Aug. 8, 1939 E. C. HINCHLIFF 2,169,203

STOCKING

Original Filed Nov. 14, 1933

Fig. 1

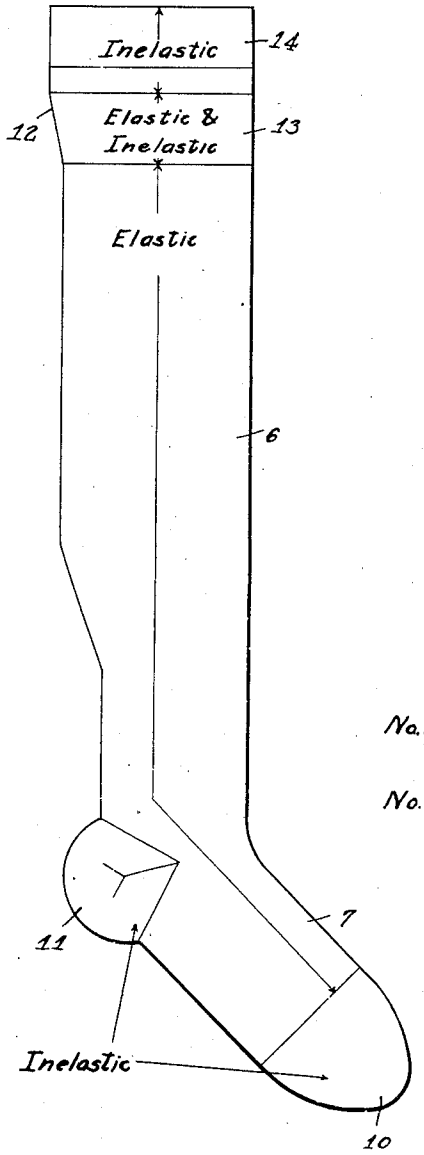


Fig. 2

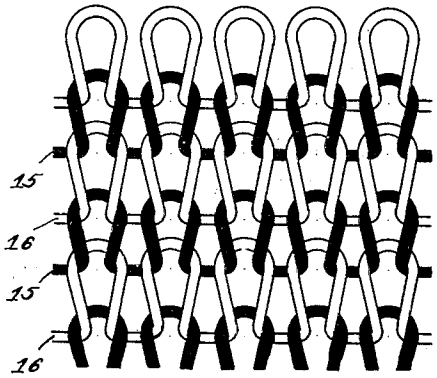
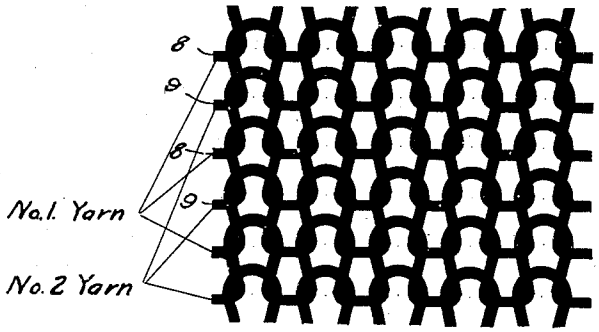


Fig. 3



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Patented Aug. 8, 1939 2,169,203

UNITED STATES PATENT OFFICE

2,169,203

STOCKING

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Application November 14, 1933, Serial No. 697,951
Renewed October 6, 1937

7 Claims. (Cl. 66—178)

This application is related to my copending application Serial No. 650,711, filed January 7, 1933.

This invention relates to elastic stockings and fabrics, and has for its principal object the production of a so-called ringless elastic stocking, which in accordance with the present invention is produced by using more than one elastic yarn in the knitting of the leg, the yarns being alternated so as to camouflage any showing of offsize or irregular portions in the yarn so as to secure a stocking of more uniform and attractive appearance.

More particularly stated, the elastic or surgical stocking of my invention is knitted of elastic yarn of the type disclosed in Adamson Patent 1,822,847, now commonly known as "Lastex", that yarn being capable of being knitted in a fine gauge knitting machine.

The invention is illustrated in the accompanying drawing, in which—

Figure 1 is a view of a stocking made in accordance with my invention;

Fig. 2 is a view on an enlarged scale showing a section of the elastic and inelastic fabric used in the stocking top, and

Fig. 3 is a similar view of the full elastic fabric used in the stocking leg.

In knitting an elastic stocking with "Lastex" or any other covered rubber yarn, a very close stitch formation results due to the elasticity of the yarn itself tightening the loops after they have been shed off the needles. The elastic yarn to be suitable for knitting is necessarily of small cross-section and is covered by winding inelastic material helically around the rubber core. The yarn, despite every precaution in its manufacture, is not absolutely uniform, and the off-size or irregular portions occurring in the yarn are responsible for the appearance of rings or streaks that are prominent enough to be noticeable and objectionable. These irregularities, while not sufficient to render a stocking actually unusable are nevertheless sufficient to spoil their appearance as to salability and make it necessary to sell such stockings as "seconds". Actual manufacturing experience has shown the necessity in knitting full elastic stockings to reject as much as fifty percent of the production in order that "firsts" might be of uniform good appearance. As a result, elastic or surgical stockings have been sold at prices considered exhorbitant by those not familiar with the unusual burden falling upon the manufacturer due to the nature of the material used in the production of these stockings.

In accordance with the disclosure in my earlier application Ser. No. 650,711, in knitting the leg 6 and foot 7 of elastic yarn, such as "Lastex", I use two yarns as indicated at 8 and 9 in Fig. 3, and alternate them in the courses of the knitting. This is, of course, feasible on a Burson machine with transfer mechanism to handle the two yarns, it being accomplished by having the #1 yarn 8 in one carrier and the #2 yarn 9 in the other carrier and using first one and then the other in knitting. The stocking is furthermore fashioned as indicated in Fig. 1. Making alternate courses of one yarn and intermediate courses of the other gives a fabric which I refer to as a "one and one", but it should be understood that the invention is not limited to such alternating of yarns, inasmuch as a "two and two" yarn or any other arrangement of courses might be found to give satisfactory results. The alternating of yarns produces a stocking of much more attractive appearance than where the stocking is made with one yarn throughout, because of the fact that the irregularities that are bound to occur in the yarn, due to its construction, are kept from being concentrated at any one point sufficiently to be noticeable. The toe 10 and heel 11, if provided, may be knitted in the usual way of inelastic yarn, inasmuch as there is no need for support at those points.

In passing, it will be noticed that I have made the top 12 of semi-elastic fabric in the lower portion 13 and inelastic in the upper portion 14 with the idea of tapering off in the supporting pressure rather than to have an abrupt change from elastic to non-elastic fabric at the top. The portion 13 is knit of elastic and inelastic yarn, half and half, with the alternate courses of elastic yarn, such as "Lastex" as shown at 15 in Fig. 2, and the intermediate courses of inelastic yarn, such as cotton or silk as indicated at 16. Usually the portion 14 will be knitted of cotton yarn if cotton yarn is used as the alternating yarn in the portion 13, and cotton is suitable because this portion does not show. This construction is of advantage for several reasons; firstly, in cases where a severe varicose condition extends only slightly above the knee, less pressure is required at this area and a stocking of the present construction will give just enough pressure to give the desired support, without the extent of pressure afforded in the leg or foot, which would be excessive at this particular place and be uncomfortable. Secondly, the additional "give" in the semi-elastic portion 13 over what would be available in an or-

dinary fully non-elastic top avoids danger of tearing or putting undue strain on the garter support in the bending of the knee, that having been found to be a serious objection to the stocking as it was previously made, with a fully non-elastic top, and still the top may have that portion to which the garter is attached, of inelastic fabric most suitable for that purpose and most durable. Thirdly, the manufacturer is enabled to give the customer a longer stocking providing support almost its entire length at lower cost than if the stocking were of full elastic construction throughout. Lastly, but nevertheless of about as much importance as some of the other points mentioned, a stocking of this construction gives better comfort because of the fact that the elastic yarn is separated by non-elastic, thus giving a more open formation of stitches, and in addition, there is the factor that the non-elastic yarn in the portion 13 offers a certain extent of absorption of perspiration not found in fabric made entirely of elastic yarn; in other words, comfort is added without sacrificing too much in the way of support. Another point in favor of the construction is the fact that there is not such a clear line of demarcation between the elastic fabric of the leg and the fabric of the top, there being sufficient appearance of elastic yarn in the portion 13 to make this portion resemble the leg portion and thus make for a better appearing stocking.

The appended claims have been drawn with a view to covering all legitimate modifications and adaptations. While I make reference in the specification and claims to "a leg knit entirely with elastic yarn", it should be understood that this expression is meant to include a stocking wherein the elastic yarn of the leg is plated with another yarn, for example, to enhance the appearance; a light, silk yarn would be suitable and accomplish the result without adding too much weight or thickness.

I claim:

1. A stocking composed throughout a substantial portion thereof of an elastic yarn of such fineness as to be capable of being knitted in a knitting machine and having a core of elastic material and a covering of relatively inelastic fibrous material, the stocking being of a weight in which so-called horizontal streaks or bands of light and heavy yarn thicknesses or different color characteristics can ordinarily be observed if one yarn is knit course after course, said portion being formed by the aforesaid elastic yarn and another elastic yarn alike to the first yarn, each yarn being knit for a single course and repeated in regular order using both of said yarns so that the otherwise inevitable differences in different portions of either yarn are scattered rather than collected so that the streaks referred to are eliminated.

2. A stocking composed throughout a substantial portion thereof of an elastic yarn of such fineness as to be capable of being knitted in a knitting machine, the stocking being of a weight in which so-called horizontal streaks or bands of light and heavy yarn thicknesses or different color characteristics can ordinarily be observed if one yarn is knit course after course, said portion being formed by the aforesaid elastic yarn and another elastic yarn alike to the first yarn, each yarn being knit for a single course and repeated in regular order using both of said yarns so that the otherwise inevitable differences in different portions of either yarn are scattered rather than collected so that the streaks referred to are eliminated.

3. A stocking composed throughout a substantial portion thereof of an elastic yarn of such fineness as to be capable of being knitted in a knitting machine and having a core of elastic material and a covering of relatively inelastic fibrous material, the stocking being of a weight in which so-called horizontal streaks or bands of light and heavy yarn thicknesses or different color characteristics can ordinarily be observed if one yarn is knit course after course, said portion being formed by more than one elastic yarn of the foregoing description each knit for a single course and repeated in a certain order using all of said yarns whereby the otherwise inevitable differences in different portions of the same yarn are scattered rather than collected so that the streaks referred to are eliminated.

4. A stocking composed throughout a substantial portion thereof of elastic yarn of such fineness as to be capable of being knitted in a knitting machine, the stocking being of a weight in which so-called horizontal streaks or bands of light and heavy yarn thicknesses or different color characteristics can ordinarily be observed if one yarn is knit course after course, said portion being formed by more than one elastic yarn of the foregoing description each knit for a single course and repeated in a certain order using all of said yarns whereby the otherwise inevitable differences in different portions of the same yarn are scattered rather than collected so that the streaks referred to are eliminated.

5. As a new article of manufacture, a flat fashioned knitted fabric composed of two different yarns both of which are made up of an elastic core with a fibrous covering, the same being subject to variations in size and appearance at intervals throughout its length, the one yarn being entered in the fabric in courses between courses of the other yarn, whereby to prevent recurrence in consecutive courses of odd portions in either of said yarns, the two yarns being alternated throughout the fabric.

6. As a new article of manufacture, a flat fashioned knitted fabric composed of two different elastic yarns each of which is subject to variations in size and appearance at intervals throughout its length, the one yarn being entered in the fabric in courses between courses of the other yarn, whereby to prevent recurrence in consecutive courses of odd portions in either of said yarns, the two yarns being alternated throughout the fabric.

7. As a new article of manufacture, a flat fashioned knitted fabric composed of more than one elastic yarn each of which is subject to variations in size and appearance at intervals throughout its length, each yarn being entered in the fabric at each time for a single course only, so that the same yarn will not occur in consecutive courses, whereby to prevent recurrence in consecutive courses of odd portions in either of said yarns.

EDWARD C. HINCHLIFF.