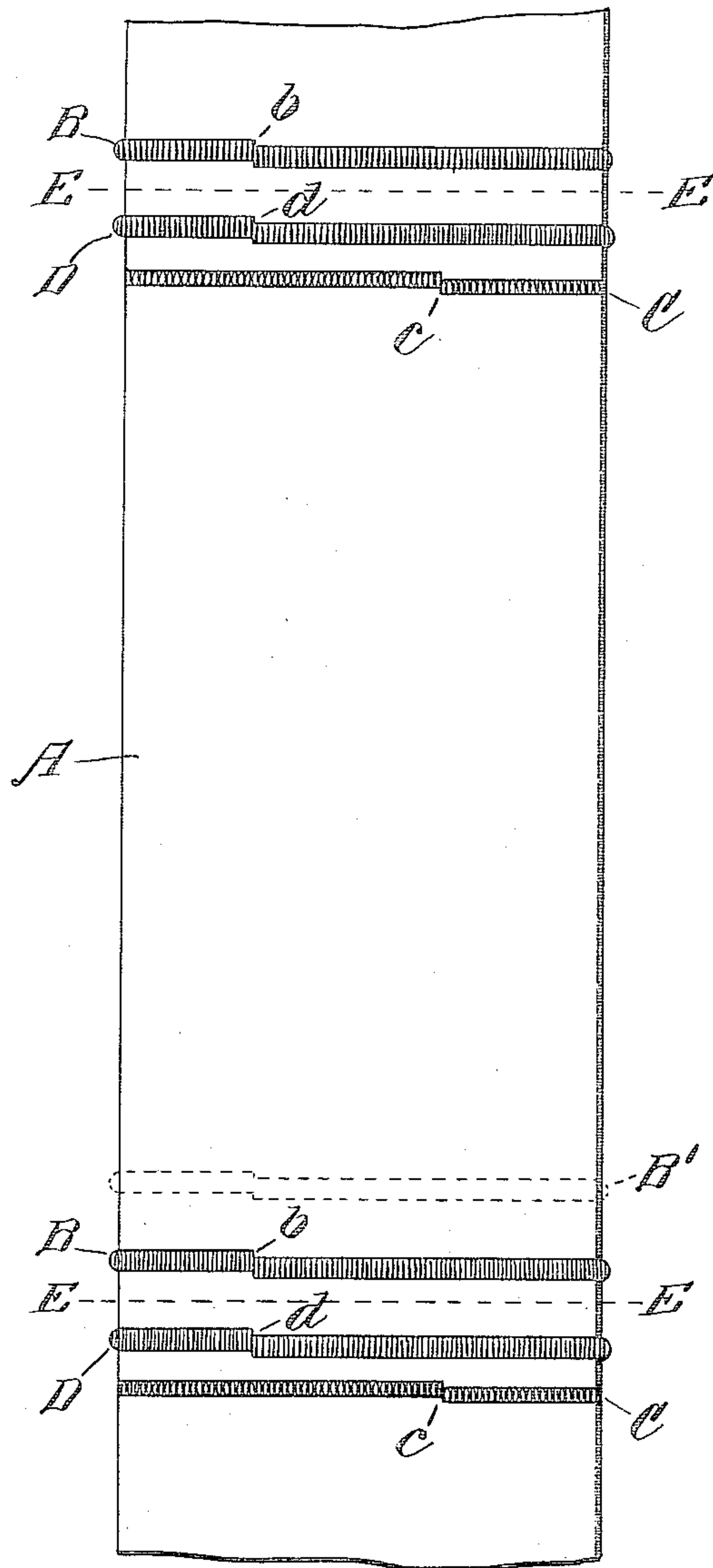


E. E. KILBOURN.
TUBULAR RIBBED FABRIC.
APPLICATION FILED SEPT. 23, 1909.

953,669.

Patented Mar. 29, 1910.



WITNESSES:

J. K. Moore
J. K. Moore

INVENTOR

BY *Edward E. Kilbourn*
Whitaker & Tabor
Attorneys

UNITED STATES PATENT OFFICE.

EDWARD E. KILBOURN, OF NEW BRUNSWICK, NEW JERSEY, ASSIGNOR TO KILBOURN
MANUFACTURING CORPORATION, OF NEW BRUNSWICK, NEW JERSEY.

TUBULAR RIBBED FABRIC.

953,669.

Specification of Letters Patent. Patented Mar. 29, 1910.

Application filed September 23, 1909. Serial No. 519,201.

To all whom it may concern:

Be it known that I, EDWARD E. KILBOURN, a citizen of the United States, residing at New Brunswick, in the county of Middlesex and State of New Jersey, have invented certain new and useful Improvements in Tubular Ribbed Fabrics; 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.

This invention consists in an improved article of manufacture, to wit, a ribbed top or cuff such as forms part of men's half hose. It is customary to knit these rib tops upon a circular rib knitting machine provided with horizontal or dial needles and vertical or cylinder needles, and to provide each of said tops or cuffs with a welt (or welts) at one end which serves as a selvage and at the other end a course of stitches the thread of which is more loosely drawn than that of adjacent courses, forming what is termed the "slack course," or "running-on" course. These tops or cuffs are usually knit as a continuous fabric or tube, a few courses being knit between the slack course of one top and the welt of the next adjacent course to permit of severing the individual tops or cuffs and to provide courses to be raveled when the top is applied to a knitting machine. The several tops are separated at a point between the slack course of one top and the selvage or welt of the next adjacent course, and the slack course of stitches is run on to the needles of a circular knitting machine, or upon the points of a transfer cup or ring and subsequently transferred to the needles of the knitting machine, and the stitches beyond the slack course are raveled back to the slack course. The leg of the stocking is then knit directly on to the slack course of the ribbed top.

The operation of running on has been usually performed by hand but recently machines have been devised for mechanically placing the cuffs or tops in such position that the stitches of the slack course can be engaged by transfer levers which are made to engage all or a portion of the stitches of the slack course and transfer them upon the points of a transfer ring or cup. These machines are provided with certain guiding and positioning devices which usually engage the depressions between the exterior

ribs or wales of the fabric. The continuous rib fabric has been fed to the transferring machine, expanded over a mandrel, and moved by the positioning devices to bring the slack course of a cuff or top into proper position, by the engagement of such positioning devices with the selvage or welt of the preceding adjacent top. This necessitates the retraction of the positioning devices to permit the fabric to be severed between the slack course to be run on, and the selvage welt of the preceding top, and where the transfer levers are arranged to engage every stitch of the slack course, the positioning devices must be withdrawn sufficiently to clear the slack course entirely, as the positioning devices cover the alternate stitches of the slack course which are in line with the depressions between the exterior wales. The withdrawal of the positioning devices to permit the web or fabric to be severed and to permit the transfer levers to engage the stitches of the slack course has a tendency to disarrange the slack course and release it from the positioning means so that some of the transfer levers are liable to miss their stitches, and produce defective work in transferring the slack course to the transfer ring.

According to this invention, a tubular rib fabric is knit with the usual selvage welt, and the slack course of stitches and between the selvage welt or welts of one ribbed top, and the slack course of the next adjacent top, an additional or special welt is knit for the purpose of serving, in conjunction with the positioning devices of the transferring machine, to position the slack course of stitches with respect to the series of transfer levers, and for other purposes hereinafter pointed out. The web or fabric is severed between the selvage welt or welts, and the special welt, hence the positioning devices do not have to be withdrawn from engagement with the special welt to permit such severing of the web, and it is preferred to employ a series of transfer levers corresponding to every alternate stitch of the slack course, so that they may pass between the positioning devices, and engage the alternate stitches of the slack course while the fabric is still held by such positioning devices. After the cuff or top is transferred to the transfer ring or to the needles of a knitting machine the special positioning

welt is raveled out together with any courses intervening between it and the slack course and hence does not appear in the completed hose.

5 In the accompanying drawing, the figure represents diagrammatically a section of continuous tubular fabric comprising a series of rib tops embodying the present invention.

10 In the drawing A represents the tubular ribbed web or fabric, provided at proper intervals with a selvage welt B, and a slack course of stitches C, arranged at suitable distances apart to form a ribbed top or cuff of the desired length.

15 D represents the special welt, which as shown is knit between the selvage welt B and the slack course of the next top or cuff and at a sufficient distance from the selvage welt to permit the cuffs to be severed between the two welts B and D, as indicated by the dotted line E, E. In some cases it is customary to knit more than one welt at the selvage end of the cuff or top, for the purpose of making a more ornamental effect, or to indicate the size of hose which is to be knitted thereon, and such an additional selvage welt is indicated in dotted lines at B', but such welts will always be located between the selvage welt and the slack course of the same cuff or top and have nothing to do with the present invention.

In circular knitting any single course of stitches will have its beginning and end the width of a stitch apart. This does not show in the main body of a circular knit fabric as the courses of stitches are knit practically in a spiral manner, but in the case of a single course of stitches such as the slack course, and in the case of a welt, the separation of the ends of the course is apparent, and is termed a "jog". In the drawing, the jog in the slack course of stitches is indicated at *c*, the jog in the selvage welt is indicated at *b* and the jog in the special welt is indicated at *d*. It is important and desirable that the jog *c* in the slack course should be located at a distance laterally of the tubular fabric, from the point at which the jog *d* in the special welt D occurs, in order to facilitate the positioning of the slack course, and prevent distortion of the same which might occur if the jogs *c* and *d* occurred in the same longitudinal row of stitches. It is not material where the jog in the selvage welt or welts occur but they will ordinarily occur as shown in line longitudinally with the jog in the special welt. The special welt D may be knit in the same manner as the ordinary selvage welt or welts, and is so shown in the drawing, but it may be formed in any preferred manner.

65 The ribbed tops herein described are preferably manufactured in a strip of any desired length folded flat and rolled upon

itself into a roll of any desired diameter. It is obvious, however, that the ribbed tops or cuffs can be knit separately, or knit continuously and separated from each other before being used, if found desirable.

A machine well adapted for transferring the herein described ribbed tops or cuffs is illustrated and described in the application of E. E. Kilbourn, William E. Smith and Isaac W. Kilbourn, filed Jan. 29, 1909, Serial No. 474,953.

The special or extra welt D is of advantage even when the ribbed tops are transferred by hand, as the extra welt prevents the stitches of the slack course (or the row of stitches to be transferred) from unraveling out while they are being placed on the transfer points, as the edge of the extra welt nearest the slack course, or transfer course of stitches is a selvage edge. When the ribbed top is used in connection with a transferring machine, the selvage portion of the extra welt prevents the stitches of the transfer course (or slack course) from unraveling when subjected to the strain of the transfer levers, and where, as in the transferring machine particularly referred to, the transfer levers engage the alternate stitches of the transfer course (or slack course) only the extra welt acting as a selvage assists in holding the alternate stitches not engaged by the transfer levers in proper position to engage their respective transfer points on the transfer ring.

While I have described my invention as particularly designed to form part of men's half hose, it is equally applicable to ladies' hose or boys' stockings or any other article in which a part composed of rib fabric is joined to a part composed of plain or other kind of knitting other than ribbed work, and while I have illustrated my invention as embodied in a circular knit ribbed top or cuff, it is to be understood that it may also be embodied in a flat or straight knit fabric, which can be knit as a flat fabric, and afterward joined to form a tube in the usual manner.

What I claim and desire to secure by Letters Patent is:—

1. As a new article of manufacture, a ribbed top or cuff for use in connection with a transferring machine, provided adjacent to one end with a selvage portion, and adjacent to the other end with a course of stitches to be transferred, and having positioning means adapted to be engaged by the positioning devices of a transferring machine, located adjacent to the said course of stitches to be transferred on the side thereof from which the fabric is to be raveled back.

2. As a new article of manufacture, a ribbed top or cuff for use in connection with a transferring machine, provided adjacent

to one end with a selvage portion, and adjacent to the other end with a course of stitches to be transferred, and having a positioning welt, adjacent to the said course of stitches to be transferred on the side thereof from which the fabric is to be raveled back.

3. As a new article of manufacture, a ribbed top or cuff for use in connection with a transferring machine, provided adjacent to one end with a selvage portion, and adjacent to the other end with a course of stitches to be transferred, and having a positioning welt, adjacent to the said course of stitches to be transferred on the side thereof from which the fabric is to be raveled back, the jog in the said positioning welt being located laterally with respect to the position of the jog in the course of stitches to be transferred.

4. As a new article of manufacture, a continuous tubular ribbed fabric for use in connection with a transferring machine comprising a series of ribbed tops joined end for end, each top being provided adjacent to one end with a selvage welt, and adjacent to the

other end with a slack course of stitches, and having a positioning welt interposed between the slack course of one top and the selvage welt of the adjacent top.

5. As a new article of manufacture, a continuous tubular ribbed fabric for use in connection with a transferring machine comprising a series of ribbed tops joined end for end, each top being provided adjacent to one end with a selvage welt, and adjacent to the other end with a slack course of stitches, and having a positioning welt interposed between the slack course of one top and the selvage welt of the adjacent top, the jog in the positioning welts being located in a line longitudinally of the fabric and the jogs in the slack courses being located in a line longitudinally of the fabric located laterally with respect to the line of the jogs in the positioning welts.

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

EDWARD E. KILBOURN.

Witnesses:

J. W. KILBOURN,

JOHN ERICKSON.