Jan. 8, 1935. G. WEINHOLZ 1,987,090

STOCKING

Filed April 4, 1934

Fig. 4

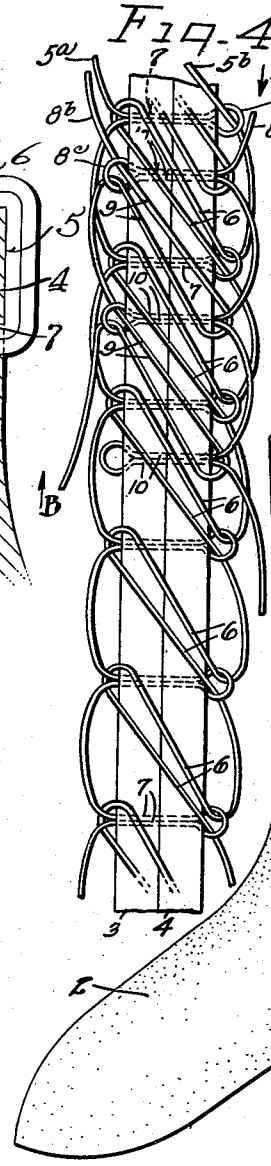


Fig. 2

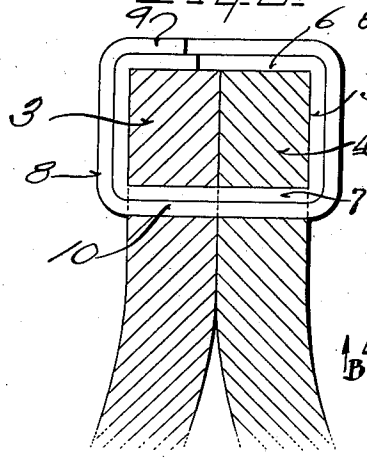
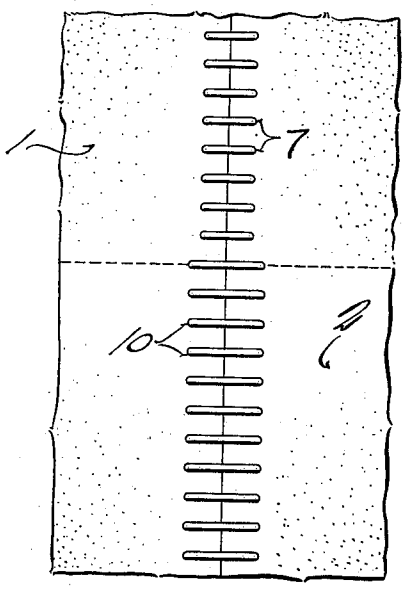


Fig. 1

Fig. 3



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Patented Jan. 8, 1935 1,987,090

UNITED STATES PATENT OFFICE

1,987,090

STOCKING

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Application April 4, 1934, Serial No. 718,899

6 Claims. (Cl. 2—239)

This invention relates to hosiery and more particularly to the so-called full-fashioned hosiery.

In the manufacture of full-fashioned hosiery, the marginal portions of the selvage edges of the knitted fabric are sewed together in overlapping relation along the rear of the hose. The edges of the fabric are on the inner side of the hose at the seam. The seam extends the full length of the hose including the heel and the leg portions thereof, and is constituted by a conventional seaming stitch as produced on a regular seaming machine used in this art. This machine, which may be of the so-called Union Special seaming stitch type, produces an interlocked chain stitch having interlocked thread portions and fabric penetrating thread portions. The interlocking thread portions are cast over the overlapping edges of the fabric and the fabric penetrating thread portions extend through the fabric across the seam where they are exposed on the outer side of the hose. Thus the cross threads of the stitch are subject to breakage and more especially so at the heel portion of the hose where abrasion occurs with the shoe of the wearer of the hose. As this stitch is capable of raveling when any of its threads are severed, a break in the seam, which more frequently occurs at the heel of the hose than elsewhere by abrasion from the shoe, spreads along the seam and renders the hose beyond practical repair. This is especially so of silk and other thin or sheer hosiery now being manufactured, and an otherwise perfect hose must be discarded as being unfit for wear by reason of a break in its seam.

The general purpose and object of my invention is to form this seam, especially at the heel of the hose where the greater wear occurs, of at least two seaming stitches applied to the fabric and arranged with one stitch enclosing the other, whereby the cross threads of the inner stitch will be offset inwardly from the cross threads of the outer stitch and thus be protected from contact with the shoe. This reenforces the seam along the portion subject to the greater wear and maintains the seam intact even though the cross threads of the outer stitch may be severed or broken by abrasion by the heel of the shoe or otherwise.

A further object of my invention is to apply the seaming stitches with their direction of ravel in opposite directions so that any break which may occur in the seam will be stopped at the place of the break and be prevented from extending along the seam in either direction. The advantage of this is that the break cannot spread along the seam and may be readily and easily repaired to prolong the usefulness of the stocking.

The invention relates further to the method employed in applying these seaming stitches to the hose with their directions of ravel in opposite directions.

In the accompanying drawing:

Fig. 1 shows a full-fashioned hose having its rear seam reenforced in accordance with my invention;

Fig. 2 is an enlarged transverse sectional view of the seam at the heel of the hose taken on line 2—2 of Fig. 1;

Fig. 3 is a diagrammatic plan view of the rear seam looking at the same from the outer side of the hose; and

Fig. 4 is an enlarged view of the rear seam looking at the same from the side opposite that of Fig. 3 and illustrating the application of the stitching with their direction of ravel in opposite directions.

In the drawing, 1, 2 indicate respectively the leg and the foot portions of a full-fashioned hose. These portions are integrally formed in the usual manner of knitting the hose on a full-fashioned knitting machine. The fabric is composed of courses and wales made up of interlocking loops of the thread or threads employed for producing the fabric. For clearness of illustration the fabric is shown plain in the drawing.

In seaming the hose after the fabric has been knitted, the marginal portions 3, 4 of the fabric along the rear of the stocking are sewed together in overlapping relation as shown in Fig. 2. These edges are first sewed together by a continuous seaming stitch, marked 5 in Fig. 1, extending the full length of the hose from the base of the heel to the upper end of the stocking and through the welt, if one is provided. The stitch is applied by running the stocking while inside out through a regular seaming machine, as for example of the type heretofore referred to, from heel end of the hose to the upper end thereof. The stitch produced is of the interlocked chain type capable of raveling in one direction only. The interlocking thread portions 6 of this stitch are cast over the edges of the fabric and the penetrating thread portions 7 of the stitch extend through the fabric across the seam as shown in Figs. 2 and 3. In running the fabric through the seaming machine, starting with the heel end of the stocking, the direction of ravel of the stitch 5 is from the upper end of the stocking toward the heel.

After making the first stitch 5, the stocking while still inside out is again run through the

seaming machine to provide a second seaming stitch 8 for that portion of the seam along the heel from the base of the heel to the upper end of the heel where it joins the leg portion 1. This second stitch, like the first stitch, has its interlocking thread portions 9 cast over the edges of the fabric and its fabric penetrating thread portions 10 extending through the fabric across the seam in substantially parallel relation to the cross portions 7 of the first stitch as shown in Fig. 2. The second stitch in being laid over the first stitch encloses the same, and the cross threads 10 of the second stitch being on the outer side of the seam are exposed when the stocking is worn, and protect the cross threads 7 of the first stitch. Thus the cross threads of the inner stitch do not contact with the shoe when the hose is worn and the seam is maintained intact even though the cross threads of the outer stitch may by abrasion of the shoe be severed or broken.

The second or outer stitch 8 is capable of raveling in one direction only. It is applied to the seam with its ravel direction reversed to that of the inner or first stitch 5. This is accomplished by running the hose through the seaming machine in an opposite direction to the feed of the hose through the machine when laying the first stitch 5. Thus the direction of ravel of the two stitches at the heel seam are in opposite directions and any break in the seam by reason of the severance of both threads will be stopped and be prevented from extending in either direction. This localizes the break and enables a repair to be made so that the usefulness of the hose is prolonged.

The manner in which the two seaming stitches 5 and 8 are applied to the fabric so that their direction of ravel is in opposite directions along the seam, is clearly illustrated in Fig. 4. Each seaming stitch is composed of two continuous threads. For the stitch 5 I have indicated in Fig. 4 the two threads as 5*a* and 5*b*. The thread 5*a* provides the portions 7 which penetrate the fabric as shown and which portions provide loops 5*c* on one side of the overlapping edges 3, 4 of the fabric along the seam. The thread 5*b* passes through the loops 5*c* and has the portions 6 which are cast over the upper edges of the fabric along the seam. These portions 6 are looped about the penetrating portions 7 of the thread 5*a* where such portions enter the fabric as shown. The seaming stitch 5 so constructed is of the interlocking chain type and if broken would tend to ravel from the top to the bottom of the showing made in Fig. 4 as indicated by the arrow A.

The seaming stitch 8 also comprises two threads 8*a* and 8*b*. The thread 8*a* penetrates the fabric along the seam as indicated by the penetrating portions 10. These portions provide loops 8*c* along the side of the fabric opposite the loops 5*c* as shown in Fig. 4. The thread 8*b* passes through the loops 8*c* and has the portions 9 cast over the upper edges of the fabric sections 3, 4 as shown. These portions 9 are also looped about the penetrating thread portions 10 where such portions enter the fabric as shown. The direction of ravel of the seaming stitch 8 is toward the top of the showing in Fig. 4 as indicated by the arrow marked B and therefore is opposite to the direction of ravel to the other seaming stitch 5. It will be apparent from the showing made in Fig. 4 that should the thread 5*b* of the seaming stitch 5 be broken it would release the loops 5*c* and thread 5*a* could be withdrawn from the seam. Similarly a breakage in the thread 8*b* would release the loops 8*c* of the other thread 8*a* and thread 8*a* could be pulled from the seam. The showing made in Fig. 4 takes in a portion of the rear seam of the hose comprising a part of the seam at the heel and the adjoining part in the leg of the hose. The showing made in Fig. 4 is considerably enlarged and therefore indicates rather a large interval of spacing between the penetrating thread portions 7 and 10 of the respective seaming stitches. In practice these portions would be very close together, if not almost overlapping.

The seam structure of my invention has the advantage that it reenforces the seam at the heel of the stocking where the greater wear occurs on the seam by reason of contact with the shoe. Thus the frequent seam breaking as encountered in stockings as heretofore produced with a single seaming stitch at the heel of the hose is avoided and the usefulness of the hose materially prolonged. This is an important advantage in hosiery manufacture in that it reduces wear and tear on the seam in that portion subject to abrasion by the shoe.

After the rear seam has been made, the foot seam is put in, that is, the seam along the sole of the foot portion of the hose and the stocking is completed in the regular way. The foot seam could be made in accordance with my invention for reenforcing this seam, if desired.

While I have shown my invention applied to the rear seam, it could be applied to any seam or to any portion thereof as may require a reenforcement against wear. Moreover, the details of construction and arrangement of parts herein shown and described may be variously changed and modified without departing from the spirit and scope of my invention except as pointed out in the appended claims.

I claim as my invention:

1. A stocking having a heel seam at the rear of the stocking, said seam being constituted of two seaming stitches, both extending along the stocking at the seam and arranged with one stitch enclosing the other stitch, whereby the fabric penetrating thread portions of the inner stitch extending across the seam on the outer side of the stocking will be protected by the corresponding thread portions of the outer stitch, said stitches, each being of the interlocked chain type capable of raveling in one direction only, and applied to the seam with their direction of ravel in opposite directions to prevent raveling of the seam on the occurrence of a break therein.

2. A full-fashioned stocking having a seam at the rear of the stocking along the leg and the heel portions thereof, said seam being constituted of two seaming stitches, one extending along the heel and the leg portions of the stocking at the seam, and the other stitch being confined to the heel portion of the stocking at the seam and enclosing the adjacent portion of the first stitch, whereby the fabric penetrating thread portions of the inner stitch extending across the seam on the outer side of the stocking at the heel thereof, will be protected by the corresponding thread portions of the outer stitch, said stitches, each being of the interlocked chain type capable of raveling in one direction only, and applied to the seam with their direction of ravel in opposite directions to prevent raveling of the heel seam on the occurrence of a break therein.

3. In a stocking, a seam exposed on the outer side of the stocking and having one portion subject to greater wear than another portion, said

seam being constituted of two seaming stitches, one stitch extending along both portions of the stocking at the seam, the other stitch being confined to the portion of the stocking at the seam subjected to the greater wear and enclosing the adjacent portion of the first stitch, whereby the fabric penetrating portions of the inner stitch extending across the seam on the outer side of the stocking will be protected by the corresponding thread portions of the outer stitch, said stitches, each being of the interlocking chain type capable of raveling in one direction only and applied to the seam with their direction of ravel in opposite directions.

4. The method of producing a reenforced heel seam for a stocking, consisting in running the stocking at the seam through a seaming machine in reverse directions, first in one direction to lay one stitch along the seam and then in the opposite direction to lay another stitch along the seam and over the first stitch, whereby the penetrating thread portions of the inner stitch extending across the seam on the outer side of the stocking will be protected by the corresponding thread portions of the outer stitch.

5. The method of producing a seam at the rear of a full-fashioned stocking along the leg and the heel portions thereof, consisting in running the stocking at the seam through a seaming machine, first in one direction to lay a stitch along the entire length of the seam including the leg and the heel portions thereof, and then in the opposite direction along the heel portion of the seam only to lay a stitch over the adjacent portion of the first stitch to enclose the same and to have the direction of ravel of the two stitches in reverse relation.

6. The method of providing against runs in the heel closure of hosiery which consists in twice seaming the adjacent edges of the fabric together, first in one direction, then in the opposite direction by means of a stitch which ravels only in the direction opposite to that in which it is placed.

GUSTAV WEINHOLZ.