KNIT PANTY HAVING A SINGLE LAYER WAISTBAND

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ABSTRACT

A circular knit panty has a fabric portion for encircling a lower torso with the fabric portion having a first leg hole, a second leg hole, and an edge. The circular knit panty also has a single layer waistband integrally connected by circular knitting to the edge with the single layer waistband made from a material selected from the group consisting of a synthetic continuous filament or a stable yarn, a natural fiber yarn, spandex, and any combinations thereof. The single layer waistband is to anchor the circular knit panty to a wearer. The single layer waistband has a selvedge opposite the edge and the selvedge is clean and treated to avoid curling.
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BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to a garment. More particularly, the present invention relates to a knit panty having a waistband that is knit as a single layer with a clean edge that is not visible from an outer surface of the knit panty.

[0003] 2. Description of the Related Art

[0004] There exists in the art of garments, such as panties, hose, knit panties and shorts with elasticized waistbands. The elasticized waistbands, as is known in the art, secure the garment around a waist of the wearer. A known problem in the art is that slippage occurs where the elasticized waistbands of the garment tends to traverse out of position around the wearer. Many patents address this known problem in the art. One such patent is U.S. Pat. No. 4,872,324 to Renwin et al. Renwin discloses an elasticized waistband with a knit fabric body having yarns with an uncovered elastomeric yarn knit in course and wales. The elastomeric yarn of the elasticized waistband is knit in a two-ply inturnd welt. Although this arrangement avoids slippage, this two-ply inturnd welt configuration is bulky and is also uncomfortable since it tightly grips the wearer to avoid slippage. The two-ply inturnd welt configuration increases the amount of fabric needed. Moreover, an amount of time is wasted for circular knitting the two-ply fabric. The two-ply inturnd welt configuration may also push forward clothes covering the two-ply inturnd welt so as to be displayed to the wearer.

[0005] Attempts have been made in the art to form a knit panty without such bulkiness. However, all single layer knit constructions result in unsightly curling of the single knit construction. The single layer knit constructions also result in poor elasticity, increased slippage, and unsightly curling of the single knit construction.

[0006] Accordingly, there is a need for a garment that eliminates at least one or more of the aforementioned drawbacks and deficiencies of the prior art.

BRIEF SUMMARY OF THE INVENTION

[0007] It is an object of the present invention to provide a knit panty with a single layer waistband.

[0008] It is still a further object of the present invention to provide a knit panty with a waistband that is not bulky.

[0009] It is still another object of the present invention to provide a knit panty with a single layer waistband that is cheaper to manufacture and can be manufactured quickly.

[0010] It is yet another object of the present invention to provide a knit panty with a single layer waistband that does not curl.

[0011] It is a further object of the present invention to provide a knit panty with a single layer waistband that is treated by dry heat or pressurized heated steam to prevent curling while at the same time maintaining elasticity and power.

[0012] It is a still further object of the present invention to provide a knit panty with a single layer waistband with a clean selvedge at an end thereof.

[0013] It is a yet further object of the present invention to provide a knit panty with a single layer waistband that is plain knit on a circular knitting machine with text nylon, with the text nylon being plaited with an elastomeric fabric.

[0014] It is another further object of the present invention to provide a knit panty with a thin single layer waistband that can be worn underneath a wearer’s clothes that is not noticeable through the wearer’s clothes.

[0015] It is still another object of the present invention to provide a knit panty with a single layer waistband that is integrally connected to a body of the knit panty by a circular knitting operation.

[0016] These and other objects and advantages of the present invention are achieved by a garment of the present invention. The garment has a fabric portion for encircling a body part with the fabric portion having a first area for securing the garment around the body part. The garment also has a welt in the first area with the welt securing the garment to the body part at the first area. The welt is knit as a single layer, and the clean selvedge is not visible from an outer surface of the garment.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0017] FIG. 1 is a front view of a knit panty with a single layer waistband of the present invention.

[0018] FIG. 2 is a rear view of the knit panty of FIG. 1.

[0019] FIG. 3 is a rear view, similar to FIG. 2, of the knit panty of FIG. 1 with the single layer waistband being curved inward for illustration purposes.

[0020] FIG. 4 is a close up view of the single layer waistband shown in FIG. 3.

[0021] FIG. 5 is a top view of the knit panty with the single layer waistband of FIG. 4.

[0022] FIG. 6 is a graphical representation of a stitch diagram of a circular knitting stitch pattern of the single layer waistband of the knit panty of FIG. 1.

[0023] FIG. 7 is a graphical representation of a needle selection of the first, third, fifth, and seventh feeds of a number of needles of a circular knitting machine for manufacturing the single layer waistband of the knit panty of FIG. 1.

[0024] FIG. 8 is a graphical representation of a needle selection of the second, fourth, sixth, and eighth feeds of a number of needles of the circular knitting machine for manufacturing the single layer waistband of the knit panty of FIG. 1.

DETAILED DESCRIPTION OF THE INVENTION

[0025] Referring to the drawings and, in particular, to FIG. 1, there is shown a lower torso garment of the present invention generally represented by reference numeral 10. Most preferably, the lower torso garment 10 is a knit panty that fits around a lower torso of the wearer. The knit panty...
may be made in a number of different sizes, such as extra-small, small, medium, large, extra large or any other size. The knit panty 10 is most preferably anchored and maintained in position around the wearer when worn and does not slide or slip from its position around the wearer during any movement, for example, such as walking, running, or otherwise exercising.

[0026] The knit panty 10 preferably has a body with a front panel 16 and a rear panel 20. In the body between the areas connecting the front panel 16 and the rear panel 20 shown in FIG. 2 is with a first leg hole 12 and a second leg hole 14. The front panel 16 and the rear panel 20 preferably may be made from any suitable material known in the art such as cotton, nylon, spandex, an elastomeric material, body yarn, or any other material known in the art. The first leg hole 12 and the second leg hole 14 each has an outer perimeter or edge 18. The edge 18 of each of the first leg hole 12 and the second leg hole 14 may optionally have a banding material 19 stitched thereon for a better and tighter fit of the knit panty 10 at the edge.

[0027] Referring to FIG. 2, the rear panel 20 is an integral member with the front panel 16 as both are circularly knit in one operation by a circular knitting machine. Alternatively, the front panel 16 and the rear panel 20 may be two discrete and separate pieces of fabric that are joined to one another by a stitching or other warp or weft knitting operation at a seam. Preferably, the rear panel is formed with an aesthetically pleasing pattern 22 thereon.

[0028] Referring to FIG. 3, the body or knit panty 10 is knit with a torso opening 24. The torso opening 24 has a torso opening edge 26. The torso opening edge 26 has a perimeter 28 that has a complementary size to an overall size of the knit panty 10 such as extra small, small, medium, large and extra large. The torso opening 24 is shown slightly opened for illustration purposes and for clarity. Both the front panel 16 and the rear panel 20 are connected at the torso opening edge 26 preferably by a circular knitting operation to a single layer waistband 30 of the present invention. The single layer waistband 30 preferably is formed with a single layer of fabric and has a number of unexpected benefits over a waistband of the prior art.

[0029] The single layer waistband 30 is preferably made from any heat sensitive elastomeric material known in the art that gives a degree of set. Most preferably, the single layer waistband 30 is made from two yarns with a spandex material being plaited or combined with a synthetic continuous filament, a staple yarn, a natural fiber yarn or any combination thereof.

[0030] The single layer waistband 30 in one embodiment is made as a welt that is circularly knit and integral with the knit panty 10. The single layer waistband 30 is knit by the circular knitting machine. The single layer is commenced with two courses of fine nylon elasthane with an alternating one by one needle selection. Thereafter, the front panel 16 and rear panel 20 of the knit panty 10 are circularly knit with alternating feed plait yarns that are knit with a number of main body yarns. The front panel 16 and the rear panel 20 are then knit as other circular knitting feeds are introduced by the circular knitting machine and added with float plait for rib selection.

[0031] The single layer waistband 30 has an outermost edge 32 that is opposite a crotch region 34 of the knit panty 10 better shown in FIG. 4. The single layer waistband 30 is preferably manufactured with a clean selvedge 36 or a clean edge that will not fray or ravel. The clean selvedge 36 does not fray or roll since the clean selvedge is treated.

[0032] Referring to FIG. 5, there is shown a top view of the knit panty 10 with the single layer waistband 30 that has the clean selvedge 36 preferably extending around the entire outermost edge 32 of the knit panty 10.

[0033] The clean selvedge 36 that will remain unいたらted is preferably treated by a heat treatment, a steam treatment or a pressurized steam treatment to avoid curling. The treatment is preferably an application of heat to the single layer waistband 30 for a predetermined amount of time to form the clean selvedge 36. The treatment may be a dry heat treatment in a range that includes about one hundred and fifty degrees Celsius to about two hundred degrees Celsius, a pressurized steam treatment being in a range that includes about one hundred ten degrees Celsius to about one hundred forty degrees Celsius for a time in excess of one minute. The unfinished knit panty 10 is preferably situated on a carrier during the heat process.

[0034] Referring to FIG. 6, there is shown a graphical representation of a stitch diagram of the single layer waistband 30 of the present invention. The knit panty 10 is preferably knit with simple knit constructions, such as plain, tuck, pearl, and combinations thereof. Referring to FIG. 6, the “X”s are denoted for the purposes of clarity as a stitch, while the “O”s are denoted as a miss stitch. The single layer waistband 30 has a first course 40 and a second course 42 that are knit by a first feed 44, a second feed 46, a third feed 48, a fourth feed 50, a fifth feed 52, a sixth feed 54, a seventh feed 56, and an eighth feed 58 of the circular knitting machine. Preferably, all of the first through eighth feeds 44 through 58 are knit as body yarns. In another alternative embodiment, the first feed 44, the third feed 48, the fifth feed 52, and the seventh feed 54 are a heavy nylon elasthane having floating stitches for a rib selection.

[0035] Referring to FIG. 7, there is shown a graphical representation of a circular knitting needle selection of a number of circular knitting needles 60. The circular knitting needle selection is preferably on the first feed 44, the third feed 48, the fifth feed 52, and the seventh feed 54 using tuck and clearing culls to achieve the float stitching. The number of needles 60 have needles for knitting 62 and needles for miss stitching 64. A heavy nylon elasthane 66 is shown being knit with a plate fine nylon elasthane 68 and text nylon 70.

[0036] Referring to FIG. 8, there is shown a graphical representation of another circular knitting needle selection for the plain knit of the second feed 46, the fourth feed 50, the sixth feed 54, and the eighth feed 58. The circular knitting needle selection is preferably directed to the second feed 46, the fourth feed 50, the sixth feed 54, and the eighth feed 58 using plain knitting with the text nylon 70 that is plated with the fine nylon elastic fibers 72. The number of needles 60 have the number of needles for knitting and the fine nylon elasthane 68 is shown knit with the text nylon 70.

[0037] The single layer waistband 30 is preferably advantageous over the two-ply configuration of the prior art since the single layer waistband is narrower in width and is not overly bulky. The two-ply configuration of the prior art is
thick in width, uncomfortable and tightly grips the wearer to avoid slippage. The single layer waistband 30 as shown in for example FIG. 3, avoids this bulky configuration while at the same time providing the same amount of elasticity unexpectedly with less fabric. The two-ply configuration of the prior art is also costly to manufacture and doubles an amount of fabric that is expended. The single layer waistband 30 is produced cheaper and quicker for improved benefits. The two-ply configuration tends to be so bulky that it tends to show through the outer garments of the wearer (as especially is the case with a knit panty) where the single layer configuration gives the outer garments a smoother appearance.

[0038] It should be understood that the foregoing description is only illustrative of the present invention. Various alternatives and modifications can be devised by those skilled in the art without departing from the present invention. Accordingly, the present invention is intended to embrace all such alternatives, modifications and variances.

What is claimed is:

1. A garment comprising:
   a fabric body portion for encircling a body part of a wearer, said fabric portion having a first area for securing the garment around the body part, and a welt integrally formed in said first area of said fabric body portion, said welt anchoring the garment to the body part at the first area, wherein said welt is knit as a single layer, and wherein said welt has a clean selvedge at an end thereof.

2. The garment of claim 1, wherein the garment is manufactured as an article of clothing selected from the group consisting of a pair of shorts, a panty, a pair of pants, a boxer short, and any combinations thereof.

3. The garment of claim 1, wherein said clean selvedge of said welt forms an edge that does not curl.

4. The garment of claim 1, wherein said clean selvedge is made from a heat sensitive elastomeric material.

5. The garment of claim 3, wherein said clean selvedge is heated treated to preventing curling.

6. The garment of claim 5, wherein said clean selvedge is heated by a steam generator.

7. The garment of claim 6, wherein said clean selvedge is heated to about one hundred ten degrees Celsius for a predetermined amount of time.

8. The garment of claim 7, wherein said welt is plain knit on a circular knitting machine with a text nylon, said text nylon being plaited with an elastomeric fabric.

9. The garment of claim 8, wherein said elastomeric fabric is a fine nylon elasthane.

10. The garment of claim 1, wherein said welt is knit with a first course and a second course.

11. The garment of claim 1, wherein said welt is knit with an elastic material.

12. The garment of claim 11, wherein said elastic material is a fine nylon elasthane.

13. The garment of claim 1, wherein said clean selvedge is circular knit with an alternating knit selection.

14. The garment of claim 1, wherein said welt is circular knit.

15. A lower torso encircling garment comprising:
   a fabric portion for encircling a lower torso, said fabric portion having a first leg hole, and a second leg hole, and an edge; and
   a single layer waistband integrally connected to said edge, said single layer waistband securing the lower torso encircling garment to a wearer, said single layer waistband having a selvedge, wherein said selvedge is treated to avoid curling.

16. The lower torso encircling garment of claim 15, wherein said selvedge is made from a heat sensitive elastomeric material.

17. The lower torso encircling garment of claim 15, wherein said selvedge is treated by heat to avoid curling.

18. The lower torso encircling garment of claim 15, wherein said selvedge is treated by a dry heat in a range that includes about one hundred fifty degrees Celsius to about two hundred degrees Celsius to avoid curling.

19. The lower torso encircling garment of claim 15, wherein said selvedge is treated by a pressurized steam in a range about one hundred ten degrees Celsius to about one hundred forty degrees Celsius for about an excess of one minute to avoid curling.

20. The lower torso encircling garment of claim 15, wherein said single layer waistband is made from a material selected from the group consisting of a synthetic continuous filament, a staple yarn, a natural fiber yarn, and any combinations thereof, or another yarn selected from the group consisting of a elastomeric yarn, spandex, and any combinations thereof.

21. A circular knit panty comprising:
   a fabric body portion for encircling a lower torso, said fabric portion having a first leg hole, a second leg hole, and an edge; and
   a single layer waistband integrally connected by circular knitting to said edge, said single layer waistband being a turned welt formed from one or more elastomeric yarns.

22. The circular knit panty of claim 21, wherein said single layer waistband is a turned welt formed from one or more elastomeric yarns.
made from a heat sensitive elastomeric material, wherein said single layer waistband has two yarns, at least one of said two yarns being an elastic yarn, said elastic yarn being plaited with a second yarn selected from the group consisting of a synthetic continuous filament, a staple yarn, a natural fiber yarn, and any combinations thereof, said single layer waistband anchoring the circular knit panty to a wearer, wherein said single layer waistband has a selvedge opposite said edge, wherein said selvedge is clean and is treated to avoid curling, and wherein said treatment is selected from the group consisting of a dry heat in a range about one hundred fifty degrees Celsius to about two hundred degrees Celsius, a steam, a pressurized steam in a range about one hundred ten degrees Celsius to about one hundred forty degrees Celsius, a pressurized steam in a range about one hundred ten degrees Celsius to about one hundred forty degrees Celsius for a time that is greater than sixty seconds, and any combinations thereof.

24. The circular knit panty of claim 23, wherein said single layer waistband provides a smoother outer garment appearance.

25. A hosiery comprising:

a fabric body portion for encircling a lower torso, said fabric portion having a first leg portion, a second leg portion, and an edge being opposite said first leg portion and said second leg portion; and

a single layer waistband integrally connected by circular knitting to said edge, said single layer waistband being made from a heat sensitive elastomeric material, wherein said single layer waistband has two yarns, at least one of said two yarns being an elastic yarn, said elastic yarn being plaited with a second yarn, said single layer waistband anchoring the hosiery to a wearer, wherein said single layer waistband has a selvedge opposite said edge, wherein said selvedge is clean and is treated to avoid curling, and wherein said treatment is selected from the group consisting of a dry heat in a range about one hundred fifty degrees Celsius to about two hundred degrees Celsius, a steam, a pressurized steam in a range about one hundred ten degrees Celsius to about one hundred forty degrees Celsius for a time that is greater than sixty seconds, and any combinations thereof.

26. The hosiery of claim 25, wherein said second yarn is a suitable yarn for forming hosiery.

27. A garment comprising:

a fabric body portion for encircling a body part of a wearer, said fabric portion having a first area for securing the garment around the body part; and

a welt integrally formed in said first area of said fabric body portion, said welt anchoring the garment to the body part at the first area, wherein said welt is knit as a single layer, wherein said welt has a clean selvedge at an end thereof, said welt being made from a heat sensitive elastomeric material, wherein said welt has two yarns, at least one of said two yarns being an elastic yarn, said elastic yarn being plaited with a second yarn selected from the group consisting of a synthetic continuous filament, a staple yarn, a natural fiber yarn, and any combinations thereof.