Dec. 7, 1971 S. C. SAFRIT ET AL 3,625,029

GIRDLE AND METHOD

Filed Jan. 2, 1970 3 Sheets-Sheet 1

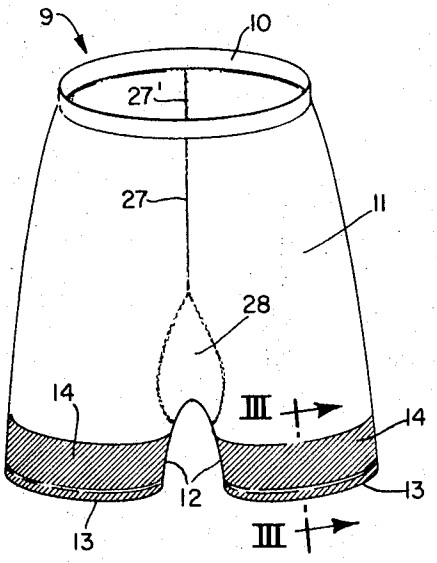


Fig. 1

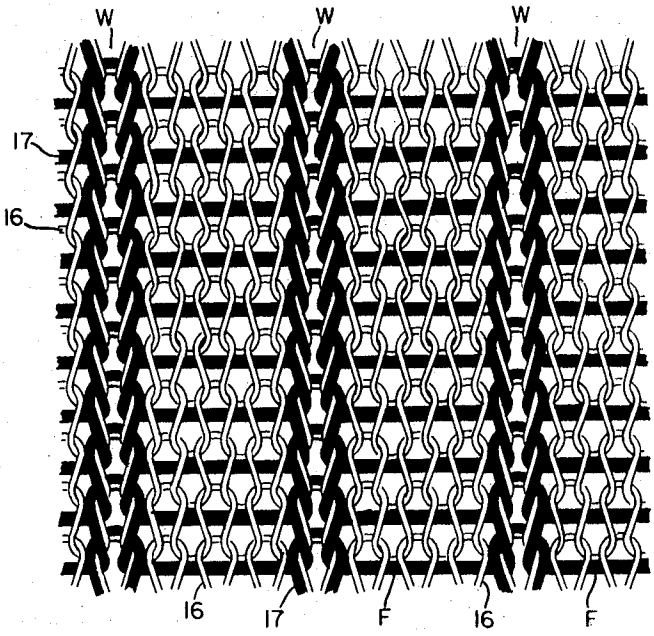


Fig. 2

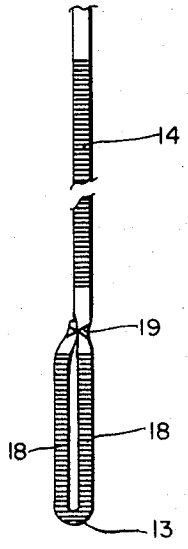


Fig. 3

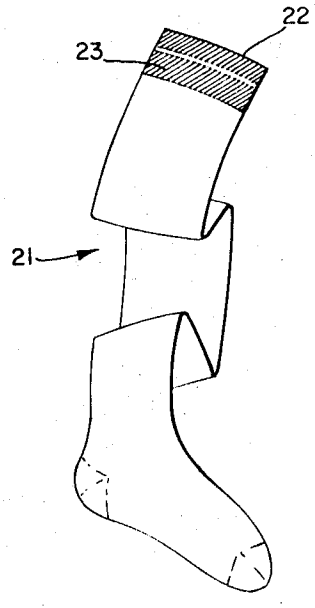


Fig. 4

INVENTORS.
SAM C. SAFRIT
KENNETH E. SMITH

BY

Paul & Paul

ATTORNEYS.

Dec. 7, 1971 S. C. SAFRIT ET AL 3,625,029

GIRDLE AND METHOD

Filed Jan. 2, 1970 3 Sheets-Sheet &

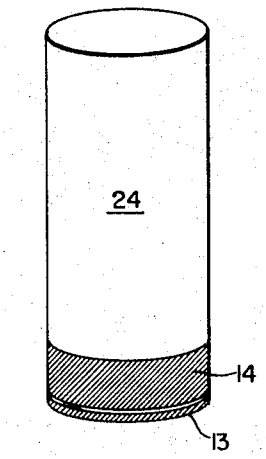


Fig. 5

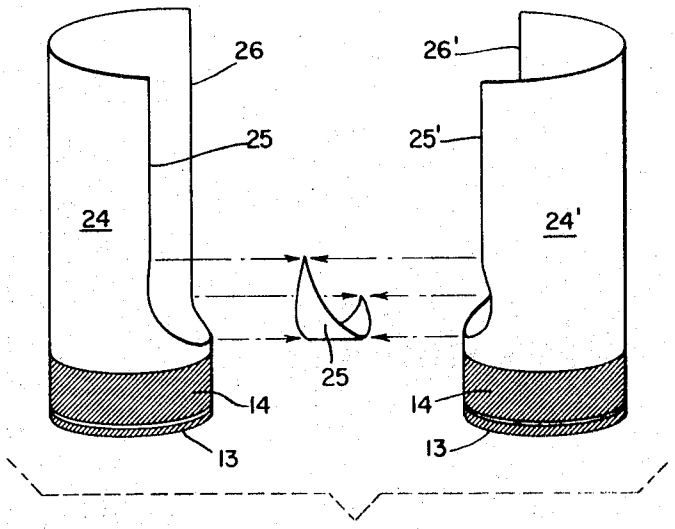
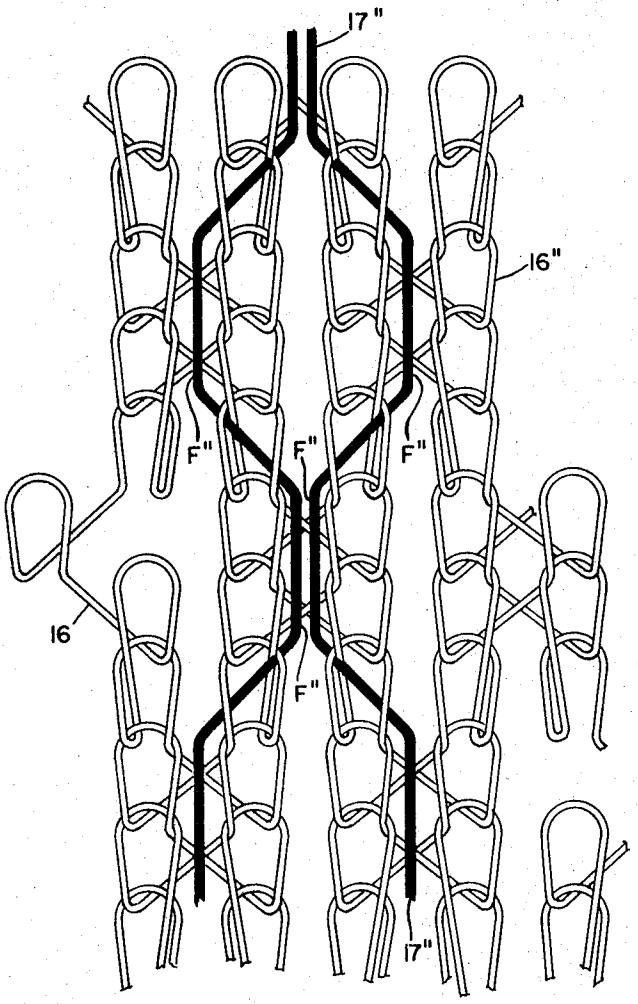


Fig. 6



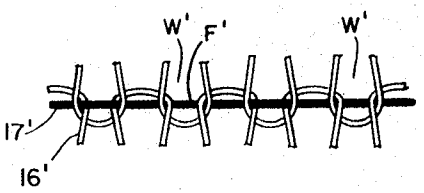


Fig. 7

Fig. 8

INVENTORS.
SAM C. SAFRIT
KENNETH E. SMITH

BY

ATTORNEYS.

Dec. 7, 1971 S. C. SAFRIT ET AL 3,625,029

GIRDLE AND METHOD

Filed Jan. 2, 1970 3 Sheets-Sheet 3

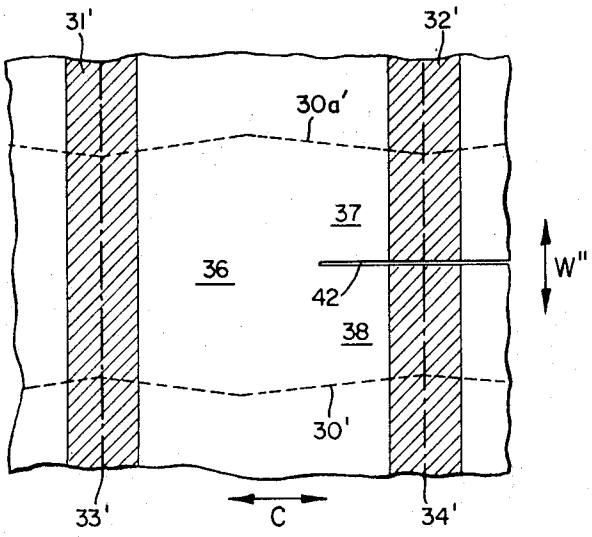


Fig. 10

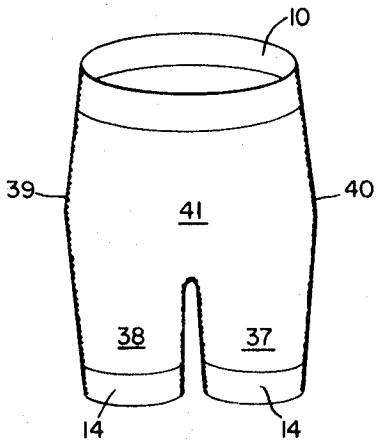


Fig. 11

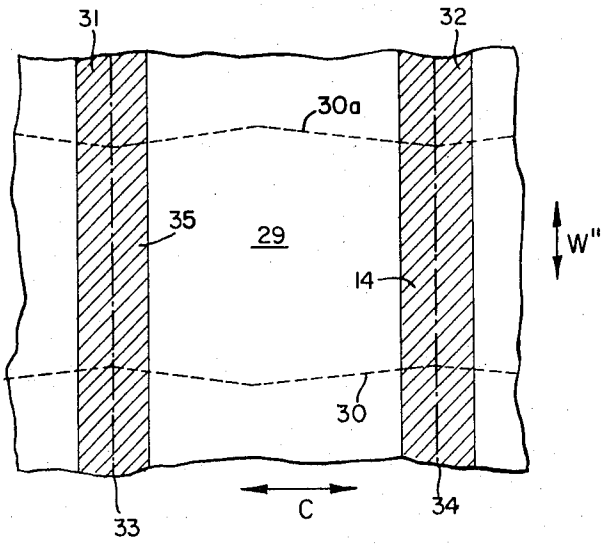


Fig. 9

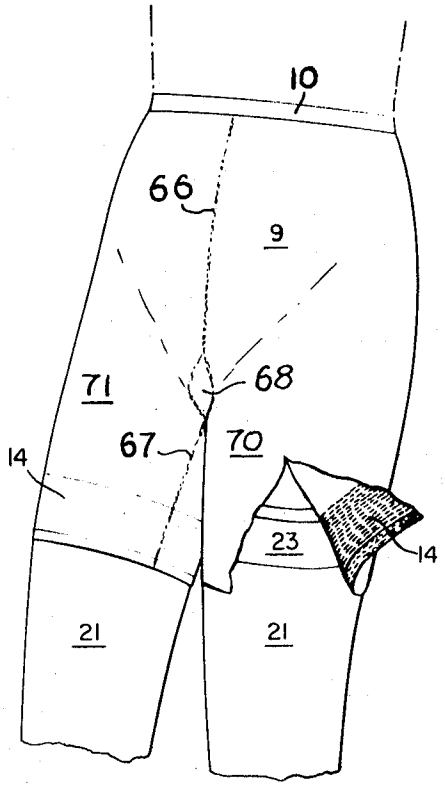


Fig. 12

INVENTORS.
SAM C. SAFRIT
KENNETH E. SMITH

BY

Paul & Paul

ATTORNEYS.

United States Patent Office 3,625,029 Patented Dec. 7, 1971

3,625,029

GIRDLE AND METHOD

Sam C. Safrit, Winston-Salem, and Kenneth E. Smith, Rural Hall, N.C., assignors to Separates, Ltd., Winston-Salem, N.C.

Continuation of application Ser. No. 729,261, May 15, 1968. This application Jan. 2, 1970, Ser. No. 130
Int. Cl. D04b 1/24
U.S. Cl. 66—172 E 4 Claims

ABSTRACT OF THE DISCLOSURE

A knitted girdle having two legs, each of which has a stocking supporting portion having vertically spaced circumferentially extending series of bare elastic yarn for engaging and supporting stocking tops during wear.

This application is a continuation of copending U.S. patent application Ser. No. 729,261, filed May 15, 1968, now U.S. Pat. 3,487,662 issued Jan. 6, 1970.

In recent years garments known as "panty hose" have become very much in demand by women wearing high style clothing. The demand has arisen, in part, because women's dresses and skirts tend to become shorter and expose more leg than heretofore.

Panty hose usually comprise an integrally made garment composed of a girdle or panty portion and two stocking portions. (The term "panty" as used herein is used as the equivalent of the term "girdle"). Such garments, while increasing in popularity and providing highly sheer, elegant and most comfortable wear, suffer from a disadvantage due to the fact that if a run or other damage develops in one of the stocking portions, the entire garment must be replaced.

To overcome this problem, attempts have been made to design panty hose whereby the stocking portions are separable from the girdle or panty portion, so that if a run occurs, or a stocking is otherwise damaged, it can be replaced without discarding the entire garment. Examples of such garments are found in U.S. Pat. Nos. 3,249,110; 2,253,599; 3,359,571 and 3,362,029. However, such attempts have not been successful in practice. Either the resulting garments have failed to provide adequate stocking support, or have proven to be uncomfortable during wear by reason of the character of the stocking support provided.

Accordingly, the primary object of this invention is to provide a new and improved girdle panty which is provided with elastic fabric means to engage and support the stockings during wear.

A further object is to provide a knitted girdle panty garment for supporting a pair of stockings during wear which incorporates elastic areas having spaced yarn floats for engaging the stockings during wear.

It is a further object of this invention to provide a new and improved panty hose garment having separable girdle or panty and stocking portions whereof the girdle panty supports the stockings during wear by knitted elastic fabric means which provides a mild (gentle, but secure support for the stockings.

Other objects and attendant advantages of this invention will be apparent from the following specification wherein:

FIG. 1 is a perspective view of the girdle or panty portion of the invention, with the elastic areas thereof shaded.

FIG. 2 is an enlarged, fragmentary, schematic stitch diagram of the elastic fabric, knit on a weft knitting machine.

FIG. 3 is a fragmentary schematic section looking in the direction of the arrows III—III of FIG. 1, showing the elastic areas shaded.

FIG. 4 is a perspective view of a stocking portion of the invention.

FIGS. 5 and 6 illustrate steps in the manufacture of the girdle or panty portion.

FIG. 7 is a schematic stitch diagram of an alternative construction of the elastic fabric, knit on a weft knitting machine.

FIG. 8 is a schematic stitch diagram showing a second alternative construction of the elastic fabric, knit on a Raschel or warp knitting machine.

FIG. 9 is a fragmentary, schematic illustration of a sheet of warp knitted fabric, with the outline of a panty or girdle blank indicated thereon.

FIG. 10 is a view similar to FIG. 9, illustrating an alternate type of panty or girdle blank.

FIG. 11 is a perspective view of a girdle or panty made from panty blanks of the type illustrated in FIG. 10.

FIG. 12 is an enlarged fragmentary view in perspective illustrating the invention during wear.

Throughout the specification and claims hereof, the term "stretch yarn" shall indicate any of the well known synthetic, thermoplastic, heat-settable yarns which have capacity to elongate and contract, but have virtually no power in contraction. Such yarns include "Agilon," "Cantrec" 880 or 881, false twist S and Z yarns, S and Z twist yarns of the type disclosed in U.S. Pat. No. 2,771,733 and "Duotwist" yarn of the type disclosed in U.S. Pat. No. 3,091,908.

The term "elastic yarn" as used herein shall mean any yarn having an inherent capacity to elongate under tension, and having an inherent tendency to contract from an elongated condition with a degree of power in contraction. Such yarns include rubber and spandex yarns, both bare and covered.

The girdle or panty **9** shown in FIG. 1 comprises a waistband **10**, a body portion **11** and two leg portions **12**, each of which terminate in a turned edge or welt **13**. Each leg **12** has an annular or circumferentially extending band of elastic fabric **14** disposed adjacent its turned edge.

The fabric of the panty portion may be knit on a ladies' multi feed circular hosiery knitting machine. Preferably, the garment is knit throughout with one of the many well known stretch yarns. In the elastic areas **14**, a bare elastic yarn such as spandex, is incorporated with the stretch yarn. The stocking supporting portions **14** may be initially stretched substantially in the vertical direction because, as indicated, stretch yarn comprises the base fabric. Thus, when the vertically stretched portions **14** are placed about the stocking tops they subsequently contract in the vertical direction to thereby engage folds of the stocking top between the vertically spaced elastic gripper yarns **17**.

A preferred form of weft knitted elastic fabric, composed of stretch yarn **16** and bare elastic yarn **17**, is shown in FIG. 2. The elastic yarn **17** is knit in every fourth wale W and is floated across the three intervening wales to form floats F. Of course, the elastic yarn **17** need not be disposed in all courses of the elastic fabric areas **14**, but may be incorporated in alternate courses, or every third or fourth course, etc., as desired. Similarly, if desired, the elastic yarn **17** may be knit in alternate wales or every third wale, or otherwise as desired, as explained in U.S. Pat. No. 2,261,595. In any event, the floats F are spaced coursewise and walewise throughout fabric areas **14**.

FIG. 3 is a schematic section taken along the arrows III—III of FIG. 1. The elastic area **14**, knit of the fabric of FIG. 2 is shown as shading in FIG. 3. If desired, elastic yarn **17** also may be knit in the turned edges **13** of the legs **12** of the girdle or panty garment, as indicated by the

shading **18** in FIG. 3. The turned edge is secured by a seam of stitching **19** in any well known manner, or may be knit as a welt in the usual manner employed in ladies' circular hosiery knitting machines.

The stocking **21** shown in FIG. 4 has its open, upper end formed with a welt or turned edge **22** in the usual manner. Spaced from the turned edge of the stocking is a circumferentially extending elastic area **23** knit of a fabric like that shown in FIG. 2.

If desired, the fabric forming the turned edge **22** of stocking **21** may incorporate elastic yarn in the manner illustrated in FIG. 2. In such event, the cross section view of the upper fabric portion of stocking **21** would be similar to that shown schematically in FIG. 3.

The manufacture of the girdle or panty **9** is similar to the technique disclosed in U.S. Pat. No. 2,826,760. First, two tubular fabric portions **24**, like that illustrated in FIG. 5, are knit. Each has a lower portion terminating in an annular elastic area **14** and a turned edge **13**. Two such tubes **24** and **24'** then are each cut along a wale of the fabric from the top thereof to a point just above the beginning of the elastic areas **14**, as shown in FIG. 6. Thereupon, the opposing cut edges **25–25'**, **26–26'** of the two tubular portions **24**, **24'** are joined together by sewing in any well known manner, producing seams **27**, **27'** (FIG. 1). If desired, a crotch piece **28** may be inserted between the two tubular portions **24**, **24'**. The waistband **10** then is added to produce the garment shown in FIG. 1.

If desired, the elastic yarn in the elastic fabric areas **14** and **23** may be interlaced in the fabric, as shown in FIG. 7, in the manner taught in U.S. Pat. No. 2,344,350. FIG. 7 shows elastic yarn **17'** interlaced so as to pass behind alternate wales W' of stretch yarn **16'** to form spaced floats F'. However, any well known interlacing arrangement may be employed, e.g., where the yarn floats pass behind two, three or even more consecutive wales of the fabric.

The fabric of girdle or panty **9** and stocking **21** may be warp knit rather than weft knit. FIG. 8 shows a preferred warp knit elastic fabric made on a Raschel knitting machine having a single needle bar and five yarn guide bars. This fabric incorporates stretch yarn **16''** and walewise extending bare elastic yarn strands **17''** forming spaced floats F''. The elastic yarn strands **17''** are laid in the fabric and zigzag back and forth across their respective wales, thereby disposing the floats F'' of each strand in staggered relationship walewise of the fabric.

FIG. 9 illustrates schematically a flat sheet of warp knit fabric from which girdle or panty blanks **29** would be cut and then sewn together in pairs to produce the girdle or panty **9** of FIG. 1. The courses of this fabric extend in the direction of the arrows C and the wales in the direction of the arrows W''.

In FIG. 9, the broken lines **30** and **30*a*** indicate the outside edges of each individual blank **29**. Two such cut blanks are superimposed and sewn together to produce the finished girdle or panty. The shaded areas **31** and **32** indicate walewise extending elastic fabric areas, which incorporate plural elastic yarn strands **17''**. In making a girdle or panty blank, the fabric is cut along lines to provide coursewise extending cut edges **30** and **30*a*** and also along lines **33** and **34** to provide walewise extending cut edges intermediate, respectively, of the elastic areas **31** and **32**. When thus cut, the portion of elastic area **32** of blank **29** becomes, in the finished girdle or panty **9**, an elastic area **14**. The elastic area **35** of blank **29**, comprising a part of elastic area **31**, becomes a portion of the waistband **10** of panty **9**. For making the panty or girdle shown in FIGS. 1 and 12, the upper portions of edges **30** and **30*a*** of two blanks **29** are sewn from edge **33** for a distance equal to that between the top waistband **10** of the garment and the crotch thereof to form a front seam **66** (FIG. 12) and a rear seam which is not shown in FIG. 12, but which is like the seam **27'** in FIG. 1.

The foregoing attachments form the body of the girdle or panty of FIG. 12. The legs **70** and **71** are formed by

sewing together the remaining unattached portions of edges **30** and **30*a*** of each blank **29** to form a seam **67** in each leg. The seam of leg **70** is not shown. If desired, a gusset **68** can be incorporated in the crotch. Of course, if desired, knitted elastic band **31** may be omitted from the fabric of FIG. 9, in which case a separate elastic band **10** would be added to the fabric to complete it.

It will be noted, from FIG. 9, that the individual girdle or panty blanks extend coursewise of the fabric. The blanks are disposed in alternate inverted order across the fabric, so that alternate elastic bands, such as bands **32**, provide elastic areas **14** for the leg portions of adjacent blanks, while the intervening elastic areas **31** provide waistband portions for adjacent blanks.

FIGS. 10 and 11 show an alternate girdle or panty made from warp knit fabric. In this case, the girdle or panty blanks **36** are cut so as to shape the individual leg portions **37** and **38**. The fabric is knit with walewise extending elastic areas **31'** and **32'** which are cut, respectively, along intermediate lines **33'** and **34'** to provide walewise extending cut edges. Two such blanks **36** are superimposed and joined together along their opposing course-wise extending cut edges **30'** and **30*a'*** in any suitable manner, to produce side seams **39** and **40**. Panty **41** shown in FIG. 11 would have the same elastic areas **14** as the panty of FIG. 1, and the same elastic band **10**, which may either be knitted fabric from elastic fabric area **31'**, or a separate band sewn to the waist of the fabric. It is to be noted that, in cutting blank **36** of FIG. 10, it is necessary to slit the fabric course-wise in the crotch area **42** to provide opposing intermediate cut edges and to attach such upper intermediate edges also to corresponding edges of the second blank to produce leg portions **37** and **38**. The elastic areas **14** in FIGS. 11 and 12 each incorporate circumferentially extending elastic frictional gripper yarn floats.

FIG. 12 illustrates a preferred garment of this invention during wear. It will be noted that the elastic fabric portions **14** of the girdle or panty **9** overlap the fabric portions **23** of the stockings **21**. By reason of the numerous coursewise spaced and walewise spaced floats F of bare elastic yarn, which frictionally engage the portions **23** of the stockings, the stockings are supported and maintained on the leg in a wrinkle-free condition during wear. The elastic yarns in the fabric portions **14**, by reason of their floats F, provide a mild, gentle, but secure support for the stockings **21**.

Preferably, the yarn floats of the girdle or panty portion and (if any) of the stocking portions of the garment are disposed on the inside of the fabric, as illustrated by the broken away portion of girdle or panty **9** in FIG. 12. However, the invention works equally well if the floats of elastic yarn in the fabric portions **14** of girdle or panty **9** are disposed on the outside of the fabric, and the stockings **21**, with the floats disposed on the inside of the fabric thereof, are pulled over the leg portions of the girdle or panty. Alternatively, the floats in the elastic portions **14** of the girdle or panty may be disposed on the inside of the fabric, while floats in the elastic portions **23** of the stockings may be disposed on the outside of the fabric. In such event, the floats of the respective portions will be in opposing contiguous relationship when the garment is worn.

It will be understood, of course, in weft knit fabric, in order to dispose yarn floats to the outside of the fabric, it is necessary to turn the fabric inside out. FIG. 2 shows the face or outside of the fabric, with the floats disposed on the inside thereof.

If desired, the elastic yarn **17** may be omitted altogether from the stocking portions **21**, and plain knit stockings may be worn and supported by the girdle or panty portion **9**.

We claim:

1. A warp knit girdle for frictionally supporting stockings comprising:

(a) first and second warp fabric blanks having edges connected to form legs and a tubular body portion including a crotch;

(b) each of said legs having a seam extending downwardly from the crotch;

(e) each of said legs incorporating a circumferentially extending elastic gripper band knit to the lower edge of said leg for frictionally engaging and supfrictional gripper yarn laid in said warp fabric and extending circumferentially of said body.

2. A girdle for frictionally supporting stockings comprising:

(a) a body portion and

(b) legs attached to the body portion,

(c) said legs each including at least one warp knit stocking supporting portion integrally knit therewith comprising a base fabric knitted of stretch yarn having circumferentially extending elastic frictional gripper yarn floats incorporated therein in selected wales during knitting so that, upon wearing, said supporting portions may be initially stretched substantially in the vertical direction and placed about the top of a stocking and, thereafter, the supporting portion will contract in said vertical direction to thereby engage folds of the stocking top between the elastic gripper yarn floats.

3. A method of manufacturing a girdle for frictionally supporting stockings comprising:

(a) knitting a pair of flat warp fabric blanks, said knitting including the step of forming in each blank a walewise extending stocking gripper band by incorporating a series of walewise extending elastic gripper yarns in selected wales of each fabric blank,

(b) cutting each blank to provide each blank with two spaced coursewise extending cut edges and two spaced walewise extending cut edges, the two walewise extending cut edges each intersecting the coursewise extending cut edges, one said walewise extending cut edge being disposed within the stocking gripper band,

(c) slitting each fabric blank substantially coursewise, approximately midway between said coursewise extending cut edges, to provide opposing cut edges, said slit extending from the cut edge within the stocking gripper band for a distance sufficient to provide enough fabric on either side thereof for a leg and then

(d) superimposing said pair of blanks with their corresponding cut edges contiguous and joining the blanks together by attaching their contiguous cut edges to each other.

4. A method of manufacturing a girdle for frictionally supporting stockings, said girdle having a top and a crotch, comprising:

(a) knitting a pair of flat warp fabric blanks, said knitting including the step of forming in each blank a walewise extending stocking gripper band by incorporating a series of walewise extending elastic gripper yarns in selected wales of each fabric blank,

(b) cutting each blank to provide each blank with two spaced coursewise extending cut edges and two spaced walewise extending cut edges, the two walewise extending cut edges each intersecting the coursewise extending cut edges, one said walewise extending cut edge being disposed within the stocking gripper band,

(c) superimposing the two fabric blanks so that their corresponding cut edges are contiguous,

(d) forming the superimposed fabric blanks into a body portion by attaching their contiguous coursewise extending cut edges for a distance equal to that between the top of the girdle to be made and the crotch thereof, whereby the remaining portions of said edges remain unattached and

(e) forming leg portions by attaching the remaining unattached coursewise extending cut edges of the first blank to each other and attaching the remaining unattached coursewise extending edges of the second blank to each other.

References Cited

UNITED STATES PATENTS

3,465,757	9/1969	Barg	2—240 X
3,478,748	11/1969	Bjorn-Larsen	2—240 X
3,487,662	1/1970	Safrit et al.	66—177 X
3,511,245	5/1970	Jaggers, Jr.	2—240 X
2,231,434	2/1941	Cantner	66—172 E
2,469,134	5/1949	Seiler	66—177
2,910,853	11/1959	Howard	66—193
3,077,758	2/1963	Siciliano	66—192
3,122,906	3/1964	Crawford	66—172 E
3,238,747	3/1966	Faust	66—176
3,249,110	5/1966	Bryan	128—519
3,253,599	5/1966	Bjorn-Larsen	2—240 XR
3,359,571	12/1967	Burke	2—240 X
3,392,553	7/1968	Burleson	66—172 E
3,465,756	9/1969	Inman	2—240
3,566,619	3/1971	Titone	66—177

WM. CARTER REYNOLDS, Primary Examiner

U.S. Cl. X.R.

2—240; 66—177, 192; 128—528

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,625,029 Dated December 7, 1971

Inventor(s) Sam C. Safrit et al.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 3, line 70, after "top" insert -- of --. Column 5, lines 9 and 10, delete these lines and substitute -- porting a stocking, said band comprising elastic frictional gripper yarn laid in said warp fabric and extending circumferentially of said band. --.

Signed and sealed this 4th day of July 1972.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

ROBERT GOTTSCHALK
Commissioner of Patnts

FORM PO-1050 (10-69)

USCOMM-DC 60376-P69
* U.S. GOVERNMENT PRINTING OFFICE : 1969 O—366-334.