

March 3, 1942.

A. N. CLOUTIER

2,275,248

KNITTED FABRIC

Filed June 19, 1939

FIG. 1.

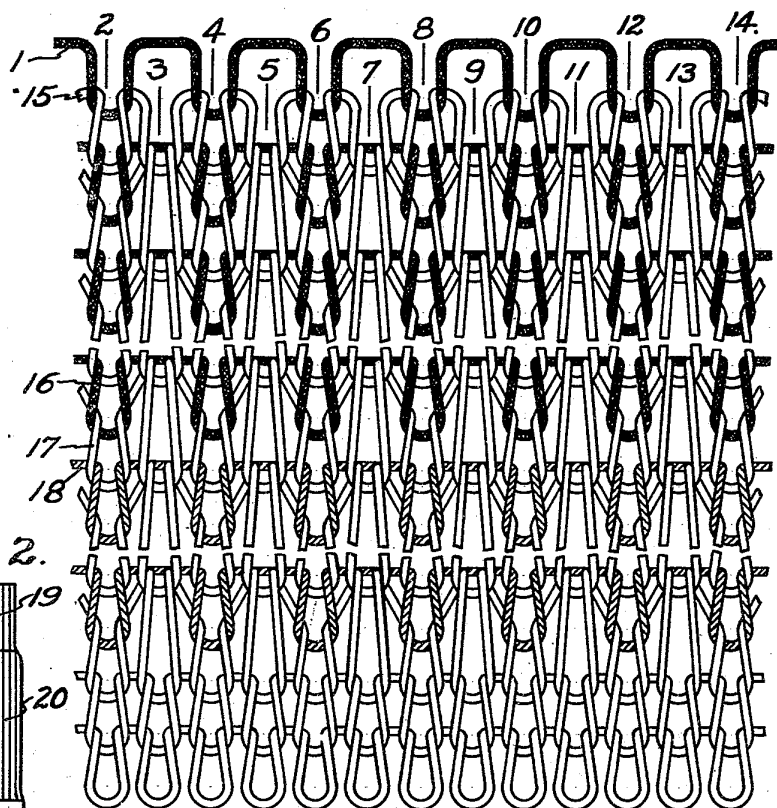
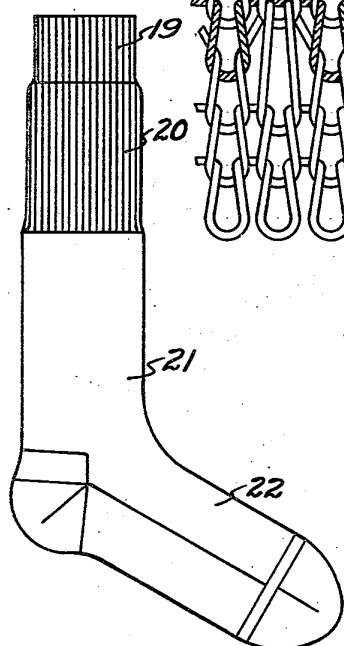


FIG. 2.



INVENTOR:
ARTHUR N. CLOUTIER,
By Roy V. Lovell,
ATT'Y.

UNITED STATES PATENT OFFICE

2,275,248

KNITTED FABRIC

Arthur N. Cloutier, Lonsdale, R. I., assignor to
Hemphill Company, Central Falls, R. I., a cor-
poration of Massachusetts

Application June 18, 1939, Serial No. 279,929

1 Claim. (Cl. 66—172)

This case involves an invention in knitted fabrics, more especially, hosiery in which an elastic garter top is combined with certain specially knitted fabric portions to provide a self-supporting stocking.

In the figures of drawing:

Fig. 1 is a conventional illustration of the fabric in which elastic is incorporated to form a garter with a continuing mock rib part knitted in extension of the garter; and

Fig. 2 is an elevation showing a stocking or half-hose to which the invention is applied.

In many types of half hose or men's hosiery now on the market the top has incorporated therein elastic yarn serving to create a rib appearance and to impart elasticity for purposes of a garter. In half hose or other hosiery of that nature these tops in which the elastic yarn is incorporated have been made of about the length previously required for tops of true rib fabric. This has probably been done in following out what has been established procedure and also to supply the market with elastic top half hose similar in appearance to those the customer has been accustomed to buying. Furthermore, the top either of true rib fabric, true rib with elastic inlaid, or simulated rib embodying elastic has generally been of somewhat extended length due to the fact this portion of the stocking or half hose extends up to the calf of the leg or approximately thereto so that extensibility is desirable. Sufficient extension has not been available in plain knitted fabrics, thus the elongated rib top or simulated rib top has been adhered to.

Such extended tops in which elastic is incorporated, especially if the elastic is incorporated in closely adjacent courses or in all courses, tend to have more elastic than necessary and especially comprise more elastic than should be used for economy. According to the present invention the elastic is incorporated for only a short or relatively short extent of the top, preferably enough to provide an extent of elastic material or a garter strong enough to sustain the stocking on the leg of the wearer. In continuation of that elastic material which will have the desired appearance of rib fabric, mock rib material is knitted in which elastic is not incorporated. This mock rib material is to extend down to the point or approximately the point at which it would ordinarily be customary to start knitting the ring top or the leg of a half hose. Thus hosiery knitted in this manner will have a desired extensibility at the calf portion of the leg so that it will be comfortable, will have a garter capable of sustaining the

stocking, and will be economical to manufacture in that no more elastic yarn need be used than will be desirable for holding up the stocking. The mock rib fabric knitted in continuation of the garter is knitted of plain yarn and is no more expensive than any other type of top from non-elastic material such as true rib tops either transferred or knitted integrally.

Of course, the elastic or garter portion of the top is uppermost and the mock rib portion lowermost each being interconnected to the other. The extent of the elastic or garter portion is substantially less than the extent throughout the top of the lowermost or mock rib section, in fact, the proportions where in the garter section is approximately $\frac{1}{3}$ and the mock rib $\frac{2}{3}$ have been found to be practical. When referred to as being substantially less in extent than the lowermost section, it is meant that the garter section is approximately of the proportions herein indicated.

Preferably the elastic garter top is to be knitted as described in St. Pierre Patent #2,131,720 although it is within the scope of the invention to knit that top by incorporation of the elastic in any satisfactory manner so as to secure the desired stretch, proper retaining characteristics and a rib appearance. The mock rib material is to be knitted by substituting for the elastic yarn fed at the so-called auxiliary side, as disclosed in the patent above mentioned, a plain yarn so that the continuing mock rib fabric will be knitted in the same manner as the elastic garter top was knitted, thus making it unnecessary to provide machine construction to knit but one type of fabric. All that is done is to make a yarn change at the auxiliary side from the elastic yarn to a suitable inelastic yarn. The inelastic yarn substituted may match the yarn being fed at the main side of the machine, or may be of different characteristics therefrom, especially may differ in size so as to contribute to a more pronounced rib appearance. If the yarn thus substituted is smaller than the yarn being fed at the main side of the machine, the rib appearance will be enhanced to a degree.

Now referring to Fig. 1 an elastic yarn 1 is first fed to alternate needles so that it is taken in the hooks of needles knitting in wales 2, 4, 6, 8, 10, 12 and 14. This yarn is preferably fed at the auxiliary side of a machine as disclosed in St. Pierre patent above mentioned. Then at the main side of the machine, on all needles (those knitting in the even numbered wales and in addition, those knitting in the odd numbered wales 3, 5, 7, 9, 11, 13, etc.) a plain or inelastic yarn 15

is fed and immediately knitted so that the first drawn elastic is cast off and will be retained within all sinker loops so as to constitute a selvage. Other methods of making a selvage may be employed, the selvage not being an essential feature of the invention, this merely being a preferred method of making the selvage since it entails the use of less mechanism and fewer changes incidental to the operation of the machine. Thereafter throughout a plurality of courses sufficient to knit that amount of fabric necessary for a garter, the elastic yarn is fed at the auxiliary side to alternate needles, knitting thereat, while the non-elastic yarn is fed to all needles knitting at the main side. The elastic is under a light tension, sufficient to impart to the fabric enough elasticity, but still to render the top extensible so that it will be comfortable and so that it may be drawn on the foot with ease.

Knitting of this fabric and characteristic features of the same are fully described in the said St. Pierre patent and will not be more thoroughly mentioned at this time. After courses 16 and 17 are knitted with the rubber feeding, a yarn change is made at that side of the machine and an inelastic yarn 18 is substituted for the elastic yarn 1. Thereafter knitting continues with said yarn 18 feeding at the auxiliary side to alternate needles and thus being drawn into knitted stitches in the even numbered wales only. The other inelastic yarn still continues to feed at the main side of the machine. This fabric will have a characteristic rib appearance, it being commonly known that accordion knitted goods have a mock rib appearance and that they are fairly extensible even when knitted of a non-elastic material. After a desired amount of this accordion fabric has been knitted the leg is started either by knitting with the same yarn fed at the main side of the machine or with a substitute yarn.

In Fig. 2 the elastic garter top is shown at 19, the accordion, mock rib extension top at 20, the remainder of the stocking continuing with a leg 21 and a foot 22. The weight of elastic yarn will govern to an extent the length of the garter top 19, it not being necessary to employ extremely fine elastic material as has been done when the elastic has been incorporated throughout the entire mock rib top. It is common knowledge that fine elastic yarns are a great deal more expensive than those which are relatively coarser. The invention as thus described may be applied to a half hose in which the entire length, that is, including top or selvage is standard, or what is perhaps more desirable, may be made slightly longer so that the elastic garter top 19 would come just above the largest part of the calf of the leg. This will allow the garter top to sustain the stocking although not so strong or tending to be as constricting as might be necessary if the effect of the garter were to be exerted below that portion of the leg, or at a part of the leg where the calf

was receding. In such hosiery the extension 20 would be slightly longer. That would not add materially to the expense since the top may be knitted of less expensive yarns than the leg and also since the portion 20 is knitted on a double feed machine and any additional material would tend to be counteracted by the more rapid rate at which the knitting would be accomplished. The ultimate saving in elastic and the more rapid rate of knitting makes this type of stocking practical whereas heretofore, the additional length, if of true rib material, has added enough to the cost so that such hosiery could not sell at popular prices.

The garter and also the extension of accordion work have a definite two way stretch. The accordion extension may be knitted rather loosely if desired. The flexibility of said extension allows the garter to bear properly above the calf of the leg and the combination all tends toward comfort and effective support.

A preferred form of the invention has been described but it is to be understood that in its broader aspects, the invention includes other garter tops in which the elastic may be incorporated at differently spaced wales or by incorporation in other manners as by knitting in conjunction with other yarns, inlaying, etc. Other forms of the accordion material may be knitted in continuation of the garter top, but it is preferable that the same set-up be employed for knitting both the top with elastic and the continuing portion so that it all may be done with one machine set-up and with as few moves as possible. The invention is defined in the following claim.

A knitted article of hosiery having a foot, leg and top, said top having a selvage and being knitted in two interconnected sections, the uppermost of which is of substantially less extent than the lowermost section, the said uppermost section having a non-elastic yarn knitted throughout its extent and an elastic yarn incorporated with said non-elastic yarn in such a manner as to be held at spaced wales and under tension so as to draw said spaced wales together thereby presenting a simulated rib appearance and having sufficient elasticity to serve as a garter, the lowermost section of said top being knitted from non-elastic yarns, one of which is the non-elastic yarn of the first or uppermost section and which is likewise knitted continuously in all wales throughout the remainder of the top, the other said non-elastic yarn being substituted in place of the elastic yarn of the uppermost section and incorporated in the same manner to be held at the same spaced wales but floated over intermediate wales thereby to effect a continuation of the simulated rib appearance of the uppermost section of the top and impart to the fabric characteristics of elasticity desirable for a stocking top.

ARTHUR N. CLOUTIER.