W. E. CHIPMAN.

HOSIERY.

APPLICATION FILED JULY 22, 1915.

1,237,473.

Patented Aug. 21, 1917.

2 SHEETS—SHEET 1.

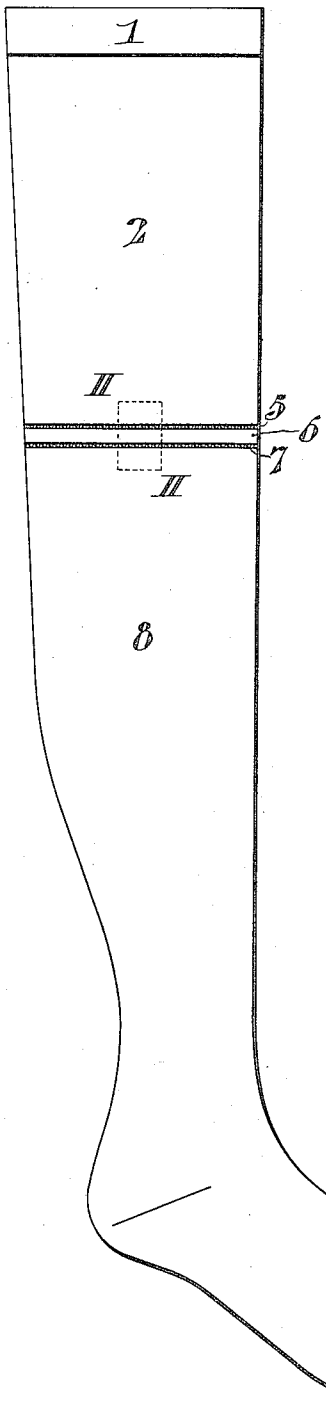

FIG. I.

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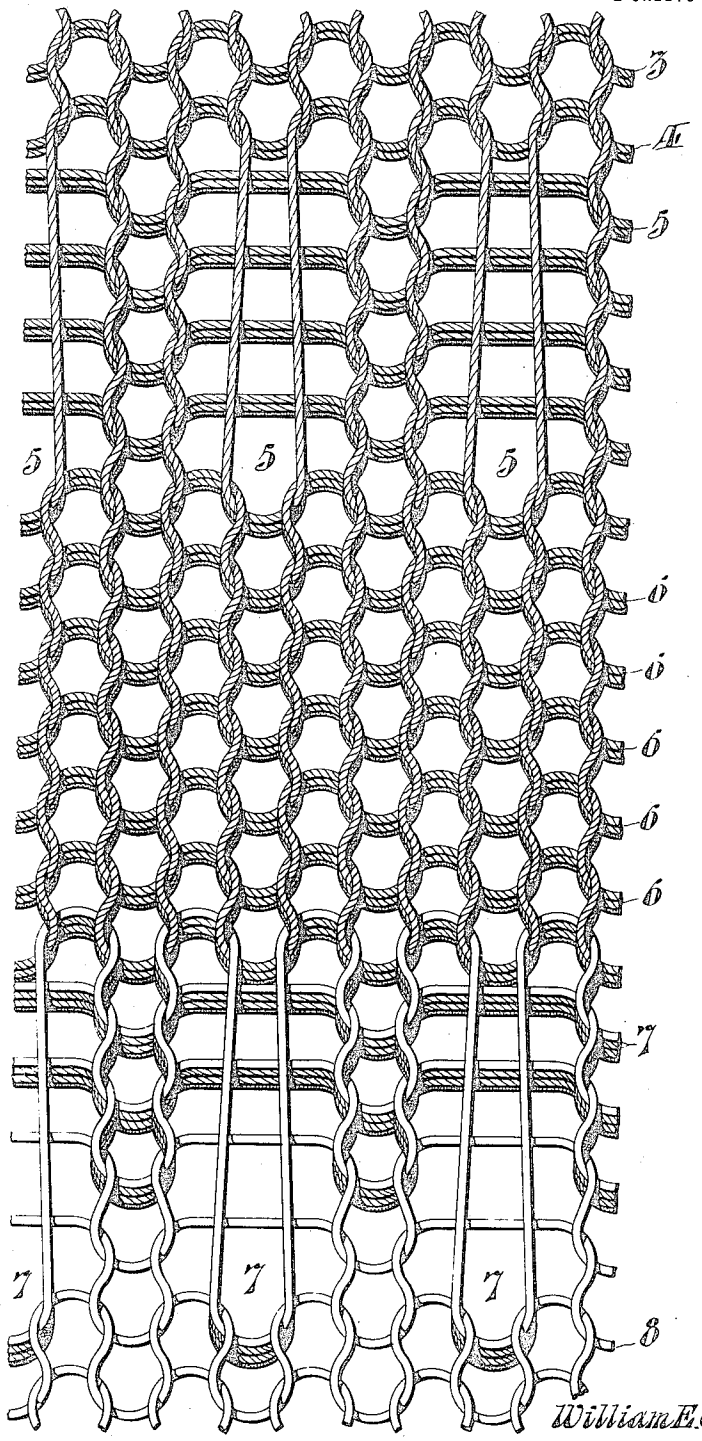
2 SHEETS—SHEET 2.

FIG. II.



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UNITED STATES PATENT OFFICE.

WILLIAM E. CHIPMAN, OF EASTON, PENNSYLVANIA.

HOSIERY.

1,237,473. Specification of Letters Patent. Patented Aug. 21, 1917.

Application filed July 22, 1915. Serial No. 41,235.

To all whom it may concern:

Be it known that I, WILLIAM E. CHIPMAN, of Easton, in the county of Northampton and State of Pennsylvania, have invented certain new and useful Improvements in Hosiery, whereof the following is a specification, reference being had to the accompanying drawings.

My improvements relate especially to long hose provided with an artificial welt and anti-ravel course. I provide such hosiery with a shallow knit welt at its upper edge, and with a course of draw stitches farther down the stocking so arranged as to simulate the lower edge of a deep welt, said course of draw stitches at the same time serving as an anti-ravel stop. By the phrase "draw stitch," as used in the specification, I mean the stitch which is produced by causing a single needle to take thread on a given course and thereafter hold the thread without casting it off for one or more succeeding courses without taking further thread, and then again returning to the knitting.

I further increase the utility of my invention by knitting the upper part of the stocking as far down as the course of draw stitches of more or less heavily reinforced yarn so that by reason of its thickness and its resulting opacity, the deep welt will be more perfectly simulated. In the knitting of the courses involved in the draw stitches, I prefer to knit simultaneously a plurality of threads, say three, of such size that the sides of the loops are tightly crowded into the contiguous loops with which they are interlooped. The result of this is a more complete locking of the loops notwithstanding a break occurring above the course of draw stitches.

As a further improvement I find it desirable to duplicate the course of draw stitches, with interposition of a few courses of plain knitting. This device still more perfectly simulates the lower edge of a deep welt.

Further advantages of my invention will appear in connection with the following description of the preferred form in which I have embodied it.

In the accompanying drawing, Figure I, is a diagrammatic view of a long stocking embodying my invention.

Fig. II, is an enlarged view showing the composition and structure of the knit web which in Fig. I, is indicated by the rectangle II, II.

The upper edge of my hosiery is provided with a shallow turned over welt, which may conveniently be knit by withholding say every fourth needle out of action, but holding its loop until the entire welt has been knit. In a machine capable of producing tuck or draw stitches the capacity to cause certain needles to thus hold their loops during the knitting of a number of courses is easily secured.

Succeeding the shallow welt 1, the top of the stocking is knit continuously, as an artificial welt 2. During the knitting of this portion I reinforce the yarn to a sufficient extent to give to the upper portion of the stocking that weight and opacity which is characteristic of a deep turned over welt. Referring to Fig. II, the upper courses 3, and 4, there shown are knit with the employment of two yarns, fed simultaneously to the needles, and represent the structure of this portion of the stocking. When the desired length of artificial welt has been thus produced I produce a horizontal line of draw stitches by causing every other needle to hold its loop, without receiving further thread, during the knitting of several succeeding courses, say five, as shown in Fig. II, where the loops thus held are shown at 5, 5, the course which includes these draw stitches as well as the succeeding courses, is preferably still further reinforced so as to carry as much thread as can be fed to the needles at the tension under which the knitting is performed.

Thus it will be seen that the course marked 5, is formed by the simultaneous knitting of three yarns, and the same is true of the succeeding courses. By thus crowding the yarn at this part of the knitting there is secured a very close tension upon the loops since each loop has six yarns passing through it belonging to the succeeding loop with which it is interlooped. No attempt has been made in the drawings to illustrate this crowding of the yarn within the loops, since it would be confusing, but when a web knit according to my invention is examined it will be found that the crowding of the yarns to which I refer is quite evident both to a visual and tactual examination.

As has already been explained the course of draw stitches thus described acts as an effective anti-ravel stop, and the efficiency of

this is further increased by the multiplication of the yarn and the crowding of the loops which I have described. Furthermore, the long loops 5, which form the draw stitches and upon which a considerable tension is of necessity put, are thus made strong enough to withstand such tension without breaking. In order to more perfectly simulate the lower turned over edge of a long welt, I follow the draw stitches which I have thus described with a limited number of courses, say six, of plain knitting as indicated at 6, 6, 6, in the drawings. I prefer to continue to knit with the same plurality of threads, say three, during these courses. The courses 6, 6, are then followed by another course of draw stitches as at 7. The drawing is performed upon every other needle, and it will be observed that another yarn, preferably of silk, has been thrown in upon the face of the knitting of these draw stitches as indicated by the absence of shading in the drawings upon the yarn. After the knitting of one or two courses with this silk yarn thrown in, the use of all of the yarns except the silk yarn is discontinued, the silk continuing until the conclusion of the draw stitches at the course 8, and throughout the knitting of the succeeding part of the stocking, which is therefore knit of a single yarn preferably of silk, producing a web which in weight and density is markedly less than that of the part of the stocking above it, so that the distinction between the artificial welt and the rest of the stocking is quite marked in appearance.

Referring to Fig. I, I have indicated there at 5, the uppermost course of draw stitches; at 6, the intermediate courses of crowded knitting; and at 7, the lowermost course of draw stitches succeeded at 8, by plain knitting with a single silk or mercerized cotton yarn, producing the desired contrast.

The stocking thus produced is exceedingly attractive in appearance and stronger and more durable than one having the usual deep welt. Such a deep welt is desired by purchasers because of the supposed reinforcement thus produced for the attachment of supporting devices, but although this is sought after, it is in fact of less importance than a countervailing disadvantage which my invention overcomes. This grows out of the fact that a deep turned over welt can rarely or never be so perfectly turned over as to maintain the wales of both sides in perfect alinement. The twisting of yarns in the course of knitting causes fabric to naturally skew with a result that unless extreme care is taken, (more than is possible in actual practice), it will rarely happen that the lower sewed edge of such a deep welt will match course for course, and unless this is the case, after the stocking has been laundried, there is a sidewise pull upon the edge of the welt which in reality lessens the durability of hosiery. All this is avoided and a more durable basis for the attachment of supporting devices is secured by employing the heavily reinforced knitting which I employ in producing the artificial welt 2. As a result of this the supporting devices are anchored in a web which in reality contains as much yarn and more resistance to breaking than the ordinary double welt. At the same time the shallow welt which is provided affords the rounded upper edge for the hosiery which is desired.

The course of draw stitches 5, (and also the duplicate course of draw stitches 5, and 7, if both are employed), quite effectually simulates the usual stitching, or double stitching, by which the lower edge of a deep welt is secured to the stocking, and these courses of draw stitches act as a most effective anti-ravel stop to prevent any break which may occur in the artificial welt as a result of the employment of supporting devices, from running down into the body of the stocking. The crowding of the knitting during these draw courses and the intermediate courses increases this anti-ravel efficiency and if the interposed courses 6, situated between the two tucked courses be knit of a greater weight of threads than either the preceding or succeeding knitting, the hosiery is provided with a band of marked thickness to the feel at this point very much as is usually noticed at the lower edge of a turned over welt.

I am aware that anti-ravel courses have heretofore been produced by causing every other needle to produce for two or more courses a tuck stitch. Such a tuck stitch produces an open hole in the hosiery and imposes an undue strain upon the loop which is eventually compelled to carry the accumulated strain of each succeeding thread which is caught by the tucking needle before all are interlooped with the succeeding loop. By employing instead of a tuck stitch a draw stitch which leaves the succeeding threads in their normal position these disadvantages are overcome and the anti-ravel effect of the course more effectually secured.

Having thus described my invention, I claim:

1. Hosiery provided at its top with a shallow turned over welt and with an artificial welt of greater depth produced by reinforcement of the yarn in combination with an anti-ravel course of draw stitches at the lower end of such reinforced portion.

2. Hosiery provided at its top with a shallow turned over welt united to the stocking by a course of draw stitches, an artificial welt of greater depth produced by reinforcement of the yarn, in combination with an anti-ravel course of draw stitches at the lower end of such reinforced portion.

3. Hosiery provided with an anti-ravel course, consisting of a course of draw stitches knit with reinforced yarn, one or more courses of plain knitting, knit with reinforced yarn and another course of draw stitches.

4. Hosiery provided below the welt with an anti-ravel course, consisting of a course knit with reinforced yarn in which every other loop constitutes a draw stitch withheld by its needle from the knitting and also from taking other thread during one or more succeeding courses but thereafter interlooped with the next course of knitting, one or more succeeding courses of plain knitting with reinforced yarn, and another course knit like the first mentioned course.

5. Hosiery provided at the top with an artificial welt knit with reinforced yarn, and at the bottom of said welt an anti-ravel course comprising draw stitches also knit with reinforced yarn and having another yarn thrown in on the face thereof, the reinforced yarn being thrown out a few rows thereafter, and the remainder of the stocking knit only with said thrown-in yarn.

In testimony whereof, I have hereunto signed my name, at Easton, Pennsylvania, this twentieth day of July 1915.

WILLIAM E. CHIPMAN.

Witnesses:
L. C. HORN,
FRED NOGLE.