July 30, 1957 E. R. BRIDGES 2,800,782

ARGYLE STOCKING WITH CUSHION HIGH SPLICE AND METHOD

Filed July 27, 1953 2 Sheets-Sheet 1

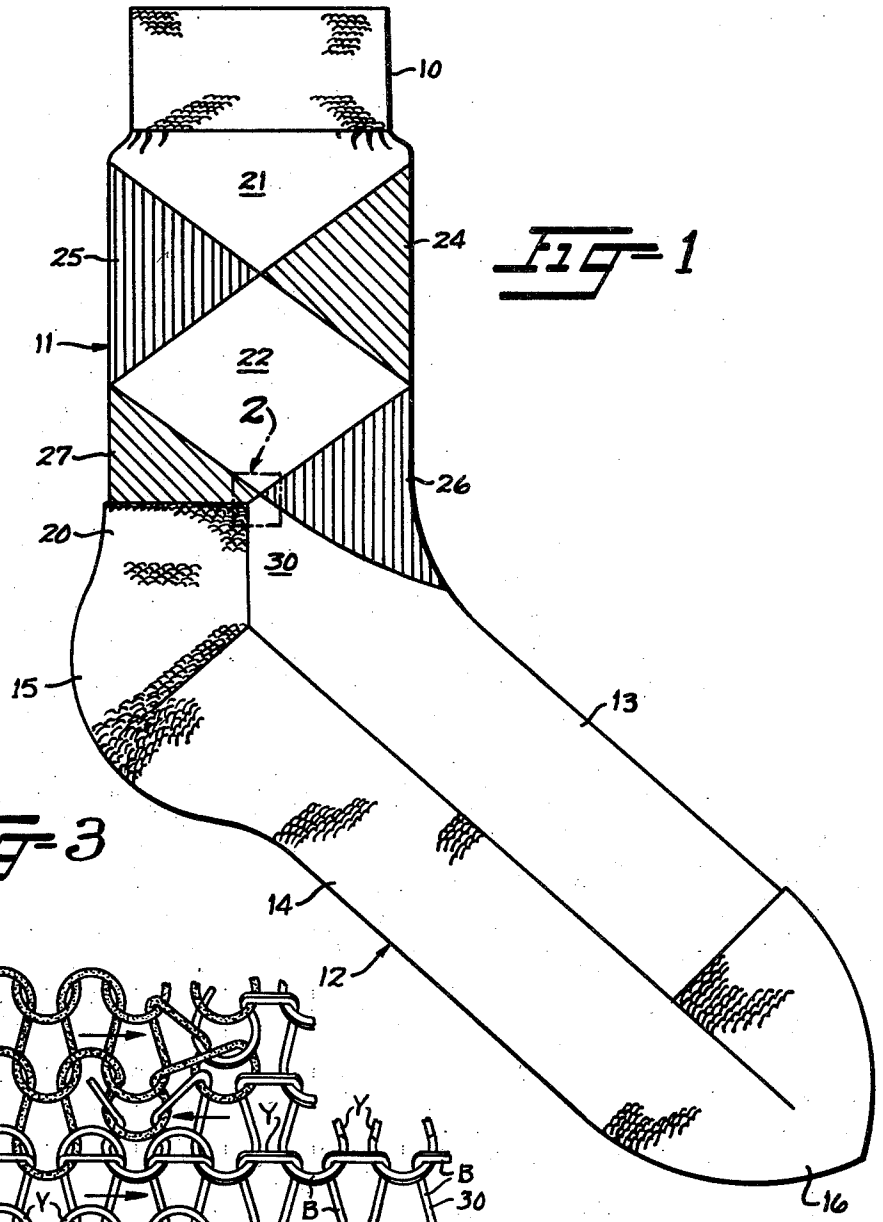
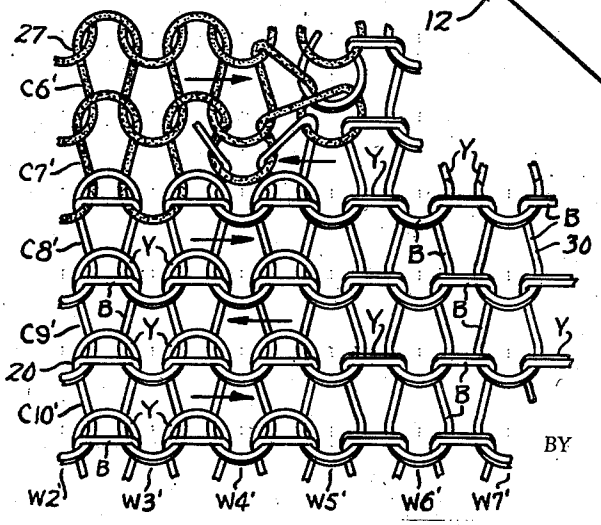


Fig-1

Fig-3



ERVIN R. BRIDGES,
INVENTOR.

BY Eaton & Beel

ATTORNEYS.

July 30, 1957 E. R. BRIDGES 2,800,782

ARGYLE STOCKING WITH CUSHION HIGH SPLICE AND METHOD

Filed July 27, 1953 2 Sheets-Sheet 2

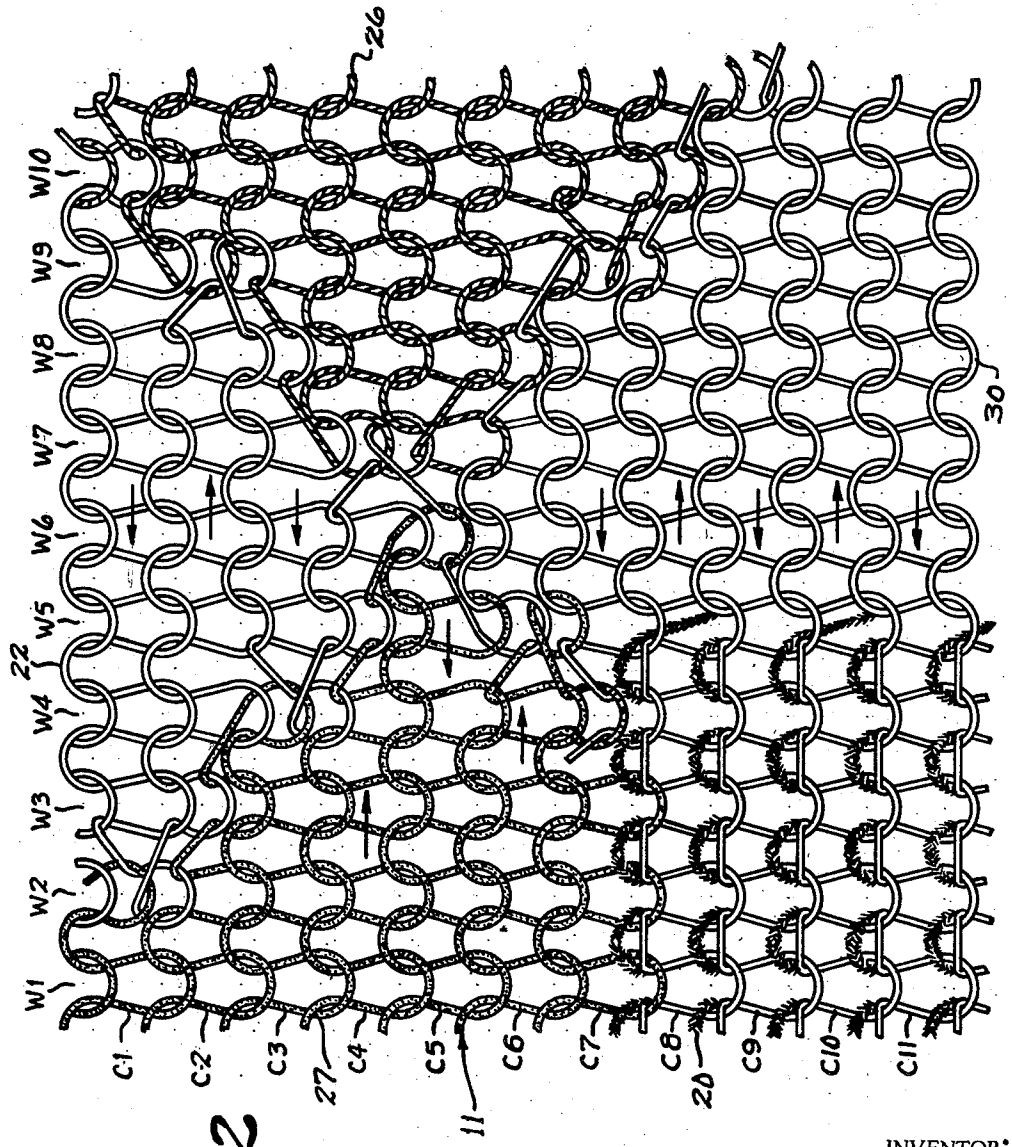


FIG. 2

INVENTOR:
ERVIN R. BRIDGES,

BY Eaton & Bell

ATTORNEYS.

United States Patent Office 2,800,782 Patented July 30, 1957

2,800,782

ARGYLE STOCKING WITH CUSHION HIGH SPLICE AND METHOD

Ervin R. Bridges, Connellys Springs, N. C., assignor to Waldensian Hosiery Mills, Incorporated, Valdese, N. C., a corporation of North Carolina

Application July 27, 1953, Serial No. 370,397
7 Claims. (Cl. 66—179)

This invention relates to hosiery and more especially to "Argyle" hosiery of a type such as are knit on so-called Banner Solid Color knitting machines of the type disclosed in U. S. Patent No. 2,217,022, dated October 8, 1940, and issued to Robert H. Lawson et al.

It is an object of this invention to provide a cushion or terry loop high splice above the heel of a stocking of the type having variegated rectilinear or triangular areas in the leg thereof, the junctures of which extend at an angle relative to the wales and courses of the fabric, and wherein at least the upper portion of the cushion high splice is formed in courses in which portions of said rectilinear or triangular areas are formed.

As is well known in the art, "Argyle" or solid color diamond-shaped pattern areas of a stocking are knitted on a machine of the character above described by reciprocation of the needle cylinder wherein alternate courses are formed with movement of the needle cylinder in one direction and intervening courses between said alternate courses are formed with movement of the needle cylinder in the opposite direction. In so doing, the knitting instrumentalities form circularly arranged variegated triangular or diamond-shaped areas wherein each area is knitted from a yarn independently of the yarns employed in knitting adjacent areas, the yarns being interknitted at the juncture of adjacent areas.

Now, it is another object of this invention to provide a stocking of the character described having a reinforced portion formed of terry loops in the body of the stocking; that is, a reinforced portion which is present in a given group of successive courses which group of courses also embraces a portion of the solid color pattern area of the stocking.

More specifically, it is an object of this invention to provide a reinforced high splice area of terry loops above the heel pocket of a stocking which high splice area is present in the same courses in which portions of a solid color pattern area are knitted, which solid color pattern area includes a plurality of circularly arranged areas whose junctures extend at an angle relative to the wales and courses of the knitted fabric and each area of which is knitted from a yarn independent of the other yarns and the yarns of adjacent areas being interknitted at their junctures to tie adjacent areas together.

Although the present invention is concerned primarily with the reinforced high splice, it is preferable that the reinforced high splice is formed as an extension to the reinforced cushion area formed in the toe, sole and heel of the stocking so that substantially all of the cushion portions of the stocking having the terry loops formed therein, when worn, are disposed within the shoe of the wearer, but wherein the high splice will reinforce the stocking at the point of greatest wear due to the rubbing of the counter of the shoe when the stocking is being worn.

It is still another object of this invention to provide a circularly knit stocking having a top, heel pocket, sole, toe pocket and/or high splice formed with terry loops in combination with a leg knitted with reciprocatory courses and having a plurality of circularly arranged areas therein, each knitted from a separate yarn, and proximal edges of adjacent areas being interknitted.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds, when taken in connection with the accompanying drawings in which—

Figure 1 is a side elevation of an Argyle sock or men's half hose turned inside out showing the conventional type of cushion sole, heel and toe and the improved cushion high splice area formed in courses in which portions of the diamond pattern areas are formed;

Figure 2 is a greatly enlarged elevation of the portion of the fabric defined in broken lines and indicated at **2** in Figure 1, and showing a portion of the terry loop or cushion fabric as knitted adjacent the junctures of adjacent solid color triangularly knit areas;

Figure 3 is a greatly enlarged elevation of a piece of fabric similar to the lower left-hand portion of Figure 2, but which differs from Figure 2 in that the terry loops are formed from one ply tof a multi-ply yarn or one of a pair of yarns knitted in plating relation with another ply of the multi-ply yarn or the other of said pair of yarns and wherein normal loops are formed from both of the plies of the multi-ply yarn or both yarns in the adjacent design area and in the same courses in which the terry loops are formed.

In Figure 1, only one side of a man's half hose or stocking is illustrated and it is to be understood that the opposite side of the stocking is identical to that shown in Figure 1, except being opposite hand. The stocking in Figure 1 includes a cushion top **10** which is knit in the usual manner of rotary knitting, but wherein terry loops are formed in plating relation with a backing yarn and an elastic yarn is laid in the courses thereof in the usual manner. The leg of the stocking is broadly designated at **11** and may be of the type which is knit in circular courses and wherein each circular course is knit with rotation of the needle cylinder in first one direction and then the other, that is, by reciprocatory knitting. The leg **11** may also be termed as the ornamental design or pattern area of the stocking. The stocking in Figure 1 also includes a foot broadly designated at **12** and including a plain instep **13** and a cushion sole **14** which are formed in continuous circular courses by rotary knitting. The usual heel pocket **15** and toe pocket **16** are formed in the usual manner of reciprocatory knitting and wherein terry loops of substantial length are formed in plating relation with the normal loops formed from the body or backing yarn.

Now, an important feature of the present invention is embodied in a high splice area **20** formed above the heel pocket **15** wherein a reinforcing yarn is knitted in plating relation with the backing or body yarn employed in knitting contiguous triangular or gusset areas and wherein the loops formed from the reinforcing yarn are disposed in the same courses in which portions of the ornamental triangular or diamond-shaped areas are formed as will be more fully described hereinafter. Since the present invention is concerned with the provision of a cushion area throughout the sole **14** of the foot **12**, the heel and toe pockets **15** and **16** and, particularly, in the high splice area **20**, it is, of course, preferable that the reinforcing yarn is formed in elongated or terry loops.

The leg **11** of the stocking includes an upper gusset **21** at each side thereof and a diamond-shaped or rectilinear intermediate area **22** at each side thereof. Disposed between the proximal edges of the areas **21** and **22** is a pair of upper diamond-shaped areas **24** and **25** which are shown as being triangular in Figure 1, since only half of the stocking is illustrated, although it is to be understood that the remaining halves of the diamond-shaped areas **24** and **25** are disposed on the opposite side of the stocking from that shown. Disposed beneath the front diamond-shaped area **24** is a lower diamond-shaped area **26** which

is also disposed below the front halves of the diamond-shaped areas **22** on opposite sides of the stocking.

A gusset **27** is formed at the rear of the stocking on opposite sides thereof, which is disposed in vertical alinement with the upper diamond-shaped area **25** and which is also disposed beneath the rear half of each of the intermediate diamond-shaped areas **22**. Disposed beneath the diamond-shaped area **26** at each side of the stocking is a gusset **30** whose rearmost edge extends wale wise at its juncture with the corresponding front edge of the high splice area **20** and the juncture of the gusset **30** on each side of the stocking in Figure 1 with the lower edge of the diamond-shaped area **26** extends at an angle relative to the wales and courses of the fabric.

Of course, each of the areas **21, 22, 24, 25, 26, 27** and **30** may be knitted from a separate yarn, wherein each yarn is of a different color and, by way of illustration, the areas **21, 22** and **30** are knitted from a body yarn which may be of the same color as the top **10** and the instep **13**. It is to be assumed that the areas **21, 22** and **30** are knitted from a white yarn in this instance. The areas **24** and **27** are shown as being knit from a green yarn and the areas **25** and **26** are shown as being knit from a pink or red yarn. The terry loop yarn employed in knitting the areas **14, 15, 16** and **20** may be of any desired color or shade and is preferably the same color or shade as the body yarn over which it is plated. The various colors of yarn are above described by way of illustration only and not to be construed as a limitation, since the triangular or diamond areas may be of any desired contrasting or matching shades or colors. Also the pattern in the leg may include areas of any size or shape, such as square, rectangular or oblong.

Now, the manner in which the various diamond-shaped or gusset areas are interknitted at their junctures is illustrated in Figure 2 in order to clarify the manner in which a reinforcing yarn is knitted in plating relation with one of the yarns employed in knitting the ornamental area or leg **11**. Thus, with the exception of the reinforced area, the fabric illustrated in Figure 2 is knitted in substantially the same manner as that disclosed in said Patent No. 2,217,022 and wherein the fabric is knitted by reciprocation of the needle cylinder, the knitting progressing from top to bottom in Figure 2 and the direction in which the courses are knitted being marked by arrows.

For purposes of description, the courses shown in Figure 2 are indicated at C1 to C11, inclusive, and the wales shown are indicated at W1 to W10, inclusive. It will be noted that, as the reciprocatory courses are knitted, the number of stitches formed from the yarn in area **22** are reduced from course to course and the number of stitches formed from the yarns in areas **26** and **27** are gradually increased relative to respective given wales and yarns employed in knitting the adjacent areas **22, 26** and **27** are interknitted at their junctures.

In course C5, the yarns from all of the areas **22, 26, 27** and **30** are interknitted at their junctures forming the apex of the gusset **30** and reciprocatory knitting continues throughout the knitting of the high splice area **20** and the heel pocket **15**. Of course, commencing with the course C8, a yarn change is made only at the front or right-hand edge of area **30**. On the other hand, a yarn change is made on both sides of gusset area **30** in knitting the courses C6 and C7. However, the backing yarn or body yarn employed in knitting the gusset **30** is also employed in forming stitches entirely around the back half of the stocking and in forming a gusset similar to the gusset **30** on the opposite side of the stocking in Figure 1.

Now, in knitting substantially the back half of the stocking to form the high splice area, it will be noted that an additional, reinforcing or cushion yarn is knitted in plating relation with the backing yarn employed in knitting the area **30** and, due to the reciprocatory manner in which the courses C8, C9, C10 and C11 are formed, the reinforcing or cushion yarn extends from one course to the next succeeding course without the necessity of floating the reinforcing or cushion yarn. For example, it will be observed in Figure 2 that the reinforcing or cushion yarn passes downwardly from course C8 in wale W5 and is knitted in the subsequent course C9 as the knitting progresses from right to left. The same thing occurs upon the termination of knitting with the cushion yarn or reinforcing yarn in course C10, in that the reinforcing or cushion yarn extends downwardly in the wale W5 and is knitted in course C11 as knitting subsequently progresses from right to left.

Of course, after the heel pocket has been formed, it is evident that the reinforcing yarn may be floated across the instep of said stocking and subsequently cut away although it is preferable that the reinforcing yarn be knitted in plating relation with the backing yarn or body yarn throughout the knitting of both the instep **13** and the sole **14** during rotary knitting. In the latter instance, it is evident that terry loops would only be formed from the reinforcing yarn in the sole of the stocking and normal loops would be formed from both the reinforcing yarn and the backing yarn in the instep of the stocking.

Although a distinct form of loop construction is illustrated at the junctures of the adjacent diamond-shaped or gusset-shaped areas in Figure 2, it is to be distinctly understood that these junctures may be interknitted in any desired manner. As a matter of fact, each of the ornamental areas **24, 25, 26** and **27** may be formed by plating a different colored facing yarn over a common backing yarn from which the areas **21, 22, 30** and **13** may be formed. Of course, in the latter instance, all of the courses in the leg, instep **13** and sole **14** may be formed by conventional rotary knitting and in which instance an additional reinforcing yarn would merely be added at the high splice area **20** and wherein elongated or terry loops would be formed from this additional reinforcing yarn to produce the cushion effect.

Although the various areas knitted from separate yarns in the leg **11** are shown as being triangular or diamond-shaped it is to be understood that such areas may be of any desired shape or size such as oblong, rectangular, square etc., and the junctures of such areas may extend walewise, rather than at an angle, with the high splice area extending into the zone in which adjacent ornamental areas knitted from separate yarns, but interknitted at their junctures, are disposed.

In Figure 3, a modified form of terry loop fabric is illustrated which is similar to the left-hand lower portion of Figure 2 and wherein the courses and wales shown in Figure 3 shall bear the same reference characters as the corresponding courses and wales shown in Figure 2, with the prime notation added.

It is well known that each of the design areas in the leg or ornamental portion **11** of the stocking may be knitted from a separate multi-ply yarn and wherein each multi-ply yarn may include two or more separate strands or plies. The area **30** in Figure 3 is shown knitted from such a multi-ply yarn which, in this instance, includes two strands or plies, one strand of which is termed as a terry yarn Y and the other strand of which is termed as a body yarn or backing yarn B. It will be noted that the stitches formed from the two plies Y and B in the needle wales W5′, W6′ and W7′ and in the sinker wales therebetween are each of substantially the same size in all the courses shown in Figure 3, so that the area **30** shown in Figure 1 between the areas **26** and **27** and between the areas **26** and **20** are in the form of normal or regularly-knit stitches. This also applies to the instep **13**. On the other hand, in knitting the portions of the courses C8′, C9′ and C10′ in the wales W2′, W3′ and W4′, to form the high splice area **20**, for example, the terry yarn or ply Y is knit in the form of relatively large stitches as compared to the corresponding stitches formed from the backing yarn or ply B so as to form terry loops

from the yarn Y in the portions of the courses C8', C9' and C10' and in the sinker wales between the needle wales W2', W3', W4' and W5' embraced by the area 20 of Figure 1.

It is thus seen that, although the courses in the leg 11 are formed by reciprocatory knitting, the reinforced, high splice area or cushion area may be formed in the same courses in which portions of adjacent ornamental areas are formed from separate yarns and wherein the terry loops may be formed either from one or more of the plies of a multi-ply yarn employed in knitting normal stitches in one or more adjacent ornamental areas, or they may be formed from one of a pair of simultaneously-knit yarns, or they may be formed from an entirely separate reinforcing yarn knitted in plating relation with one or more of the yarns employed in the separate ornamental design areas as heretofore described with respect to Figure 2.

This is also true of the instep 13 and the sole 14; that is, the instep 13 and sole 14 may both be knitted from a terry yarn knitted in plating relation with a backing yarn and wherein normal stitches are formed from both the yarns in the instep area and terry loops, of greater length than the normal loops, are formed from the terry yarn plated with the backing yarn in the sole area 14. On the other hand, the instep 13 and sole 14 may be knitted by continuous circular courses formed from a body yarn or backing yarn with terry loops formed from an additional yarn knitted in plating relation with the backing yarn in the sole area 14 only and being floated through the instep. Of course, the floats thus formed would be cutaway after the stocking is knitted.

To my knowledge it has not been possible heretofore to produce a stocking having a leg knitted with reciprocatory courses, in portions of which courses terry loops or stitches could be formed and wherein a top, sole, heel pocket and toe pocket could be provided with terry stitches or loops. As a matter of fact, the inclusion of terry loops in any portion of a tubular knit fabric having portions thereof knitted with reciprocatory circular courses, whether such terry loops are formed in the reciprocatory courses or in adjacent portions of the tubular fabric knitted by circular courses, is believed to be new in the art and therein resides the nucleus of my invention.

In the drawings and specification there has been set forth a preferred embodiment of the invention and, although specific terms are employed, they are used in a generic and descriptive sense only, and not for purposes of limitation, the scope of the invention being defined in the claims.

I claim:

1. In a stocking having a leg, a heel pocket, a foot and a toe pocket, said leg having a plurality of different colored rectilinear areas thereon whose junctures extend at an angle relative to the wales and courses of the knitted fabric and wherein adjacent areas are knit from separate yarns and separate yarns in adjacent areas being interknitted at their junctures; the combination of a high splice area knitted above said heel pocket and extending into the leg of the stocking so that at least its upper portion is disposed in the same courses in which portions of said different colored areas are disposed.

2. In a stocking having a leg knitted from a plurality of different colored yarns by reciprocatory knitting and wherein each of said yarns forms an area and the junctures of adjacent areas extend at an angle relative to the wales and courses of the knitted fabric; the combination of a high splice area formed from a reinforcing yarn knitted in plating relation with only one of said different colored yarns in the form of terry loops and said reinforcing yarn being knitted in some of the courses in which at least two of said different colored yarns are knitted.

3. In a tubular knit stocking having a foot provided with a cushion sole, a cushion toe, a cushion heel and a leg knitted from a plurality of different colored yarns by reciprocatory knitting and wherein each of said yarns forms an area and the junctures of adjacent areas extending at an angle relative to the wales and courses of the knitted fabric; the combination of a high splice area formed contiguous to and above the heel from a reinforcing yarn knitted in plating relation with at least one of said different colored yarns in the form of terry loops and said reinforcing yarn being knitted in some of the courses in which at least two of said different colored yarns are knitted.

4. A method of knitting in reciprocatory work including the steps of knitting a plurality of different colored yarns wherein each yarn is knitted in a partial course only, and varying the number of stitches formed from each of the yarns relative to a given wale in each successive course while forming terry loops from an additional reinforcing yarn in some of said partial courses.

5. A method of knitting in reciprocatory work including the steps of knitting a plurality of successive courses while forming parts of each successive course from a plurality of different colored yarns, each yarn knitting in a partial course only, varying the number of stitches formed from each of said yarns from course to course and forming terry loops from an additional yarn knitted in plating relation with one of said different colored yarns in an additional plurality of successive courses while varying the number of stitches formed from adjacent different colored yarns from course to course.

6. A method of knitting in reciprocatory work including the steps of knitting a plurality of successive courses while forming parts of each successive course from a plurality of different yarns, each yarn knitting in a partial course only, varying the number of stitches formed from each of said yarns from course to course and forming terry loops from an additional yarn knitted in plating relation with one of said different yarns in an additional plurality of successive courses while varying the number of stitches formed from adjacent different yarns from course to course.

7. The method of knitting a stocking having a leg, a heel pocket, an instep, a sole and a toe pocket which includes the steps of forming a plurality of rectilinear areas in the leg of the stocking each from a separate yarn and whose junctures extend at an angle relative to the wales and courses of the knitted fabric, thereafter forming a high splice area from an additional yarn knitted in plating relation with another yarn in a terry loop formation in the lower portion of the leg while forming additional areas each from a separate yarn in the same courses whose junctures extend at an angle relative to the wales and courses of the knitted fabric and thereafter successively knitting the heel pocket, the instep and the foot and the toe pocket from a body yarn while forming terry loops from said additional yarn in the heel pocket, the sole and the toe pocket.

References Cited in the file of this patent

UNITED STATES PATENTS

1,524,834	Martin	Feb. 3, 1925
1,805,607	Houseman	May 19, 1931
2,002,888	Gastrich	May 28, 1935
2,012,607	Houseman	Aug. 27, 1935
2,112,610	Sherman	Mar. 29, 1938
2,171,452	McAdams	Aug. 29, 1939
2,217,022	Lawson et al.	Oct. 8, 1940
2,302,211	Green	Nov. 7, 1942
2,370,450	Clark	Feb. 27, 1945
2,375,684	Page	May 8, 1945
2,400,637	Fregeolle	May 21, 1946
2,667,774	Allen	Feb. 2, 1954

OTHER REFERENCES

Serial No. 224,546, Nebel (A. P. C.), published May 4, 1943 (abandoned).