58 consists of a housing 69 containing a cutter wheel 60 mounted on a rotating shaft 61. The bottom 63 of said housing 65 (Figs. 2, 3) consists of a hollow casting having a flat undertop 64 and a convex upper surface 65 with a recess 66 intermediate the upper and lower portions of the casting. In trimming off the sewed edge of the material the upper convex surface 65 acts as a cutting table, the edge 67 of wheel 60 being arranged to cut the material and rotate in slot 68 and recess 66 in the bottom 64 of housing 59 (Fig. 3). By this operation the fabric is restored to open form.

Next the material may drop back onto moving conveyor belt 62 (Figs. 1, 2) which transports it to wind-up mandrel 72 (Fig. 4) upon which the finished fabric is wound.

In disposing of the waste strip of goods 99 (Fig. 1) resulting from cutting away the sewed edge, it may be first passed beneath a guide associated with the cutter and then under a driven roll 73 positioned behind the wind-up mandrel 72 before permitting the strip to drop into an appropriate waste receptacle (not shown).

The flat fabric, automatically formed into tubular shape, is treated in this shape and then restored to flat condition continuously and automatically with consequent speed, accuracy and uniformity of treatment and uniform quality in the product.

This application is a division of my co-pending application Serial No. 418,939, filed November 13, 1941, for Method and apparatus for treating fabrics, now Patent No. 2,321,010 of June 8, 1943.

I claim:

1. Apparatus for severing an edge of a traveling fabric tube including a spreader bar engaging an edge of said tube and positioning and tensioning said edge for cutting, cutter means associated therewith and severing said edge, a driven mandrel winding up the sewed fabric, and spreader means for disposing of the severed edge.

2. Apparatus for severing an edge of a traveling fabric tube including a spreader bar engaging an edge of said tube and positioning and tensioning said edge for cutting, cutter means associated therewith and severing said edge, a moving belt for transporting said fabric, a driven mandrel winding up said sewed fabric and means maintaining the severed edge against lateral displacement consisting of an extension of the spreader, said extension passing over the severed edge as said edge leaves the cutter and roll means adjacent the wind-up mandrel.

3. Apparatus for severing an edge of a traveling fabric tube including a spreader bar engaging an edge of said tube and positioning and tension-
ing said edge for cutting, cutter means associated therewith and severing said edge.

4. Apparatus for severing a sewn edge of a traveling fabric tube including a spreader bar fixed in position with relation to said apparatus and engaging an edge of said tube and positioning and tensioning said edge for cutting, cutter means associated therewith and severing said edge.

5. Apparatus for severing an edge of a traveling fabric tube including a spreader bar engaging an edge of said tube and positioning and tensioning said edge for cutting, cutter means associated therewith and severing said edge, means for varying the location of the cutter means in a direction transverse to the fabric and a driven mandrel winding up the severed fabric.

6. Apparatus for severing a sewn edge of a traveling fabric tube including a spreader bar fixed in position with relation to said apparatus and engaging an edge of said tube and positioning and tensioning said edge for cutting, cutter means associated therewith and severing said edge, and means for varying the location of the cutter means in a direction transverse to the fabric.

7. A machine for handling textile fabric comprising a pair of driving rolls between which flattened tubular fabric passes, means following said driving rolls for slitting said fabric adjacent one edge of the flattened tube and severing said edge including a guide within said flattened tubular fabric.

8. A machine for handling fabric comprising means for passing flattened tubular fabric continuously through the machine and means for tensioning one edge of said fabric without tensioning the other edge, and cutting a predetermined narrow strip of fabric from said tensioned edge of the flattened tube.


10. The method of finishing and handling tubular fabric which comprises spreading the fabric in flattened form and passing it between finishing rolls, tensioning one edge of the flattened tube and cutting a predetermined narrow strip of fabric from said tensioned edge, and winding up the severed fabric.

11. Apparatus for severing an edge of a traveling fabric tube including calender rolls receiving and pressing the tubular fabric in flattened form, a guide located within the fabric tube for spreading it in flattened form, and cutting means adjacent said guide and acting to sever the guided portion of the fabric.

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