Jan. 27, 1970 H. OSTERMAN ET AL 3,491,763

PANTY-GIRDLE FORMED OF ELASTIC FABRIC

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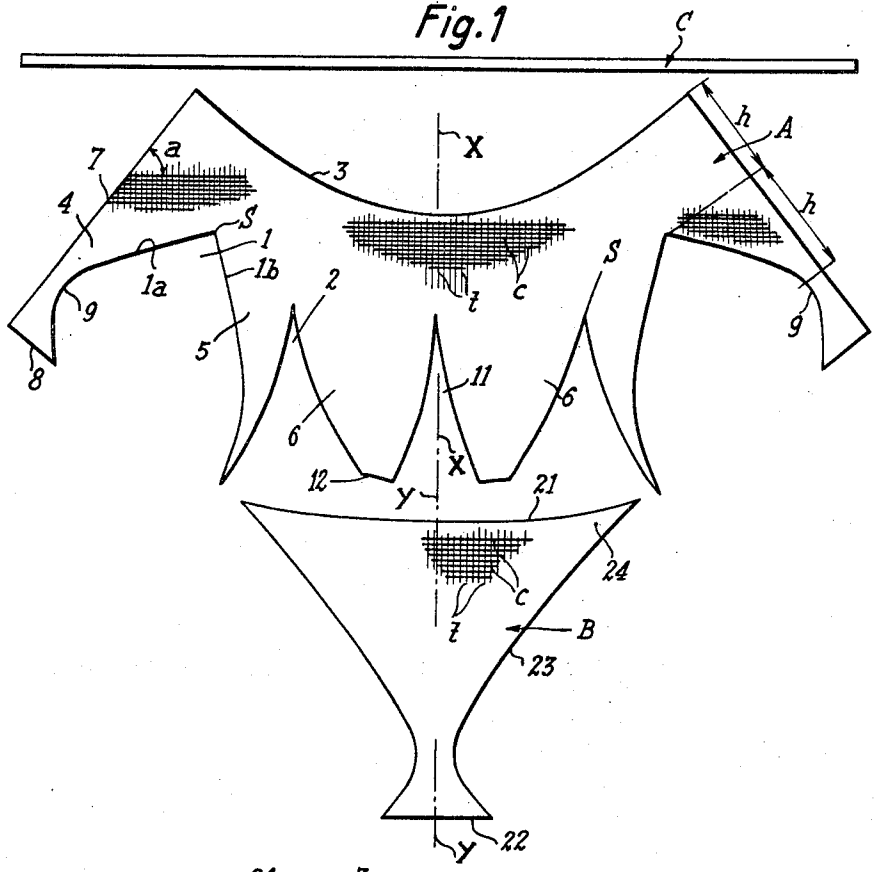
Fig. 1



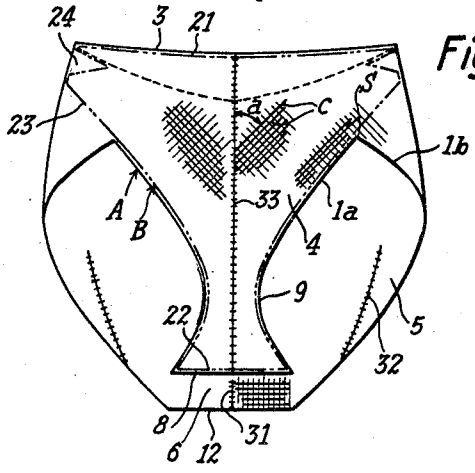


Fig. 2

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Fig. 3

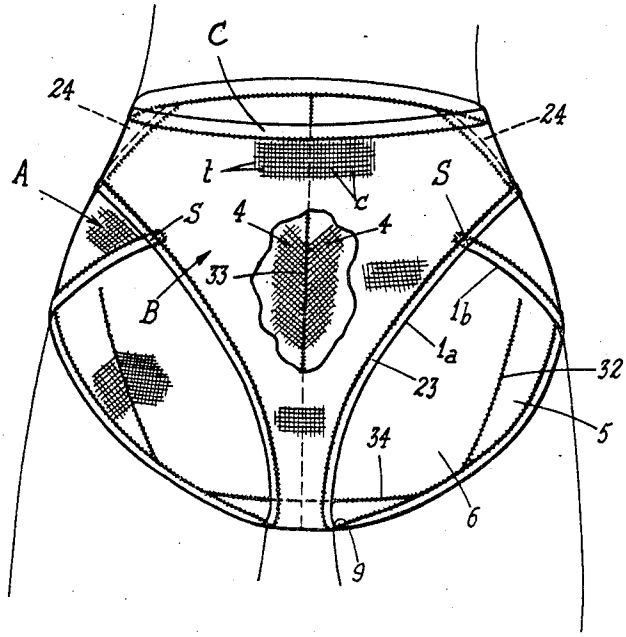
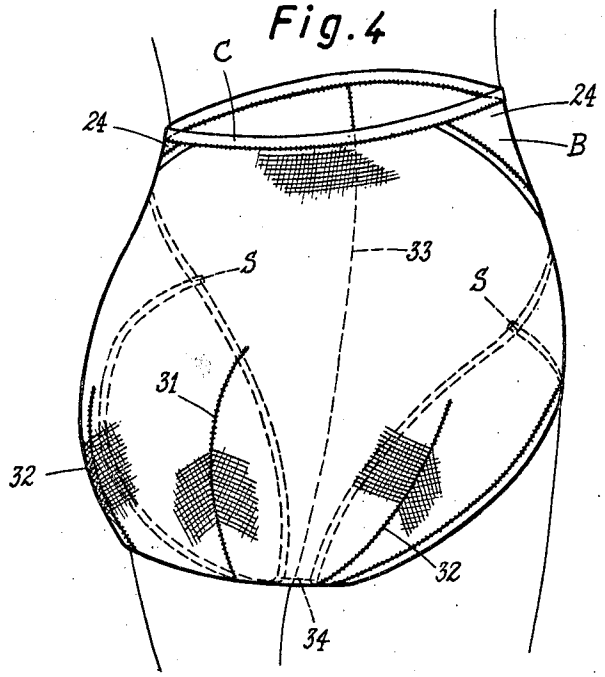


Fig. 4



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PANTY-GIRDLE FORMED OF ELASTIC FABRIC

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U.S. Cl. 128—528 8 Claims

ABSTRACT OF THE DISCLOSURE

A panty girdle of elastic fabric has two lateral edges joined together by a central ventral seam. The upper edge of the fabric is attached to an elastic belt and the lower edge has high front recesses whose edges intersect at sharp angles. The warp and weft threads are obliquely and symmetrically directed on each side of the central seam and are substantially parallel to the inner and outer edges of the recesses.

The present invention relates to an article of ladies' underwear of the panty-girdle type which is formed of elastic fabric.

It is known that, in order to obtain a slim figure, ladies do not hesitate to make use of tight-fitting girdles of elastic material for the purpose of compressiing their waists and the tops of their legs.

However, an experimental analysis has revealed that girdles of the usual types and especially those which extend downwards over the thighs had a tendency to produce a condition of unbalance in the deportment of the wearer.

In point of fact, ladies very frequently have one side which is not developed to the same extent as the other. As a consequence, the degree of compression which is exerted at the level of the articulation of the thigh-bone and which is sometimes of a high order can aggravate the natural unbalance of the hips to an appreciable extent. Furthermore, this excessive compression is frequently the cause of cellulitis and can also give rise to disorders in the circulation of the blood such as varicose veins or the like.

The present invention is intended to overcome the disadvantages referred-to above and, in particular, to permit the balanced maintenance of natural body shapes and, if necessary, the correction of such shapes, without producing dangerous localized compressions.

In accordance with the invention, the panty-girdle of elastic fabric is characterized in that it comprises a main piece of fabric which is attached to an elastic belt and constitutes at least to a partial extent the back, the fork portion and the front, said piece comprising two lateral edges joined together by means of a central ventral seam and the free edges of said piece which delimit the openings for the thighs being adapted to intersect at a sharp angle at the front so as to leave high recesses for the free articulation of the thighs.

By virtue of this structure, the essential part of the girdle is formed from a single piece of fabric and with a minimum number of seams, which represents a substantial simplification for the manufacturer. Moreover, the girdle thus obtained can have wide recesses which free the movements of the thigh articulations. Furthermore, in spite of the use of elastic fabric, steps can be taken to ensure that the edges of the recesses do not exert any pressure on the skin, which is a highly favorable feature as has been explained in the foregoing and distinguishes the girdle according to the invention from the girdles of known types with tightly gripping edges.

In accordance with a characteristic feature of the invention, the elastic fabric which constitutes the main piece of fabric is cut in a particular direction in order to provide the girdle with optimum orthopedic action. In particular, in a preferred embodiment, the girdle is made in such a manner that the warp threads of the fabric are placed on the bias and symmetrically on each side of the central ventral seam, said warp threads being oriented at right angles to the center of the back whilst the free edges of the thigh openings intersect substantially at right angles at the front of the girdle, the fabric threads being oriented in substantially parallel relation to the edges of the recesses. This arrangement facilitates the manufacturing process to a considerable extent.

In accordance with another particular feature of the invention, the main piece of fabric comprises at the base of the back a central pleat and two oblique side pleats which are symmetrical with each other relatively to the central pleat, this arrangement being combined with the central ventral seam along which the fabric threads are oriented on the bias and symmetrically.

This combination of means ensures perfect fitting of the rear portion of the hips and buttocks while allowing full freedom of movement at the tops of the legs while walking.

In accordance with yet another advantageous feature, the panty-girdle comprises a second piece of fabric which serves as a reinforcement and has a substantially triangular cut-out part which covers the front and extends between the belt and the fork. The strength of the girdle as well as its orthopedic properties and its appearance are thus appreciably enhanced.

Further particular features of the invention are brought out by the description which now follows below, reference being made to the accompanying drawings in which a preferred form of construction of the girdle is shown, and in which:

FIG. 1 is a plan view of the constituent elements of said girdle after cutting-out and prior to assembly;

FIG. 2 is a view in elevation on the front side and showing the elements referred-to above during assembly;

FIG. 3 is a diagram in perspective of the front portion of the panty-girdle after setting in position;

FIG. 4 is another perspective diagram showing the rear portion of the panty-girdle.

Referring first to FIG. 1 of the accompanying drawings, it is apparent that the panty-girdle is made up of three elements, namely a main piece of fabric A, a strengthening-piece B and a belt C.

The structural characteristics of the pieces A, B, C will first be described, then their mode of assembly, and finally the characteristics of the completed panty-girdle.

The pieces A and B are made of elastic fabric and preferably of openwork fabric (such as elastic net fabric, or tulle). It is possible in particular to make use of elastic tulle in which the warp threads and weft threads are of different dimensions, the former being of larger section than the latter, so that said fabric develops a high elastic restoring force and has a relatively small extension. In particular, use can be made of an elastic fabric made of multiple-strand fibers, especially fibers having a polyamide-polyurethane base since this material has a high capacity for extension in two directions at right angles and then for reverting to its initial dimensions. A fabric of this type is known by the trademark "Lycra" registered by E. I. du Pont de Nemours and Company, Inc. However, elastic fabrics of any other suitable type, preferably openwork fabrics and having similar properties can obviously be employed.

The main piece A is cut symmetrically relatively to an axis X—X which corresponds to the center of the back.

The half-pattern corresponding to one of the halves of the piece A is provided with two pointed recesses **1** and **2** which are directed towards the edge **3** corresponding to the belt. Said recesses form as a result of cutting-out in the half-pattern three flaps **4**, **5** and **6** having different contours. In addition, the recess **1** is cut out in such a manner that the edges **1***a*, **1***b* of said recess are substantially at right angles to each other. On the contrary, the edges of the recess **2** make a small angle relative to each other (15 to 30°, for example).

The flap **4** terminates in a lateral edge **7** formed at right angles to the edge of the belt **3** and in a short transverse edge **8**. In the vicinity of the edge **8**, the flap **4** has a narrowed portion **9** which corresponds to the fork portion, as will become apparent hereinafter. The summit S of the recess **1** is located at a distance *h* from the edge **3** which is substantially equal to the one-half the distance **2***h* between said edge and the fork portion **9**.

The flap **5** has a sickle-shaped contour.

The two flaps **6** are separated by another central recess **11** directed along the axis X—X, and accordingly have a generally trapezoidal configuration, the small base **12** of the trapezium having the same width as the edge **8** of the flap **4**.

Preferably, the elastic fabric is cut out as shown in FIG. 1, in which the warp threads are shown diagrammatically and designated by the reference *c*, whilst the weft threads are designated by the reference *t*. The warp threads *c* are oriented at right angles to the axis X—X and the angle of inclination of the lateral edge **7** of the piece A is such that the threads *c* make with this edge an angle *a* which is at least equal to 30° and preferably comprised between 30 and 60°, and which is advantageously equal to 45°.

The orientation of the edges **1***a*, **1***b* of the recess **1** in that case is such that said edges are located parallel to the threads *c* and *t* respectively or at a slight angle of inclination relatively to these latter.

The strengthening-piece B has a substantially triangular contour which is symmetrical with respect to the axis Y—Y. The edge **21** is rounded and corresponds to the belt. Said strengthening-piece terminates on the opposite side in a short transverse edge **22**. The half-pattern of the piece B advantageously corresponds to that of the flap **4** of the piece A which is assumed to extend to the edge **3**.

Thus, the height of the piece B as measured by the distance between the edges **21**, **22** corresponds to the distance between the edges **3** and **8** and the width of the edge **22** is twice the width of the edge **8**. The lateral edges **23** have a rectilineal portion which corresponds to the outline of the edge **1***a* of the flap **8** as extended by a portion having an abrupt curvature and corresponding to the narrowed portion **9** of the flap **4** followed by a flared portion which terminates at the edge **22**.

The piece B is preferably cut out so that the warp threads *c* are at right angles to the axis Y—Y.

Finally, the belt C is formed by means of a conventional elastic band which is capable of extension only in the longitudinal direction.

In order to assemble the girdle, the procedure is preferably as follows: the opposite edges of the central recess **11** and of the two lateral recesses **2** are joined together by sewing in such a manner as to form a central pleat **31** and two lateral oblique pleats **32** which are symmetrical with each other relatively to the central pleat **31**, these three pleats thus forming part of the base of the back of the panty-girdle, as will be explained below.

The flaps **4** are then brought together so as to juxtapose the edges **7**. These latter are then assembled along a central seam line **33** which thus extends between the edges **3** and **8**. The flaps **4** which are thus assembled are intended to constitute the front of the girdle and the seam **33** is a ventral seam.

The piece A being thus prepared, the strengthening-piece B is then fixed thereon so as to cover the ventral seam **33**. With this object in mind, the edge **21** is sewn to the edge **3**, and the edges **23** are sewn to the edges **1***a* of the recess **1**. To this end, said edges can be hemmed together. The piece B and the piece A are in particular fixed together to the summits S of the recesses **1** and the assembly can be reinforced at this point. This stage of manufacture is shown diagrammatically in FIG. 2.

The assembly of the coincident transverse edges **8**, **22** and **12** (as shown in FIG. 2) is then fixed along a transverse sewing line **34** located in the bottom of the girdle in the vicinity of the fork.

Thereupon, the assembly is completed by sewing the belt C onto the edges **3** and **21** of the pieces A and B. There is then obtained the girdle shown in FIGS. 3 and 4 in which is assumed to be placed in position on the wearer.

It is observed that the cut-out portion provided gives a high degree of freedom of movement to the legs and thus permits the most violent movements without constraint inasmuch as the portion surrounding the thighs is not tight.

The direction of the fabric of the pieces A and B combined with their cut-out configuration has important technical effects. The assembly of dorsal pleats **31**, **32** ensures perfect fitting of the back and buttocks which are supported by the enveloping form which is thus created. Furthermore, the abdomen is flattened by virtue of the crossed directions of the threads of the flaps **4** which terminate at the ventral seam **33**. The right-angled V which is thus formed by the threads also tends to uplift the abdomen. The corresponding reaction on the girdle is accommodated, not by the thigh-openings by reason of the wide receses **1**, but by the back by virtue of the junction formed by the bottom seam **34**.

The flattening effect on the abdomen is enhanced by means of the piece B, the warp threads of which are at right angles to the ventral seam **33** and can exert the maximum elasticity. The balancing action of the girdle is similarly enhanced by virtue of the fact that the points **24** of the piece B which are attached to the belt C terminate in the back of the girdle as shown in FIG. 4. Consequently, the girdle does not have a tendency to slip upwards and thus molds the body, supports the stomach and abdomen and conforms to the shape of the body in a natural manner.

The cutting pattern provided also contributes to simplicity and ease of manufacture. The edges of the recess **1** are located in the direction of the fabric, thereby preventing any tearing at this point. In addition, the fabric does not exhibit any tendency to roll up and is highly resistant to subsequent washing.

The special cut of the flaps **4** between the fork **9** and the edge **8** makes it possible to form the fork portion directly and avoids the need to insert an intermediate piece at this point as is required in conventional girdles, thus providing a further simplification.

It will be understood that the invention is not limited to the embodiment described and extends to all alternative forms of execution. It accordingly follows that, although the girdle shown in the drawings is not fitted with suspenders, these could readily be attached at the usual points. Provision could also be made in the fork portion for a protective sanitary lining which may be detachable if necessary. Finally, the girdle and especially the edges of the openings can be provided with all the pieces of fabric, lace or the like which serve either for decoration or reinforcement purposes.

Finally, the dorsal seam **31** could extend up to the belt C.

What we claim is:

1. A panty girdle formed of elastic fabric comprising a main piece of fabric which constitutes, at least to a partial extent, the back, the fork portion and the front,

said main piece of fabric having two lateral edges joined together by means of a central ventral seam, an upper edge attached to an elastic belt and a lower edge provided with high front recesses for the free articulation of the thighs, the parts of said lower edge which delimit said front recesses interscting at sharp angles, said main piece of fabric further having its warp and weft threads obliquely and symmetrically directed on each side of said central ventral seam and in substantially parallel relation respectively to the inner and outer sides of said front recesses.

2. A panty girdle as claimed in claim 1, wherein the top sof said front recesses are located at a distance from the belt which is equal to about one-half the distance between the belt and the fork, said distance being measured along said central ventral seam.

3. A pantry girdle as claimed in claim 1, wherein said main piece of fabric comprises at the base of the back a central pleat and two oblique lateral pleats which are symmetrical with each other relatively to the central pleat.

4. A panty girdle as claimed in claim 3, wherein said front recesses and said back pleats divide each half-pattern of said main piece of fabric into three flaps, the lower edges of which are joined together at the time of assembly by means of a transverse seam formed in the vicinity of the fork.

5. A panty girdle as claimed in claim 1, comprising

a second piece of fabric, which serves as a reinforcement and has a substantially triangular cut-out part, which covers the front and extends between the belt and the fork.

6. A panty girdle as claimed in claim 5, wherein said reinforcement piece of fabric is superposed in front of said main piece of fabric and covers said central ventral seam.

7. A panty girdle as claimed in claim 6, wherein the lateral edges of said reinforcement piece of fabric coincide with the lower edge of said main piece of fabric between the fork and the tops of said front recesses.

8. A panty girdle as claimed in claim 5, wherein said reinforcement piece of fabric is made of an elastic fabric, the warp threads of which are disposed orthogonally to said central ventral seam.

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ADELE M. EAGER, Primary Examiner

U.S. Cl. X.R.

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