

May 26, 1970

N. A. MARINO

3,513,853

PANTY GIRDLE

Filed Feb. 27, 1967

3 Sheets-Sheet 1

FIG. 1

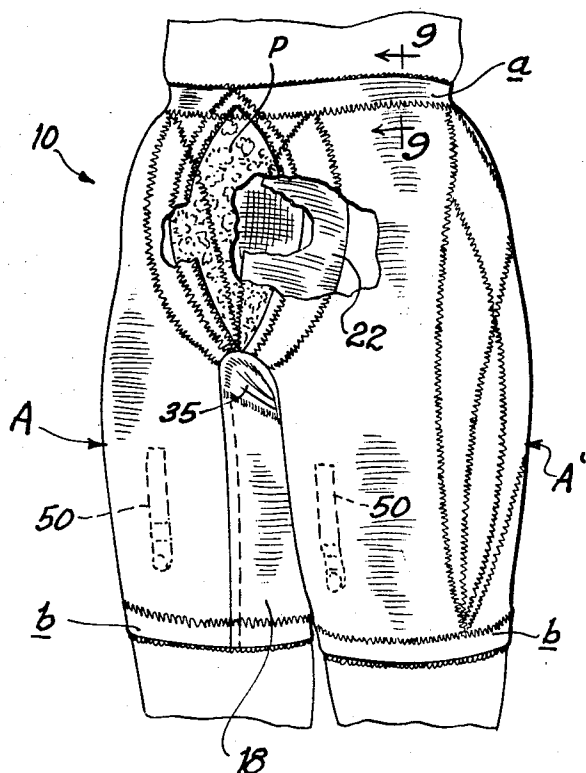


FIG. 2

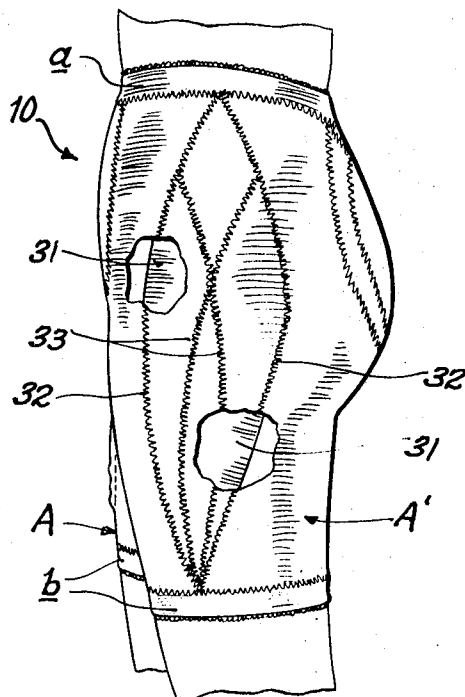


FIG. 3

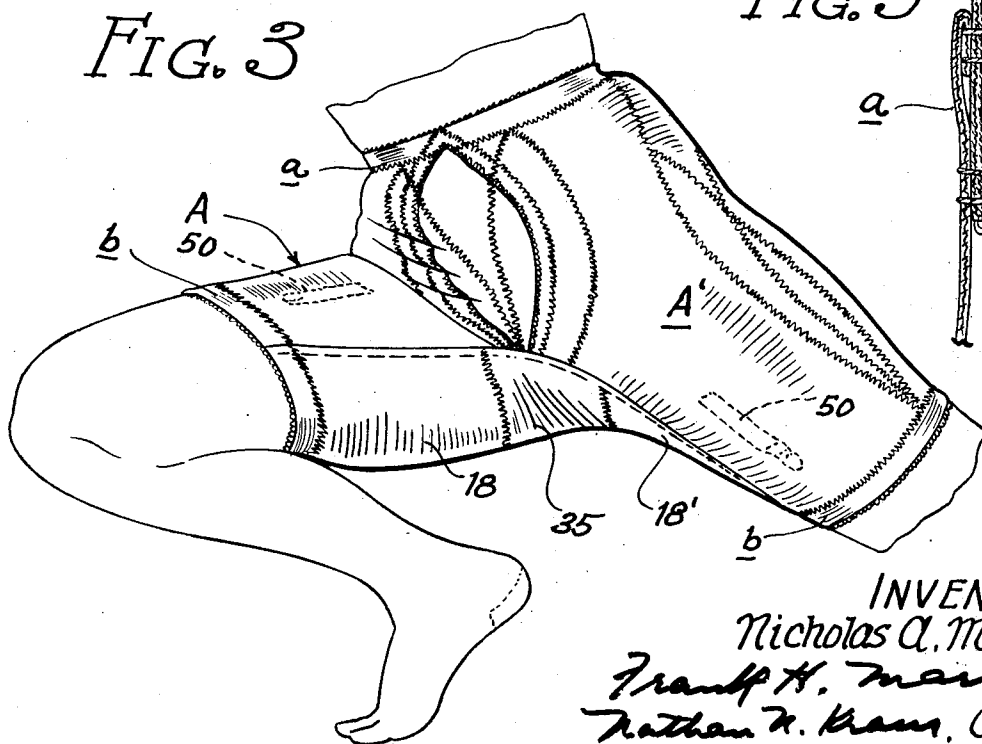
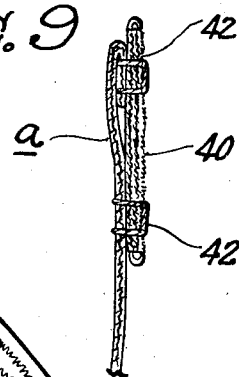


FIG. 9



INVENTOR
Nicholas A. Marino
Frank H. Marks
Nathan H. Kram, Attys

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N. A. MARINO

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FIG. 4

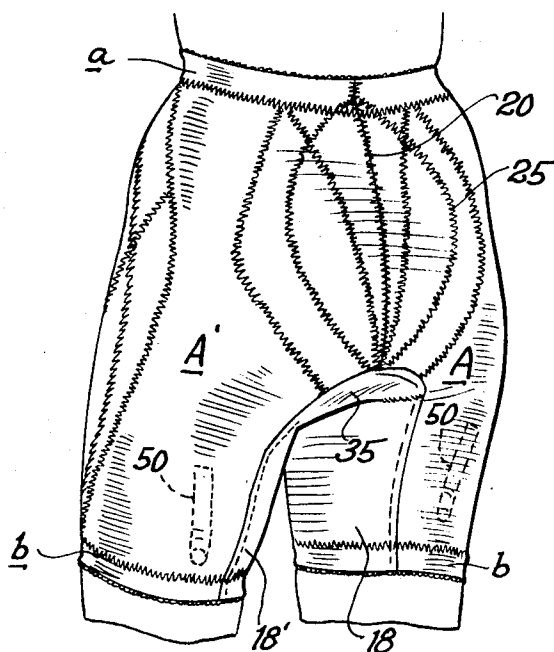


FIG. 5

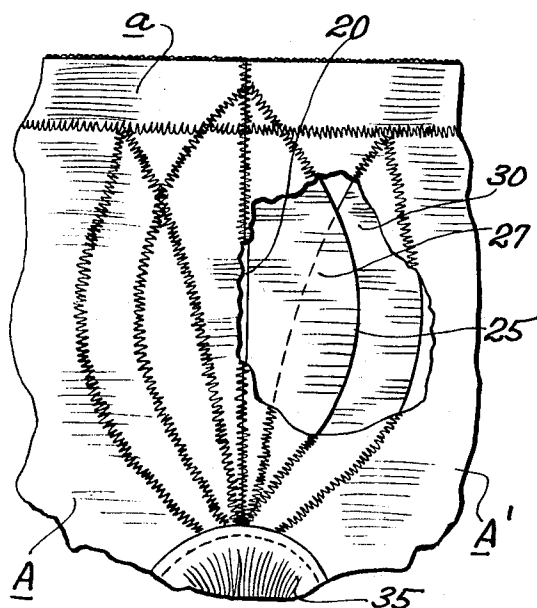


FIG. 6

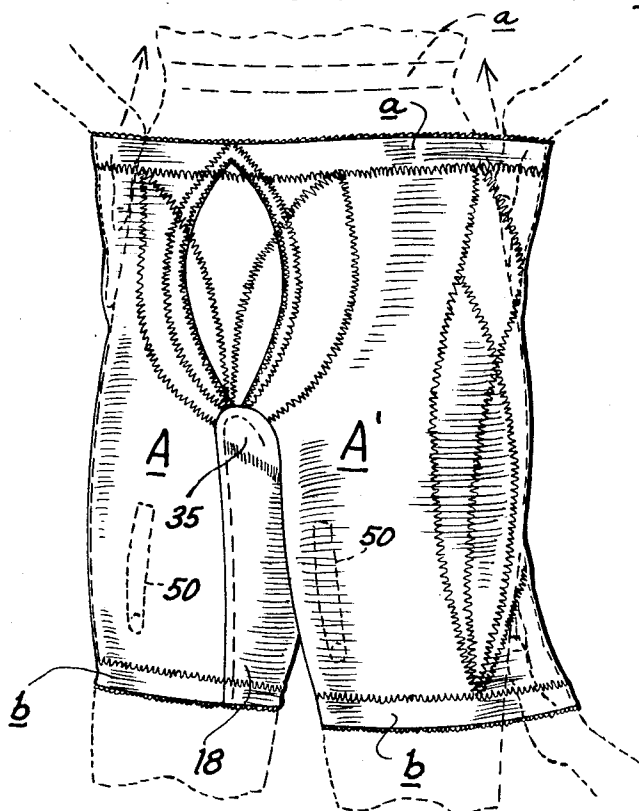
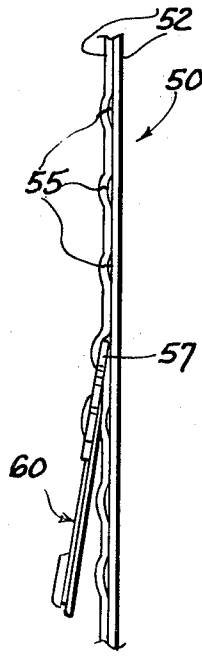
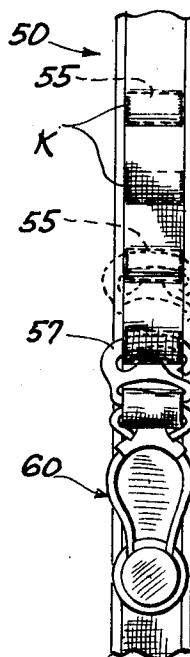


FIG. 7

FIG. 8



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FIG. 10

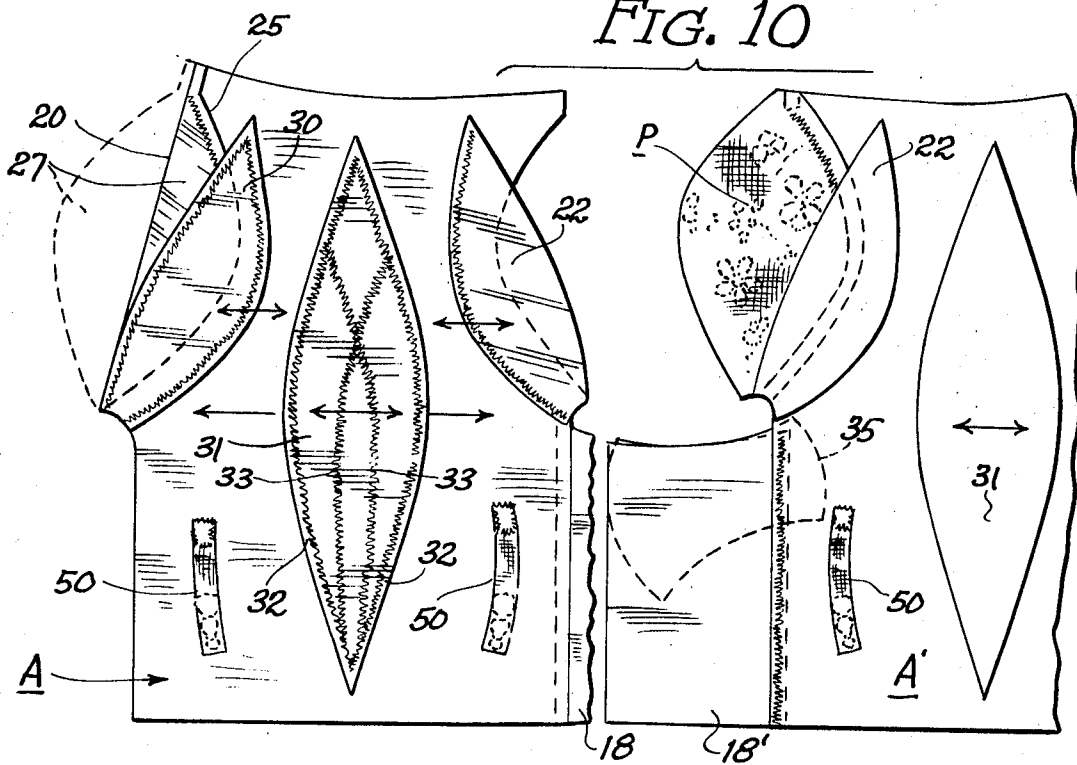
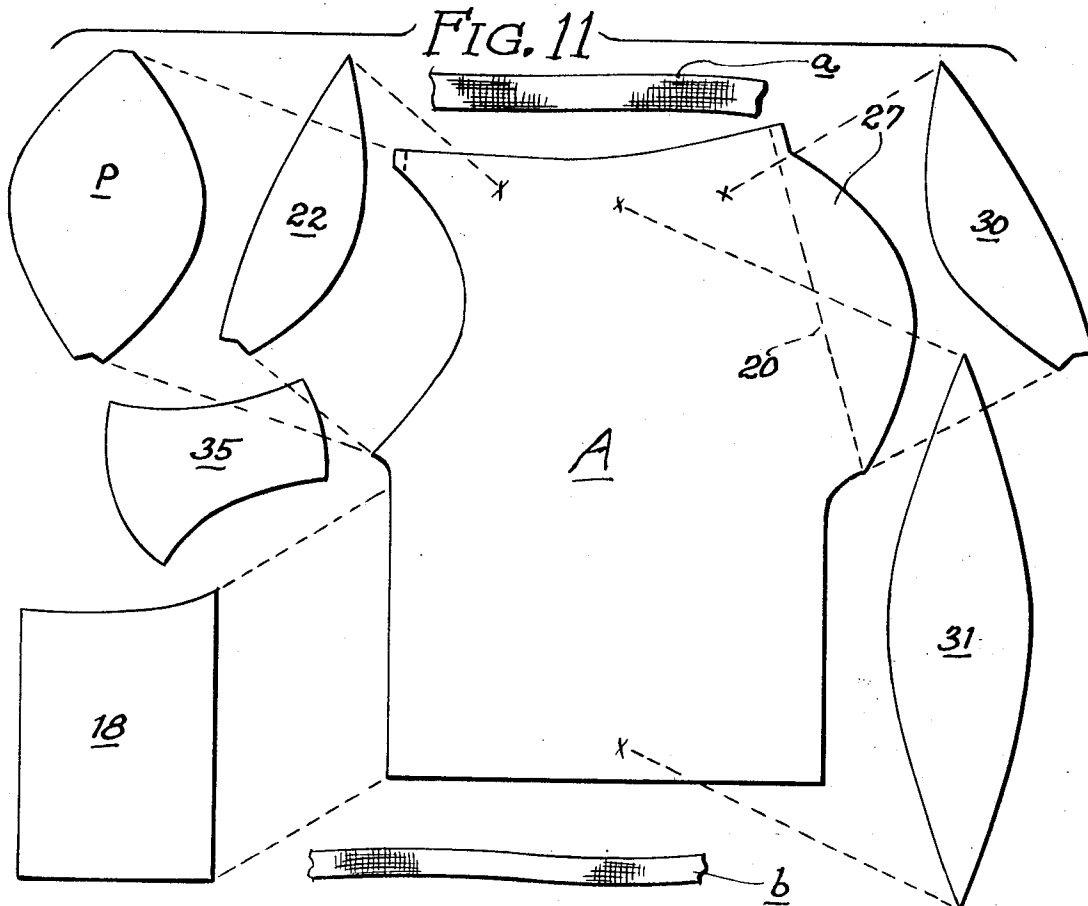


FIG. 11



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3,513,853

PANTY GIRDLE

Nicholas A. Marino, Chicago, Ill., assignor to Sears, Roebuck and Co., Chicago, Ill., a corporation of New York

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Int. Cl. A41c 1/00

U.S. Cl. 128—528

6 Claims

ABSTRACT OF THE DISCLOSURE

An article of intimate wearing apparel for females of the panty girdle type, wherein a special two-way-stretch fabric and novel structure combine to result in greatly increased versatility, whereby a garment of a given size will properly fit a variety of figures of substantially different sizes, shapes and proportions, with improved comfort and appearance, one feature being an improved crotch piece of such stretchability as to permit a rise (i.e., dimension from crotch to waist) for considerably varying height.

My invention relates to an article of intimate female wearing apparel known in the trade as a panty girdle. Such garments are intended to perform a dual function, i.e., to improve the appearance and to contribute to the comfort of the wearer.

Both functions are accomplished by a more-or-less gentle binding or constriction of the figure downwardly from the waist area to a point above the knee, leg portions being provided which may vary in length.

Thus, a general trimming effect is produced, particularly in the areas of the hips, thighs, "derriere" and abdominal portions of the figure, tending to smooth or flatten areas which tend normally to bulge outwardly in an unsightly manner. To accomplish these purposes, garments of this class must obviously be elastic throughout their major extent, especially in a horizontal direction, with inelastic inserts or panels over certain portions of the torso which normally tend most to protrude, such as the abdominal or pelvic area in the front and the "derriere" or buttocks in the rear. Such features are common to garments of this type.

While many designs of panty girdles have been known and are presently on the market which accomplish their purpose, as outlined hereabove, in a generally satisfactory manner, said articles being essentially similar to construction, they all may be said to have one fault in common. That is, they are of such character that they must be produced in a relatively large number of sizes in order to accommodate the widely varying shapes and sizes of the figures of the female population constituting the market for such goods, and, despite the large number of sizes available to the shopper, a given article is fully satisfactory to only a small number.

Thus, it is a well known fact that in any group of women having a given height and weight the hip, waist and thigh dimensions, for example, will be likely to vary considerably between various individuals.

Another dimension which varies considerably between individuals will be in the length of "rise," i.e., the distance from crotch to waist. In a word, in view of these common variations, the existence of an "ideal" figure is so rare, as to be practically non-existent.

Furthermore, it is a well known fact that a woman's figure may vary considerably in proportions and dimensions within a relatively short time, because of physiological changes dependent upon her eating habits, biological functions, etc. Accordingly, a panty girdle of the usual character, even though providing a relatively comfortable fit at certain times, may, within a period of a few days

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or weeks, be decidedly ill-fitting and uncomfortable in certain areas.

Because of these variations which are constantly encountered in the female figure, it will be obvious that, regardless of the large number of sizes required to be stocked by retail merchants, it is next to impossible for a given size of garment to fit in a fully satisfactory manner all figures for which said given size is the best possible compromise, or even the same figure for any length of time.

That is to say, a customer purchasing a panty girdle which will provide a comfortable fit at the waist, may find the garment an uncomfortable fit as to hips, thighs, rise, or in regard to several of these dimensions. Or, she may find a garment which is comfortable at times of purchase, uncomfortable a week later in one or more dimensions.

With this problem in mind, a particular object of my invention has been to design a garment of the panty girdle type which in a single size will fit comfortably a number of figures which vary considerably in the respective dimensions or proportions referred to hereabove, so that, instead of a purchaser's having to compromise with a garment which will fit comfortably in certain areas and be uncomfortable in others, the wearer may have a garment fitting comfortably in all parts of the body.

Also, a garment embodying my invention will adapt itself to changes taking place in the figure so as to fit comfortably regardless of such changes.

Incidental to my invention, I have made it possible for the manufacture to produce and the retailer to stock such garments in a relatively small number of sizes, say, small, medium, large and extra large, in lieu of the many sizes required with garments of the usual design.

After much study and experimentation, I have succeeded in developing such a garment. In order to attain this objective, I employ a fabric of a certain character in combination with a particular mode of construction, all of these factors cooperating to yield a garment of great versatility and adaptability to a wide variety of figures.

The fabric employed in the main body portion of a garment embodying my invention has been specially engineered for the purpose and is so designed and constructed that as the fabric is stretched the tension therein remains substantially constant up to an extension limit of at least six inches, or that required by the usual range of human figures which may be fitted by a given size girdle. Said fabric is a two-way-stretch material capable of horizontal elongation, at substantially constant tension, up to 270 percent of its normal dimension and up to 120 percent vertically.

The fabrication of such material will be understood by those skilled in the art when I state that the material may be made on a "Raschel" type warp knitting machine designed or adapted for 4-bar elastic netting of the type generally known in the women's foundation industry as power net, using a type of yarn known in the art as Vyrene¹ spandex. After the fabric comes off the loom it is given a medium-firm finish to prevent the fabric from expanding substantially beyond the limits indicated hereabove or taking a permanent set after expansion.

With the above explanation, anyone ordinarily skilled in the textile art will readily understand the fabrication of the material.

An important feature of my invention lies in the provision of a special crotch element which contributes materially to the comfort and proper fit of the garment in a number of respects. My improved crotch piece has exceptionally high longitudinal elasticity, i.e., from front

¹ Trademark of U.S. Rubber Company for a monofilament extruded elastic yarn.

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to rear, permitting the garment to adapt itself comfortably to persons having a high rise as well as fitting snugly and comfortably on wearers who have a low or medium rise. Furthermore, my improved crotch piece permits the wearer to engage in relatively violent muscular activity, as in running, jumping, bending, as in such athletic sports as tennis, or household activities, with complete comfort, the improved crotch piece permitting the garment to adjust itself to maintain its proper fit on the figure during such muscular movements rather than to "ride up," slip or bind and thus assuming an uncomfortable position on the body.

My improved crotch piece is preferably formed of a knitted fabric known in the art as a tricot fabric knitted of a Lycra² spandex and nylon yarn. This material, in accordance with my invention, should normally have a stretchability of approximately 200 percent in its longitudinal direction, with somewhat less transverse elasticity.

Still another important objective of my invention is to provide means on the leg portions of the garment for selective attachment of garters at various points longitudinally or lengthwise of the legs. By this feature the wearer may secure her hose at a selected point along the length of the leg portions of the garment to attain a smooth fit of the hose without sufficient tension thereon to risk injury to the hose fabric, and may also accommodate hose of different lengths.

Another feature of my invention is an improved construction of waistband and legbands which permit exceptionally high elasticity in these areas, such bands having an elasticity commensurate with the adjacent areas of the fabric.

Various other objects, advantages and features will become apparent as the description proceeds.

Turning now to the drawings forming a part of this specification and illustrating certain preferred embodiments of my invention.

FIG. 1 is a front-side perspective view of a girdle embodying my invention as seen on the human figure in an attitude of repose, with parts broken away to show details of construction;

FIG. 2 is a similar side elevational view of the same;

FIG. 3 is a front-side perspective of the same garment seen on the human figure in an attitude of extreme muscular activity, showing adaptability of the garment to such movement;

FIG. 4 is a rear-side perspective view of the same;

FIG. 5 is an enlarged fragmentary plan view of a rear-upper portion of the same garment, also with parts broken away;

FIG. 6 is a view generally similar to FIG. 1 except that the garment is shown manually distorted to illustrate its stretchability in various areas;

FIG. 7 is a fragmentary detailed plan view on an enlarged scale of a hose-attachment device forming a feature of my invention;

FIG. 8 is a fragmentary edge elevational view of the part seen in plan in FIG. 7;

FIG. 9 is a fragmentary sectional view taken substantially along line 9—9 of FIG. 1;

FIG. 10 is a plan view, viewed from the inside of the garment, of a pattern or blank for one side of the garment shown in the other figures, and

FIG. 11 is an exploded plan view of the pattern elements.

Numeral 10 indicates in general a garment of the panty girdle type embodying my invention. Said garment, in the embodiment shown, is formed of a pair of allochiral sections A and A', one for each side, formed of the type of two-way-stretch fabric described hereabove. Each of sections A and A' extends around one side of the body, the two sections being seamed together along a median vertical line extending down the back as at 20, and secured

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at the front by an inextensible panel P. Sections A and A' also wrap around the leg, with rectangular thigh sections 18, 18' disposed along the inside of the thighs of the wearer and stitched to sections A and A'.

As clearly seen in FIGS. 10 and 11, the main body sections terminate at the back in an arcuate flap 27 folded over and seamed together along a median line extending vertically down the back, from waist to crotch.

At the front of the garment and over the abdomen of the wearer, the main body sections are connected by means of an intermediate generally elliptical swatch of relatively inelastic material P extending generally from waist to crotch. This section may be formed of any suitable fabric, but I preferably employ a monofilament nylon mesh fabric backed by a nylon marquisette fabric fused thereto, producing a relatively high degree of strength and comparative rigidity. A decorative lace panel of similar elliptical form is stitched over the front as part of composite panel P.

Also over the abdomen I provide on each side of the inelastic section P relatively narrow and generally elliptical sections 22, 22, these sections being formed of the same or similar two-way-stretch material as the main body sections A and A' and the intermediate or thigh sections 18, 18.

The inelastic abdominal section P provides the desired support over the wearer's abdomen, tending to flatten the figure and prevent bulging in this area. The elastic sections 22, 22 also contribute toward additional support in this area with slight yielding toward the sides, and incidentally provide an attractive esthetic effect.

The back or seat portion of the garment is likewise reinforced to provide additional support and to reduce unsightly bulging of the figure in this area (FIGS. 4 and 5). As seen best in FIGS. 10 and 11, each of the main body portions A and A' is cut at each side thereof to provide an arcuate edge 25 defining an almond-shaped segment 27 which is bent along the center line 20. Thus, each of said segments 27 underlies the main body portion A, A', being stitched thereto along the edge 25.

Also stitched to the inside of the seat portion of the garment and extending obliquely upward of the crotch on each side of center seam 20 is a pair of generally elliptical or almond-shaped sections 30, 30.

It will be seen that the seat reinforcements just described provide a double thickness of two-way-stretch material in certain areas, between the buttocks, and a triple thickness in other areas over the largest part of the buttocks, all of similar two-way-stretch fabric to the main body portions. Aside from the incidental fact that the arrangement shown is highly esthetic, resembling the conformation of a tulip or other flower, this arrangement provides the necessary resistance to bulging over the more protuberant portions of the buttocks, although yielding to an extent to impart comfort. The net result is a desirable flattening or molding of the figure in this area, resulting in a highly attractive appearance and increased comfort to the wearer, also helping to stabilize the long stretch of the fabric in degrees on certain parts of the body.

To overcome the normal tendency to bulge in unsightly manner in the thigh and hip areas extending from the buttocks to above the knee, added reinforcement is provided along the outside of the thighs and hips. To this end I attach by stitching to the inner face of the garment (FIGS. 2, 10, 11) a superposed pair of elliptical or almond-shaped panels 31, 31 which extend generally from the waist to the leg extremities, said panels being stitched to the main body portion along arcuate seams 32, 32, which are continued up to the waistline. Over the same area I provide another pair of crossed arcuate seams 33, 33. These panels are preferably formed of similar "power-net" two-way-stretch fabric as the main body portions.

Thus, the panels or sections 31 extending longitudi-

² Trademark of E. I. Du Pont de Nemours for a multi-filament extruded elastic yarn.

nally over the major length of the hips and thighs provide added resistance to unsightly bulging in these areas from the waist down to the upper leg, the seams 32 and 33 contributing further to this resistance while incidentally adding to the attractive esthetic appearance.

It will be understood that all portions of the garment described up to this point, with the exception of the inelastic abdominal re-enforcing section P, are preferably formed of the type of two-way-stretch material described hereabove.

As stated above, my invention also contemplates a special type of crotch piece which contributes in large measure to the success of my invention. This crotch piece, indicated by numeral 35, is formed of a fabric of extremely high stretchability approximately 200% of its normal unstretched dimension in its longitudinal direction, while being somewhat less elastic in a transverse direction. For this element I preferably employ a tricot fabric knitted from a Lycra spandex yarn.

The crotch piece is stitched into the garment with its major stretchability disposed in the front-to-rear direction. As a result of the incorporation of this element in the garment, there is provided an extremely high degree of rise, as indicated in FIG. 6, whereby the same garment will adapt itself comfortably to a figure of either a low, high, or intermediate rise, i.e., the crotch to waist-line dimension. It also enables the garment comfortably to adapt itself to extreme muscular movements, as indicated in FIG. 3, with no tendency to "ride-up" as found in the ordinary panty girdle.

As noted hereabove, my invention also contemplates leg bands and a waistband of exceptionally high elasticity, thus contributing further to the unusually great flexibility of garments embodying my invention and permitting a garment of a certain size to be worn comfortably on widely varying figures.

Referring to FIGS. 9 and 11, the waistband *a* and leg bands *b* are of composite construction. Stitched to the inner face of the body portions or leg portions, as the case may be, is a strip 40 of longitudinally elastic webbing. This stretchable material may be substantially similar or identical in construction in the waistband and leg bands, varying only in width, the preferred width at the waist being approximately one inch while the leg bands are preferably about three-fourths of an inch. Said stretchable fabric is preferably a woven elastic band formed of nylon yarns in combination with Lycra spandex yarn, said bands having a stretchability substantially equal to that of the body panels described hereabove, there being an inner facing of a soft fabric such as a fluffed or crimped yarn for added comfort. Said strips or bands may be attached by means of a zig-zag stitching 42.

By reason of the construction just described, the peripheral bands at the waist and leg extremities are capable of stretch up to the same extent as the adjacent body portion of the garment with no risk of breaking any of the stitching or fabric.

FIGS. 7 and 8 illustrate still another feature contributing to the success of my invention.

Secured to the inside of each of the leg portions of the garment is one or more elongated straps 50, which may be disposed at desired points on the front and rear of the body portion and fastened by stitching at the top, leaving the strap hanging free.

These straps are formed of a pair of longitudinally elastic fabric strips 52, 52 secured together in such a way as to provide a plurality of equispaced transverse passages 55 extending entirely therethrough. Suitable means is provided adjacent these passages to render them immediately apparent, such as a fine line K of woven yarn of a contrasting color.

Through these passages may be passed hook bar 57 of the clip of a standard hose supporter 60 at any selected point longitudinally of straps 50. By this expedient the hose may be secured at any desired height on the leg

so as to provide a neat appearance but without such excessive tension as might risk damage to the hose.

It will be seen that I have provided a garment of exceptionally great versatility from the standpoint of adaptability to widely varying figures as well as to extremes of muscular activity, while maintaining optimum fit and comfort.

As an illustration of the high flexibility of garments embodying my invention, a "medium" size may be worn with substantially perfect fit and comfort by figures coming within the following range of dimensions:

	Inches
Waist -----	26½ to 28½
Hip -----	35 to 41
Rise -----	28 to 30
Thigh -----	18 to 20

To my knowledge, no comparable flexibility may be found in any other garment of this character presently marketed.

Various changes coming within the spirit of my invention may suggest themselves to those skilled in the art. Hence, I do not wish to be limited to the specific form shown or uses mentioned, but intend that the scope of my invention be determined by the appended claims.

I claim:

1. In a panty girdle of such high flexibility as to permit a single size garment to be worn comfortably by a variety of figures of different proportions,

(a) a main body portion, including leg portions, formed mainly of a two-way stretch fabric having an extensibility of more than 100 per cent in both directions, the horizontal stretchability being at least double the vertical at approximately constant tension, to a limit required by human body dimensions and having

(b) a crotch piece having extensibility in both directions, the vertical stretchability being approximately 200 per cent,

(c) said main body portion including a panel of material similar to the two-way stretch fabric constituting said main body portion in overlying relation to said main body portion adjacent to the seat portion of the wearer, and comprising

(d) a panel covering the mid-portion of the back of the girdle and a pair of panels extending diagonally upward from the crotch toward the waist over the more fleshy portions of the buttocks,

(e) said main body portion also including a panel of material, similar to the two-way stretch fabric constituting said main body portion, overlying and extending along each leg portion adjacent the hip and outer thigh portions of the wearer,

(f) a substantially inelastic panel overlying the abdomen of the wearer, and

(g) said main body portion also including a pair of panels of material similar to the two-way stretch fabric constituting said main body portion, said last-mentioned panels extending diagonally upward from the crotch towards the waist and overlying in part said inelastic panel and in part said main body portion.

2. In a panty girdle of such high flexibility as to permit a single size garment to be worn comfortably by a variety of figures of different proportions,

(a) a main body portion, including leg portions, formed mainly of a two-way stretch fabric having an extensibility of more than 100 percent in both directions, the horizontal stretchability being at least double the vertical at approximately constant tension, to a limit required by human body dimensions and having,

(b) a crotch piece having extensibility in both directions, the vertical stretchability being approximately 200 percent,

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- (c) said main body portion including a panel of a plurality of layers of material similar to the two-way stretch fabric constituting said main body portion at the back portion of said panty girdle and formed by a symmetrical oval-shaped reinforcement extending allochirally from a vertical seam extending from said crotch piece to the waist of the girdle, and an almond-shaped panel extending diagonally from said crotch piece at an inclination to said vertical seam in overlapping relation to the curved boundary of each oval-shaped reinforcement to form triple layers of said material bordered by double layers thereof at said back portion.
3. In a panty girdle of such high flexibility as to permit a single size garment to be worn comfortably by a variety of figures of different proportions,
- (a) a main body portion, including leg portions, formed mainly of a two-way stretch fabric having an extensibility of more than 100 percent in both directions, the horizontal stretchability being at least double the vertical at approximately constant tension, to a limit required by human body dimensions and having,
- (b) a crotch piece having extensibility in both directions, the vertical stretchability being approximately 200 percent,
- (c) said main body portion including an oval-shaped panel of inelastic material overlying the abdomen of the wearer and extending from said crotch piece to substantially the waist of the wearer, and
- (d) a pair of generally almond-shaped panels of material similar to the two-way stretch fabric constituting said main body portion, said last-mentioned panels extending diagonally upward from the crotch toward

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- the waist and extending partially over and beyond the lateral margins of said oval-shaped panel.
4. A girdle as set forth in claim 3, wherein said crotch piece is a tricot fabric of Lycra-spandex and nylon yarns, and includes a waistband stitched to the upper extremity of said body portion, and leg bands stitched to the lower extremities of said leg portions, said bands being formed of elastic webbing having approximately the same stretchability characteristics as the two-way stretch fabric in said main body portion, and said leg portions having means for attachment of hose at a plurality of selected points lengthwise of the wearer's leg.
5. A girdle as set forth in claim 3, wherein
- (a) said leg portions have means for attachment of hose at a plurality of selected points lengthwise of the wearer's leg,
- (b) said last-mentioned means comprising a strap attached to and extending longitudinally of a leg portion, and
- (c) said strap having a series of spaced apertures adapted to engage a garter member.
6. A girdle as in claim 5, wherein distinctive identifying means is disposed adjacent each of said apertures.

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ADELE M. EAGER, Primary Examiner

U.S. Cl. X.R.

128—547