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(54) **Male undergarment with protective pouch**

(57) A male undergarment that comprises a body encircling member, including a front piece and a rear piece; an elastic waist band attached to the encircling member; a scrotum receiving section formed by a portion of the front piece and by an adjacent inwardly positioned piece of fabric and a pouch, adapted to retain the scrotum therein and defined by the scrotum receiving section and by

a separate border element. The pouch is produced in such a way that the border element is attached to the scrotum receiving section. The border element is configured to contact the groin when the undergarment is worn, so as to reduce friction between the scrotum and groin.

**EP 1 668 997 A2**

**Description****Field of the Invention**

**[0001]** The present invention relates to the field of male undergarments. More particularly, the invention relates to male underpants of improved comfort having a pouch for receiving the scrotum of a wearer.

**Background of the Invention**

**[0002]** Numerous types of male underpants produced with a pouch for receiving the scrotum of a wearer have been disclosed in the prior art. For example, US Patents Nos. 3,517,666, US 6,026,517, and 6,295,651, and WO 00/45655 teach a pouch which prevents direct contact between the scrotum and the groin, to avoid discomfort or diseases caused by perspiration. The pouch covers the scrotum with substantially no support or restriction. However, although the aforementioned prior art male underpants reduce the accumulation of perspiration, none of these references disclose a satisfactory solution to the problem of friction between the pouch and the legs of a person who wears the undergarment, while walking or running. Therefore, it would be desirable to further increase the conduction of perspiration and reduce friction while positioning the scrotum in an optimal position.

**[0003]** It is an object of the present invention to provide a male undergarment with a pouch for receiving the scrotum of a wearer.

**[0004]** It is an additional object of the present invention to provide a male undergarment having a scrotum receiving pouch which can conduct perspiration more effectively than that of the prior art.

**[0005]** It is a further object of the present invention to provide a male undergarment which can reduce the friction between the pouch and the legs of a person who wears the undergarment, while walking or running.

**[0006]** It is still an object of the present invention to provide a male undergarment which can reduce the pressure applied on the legs of a person who wears the undergarment.

**[0007]** It is yet an object of the present invention to provide a male undergarment which continuously extends the support of the scrotum toward the rear part of the groin.

**[0008]** It is yet another object of the present invention to maintain the scrotum in an essentially fixed optimal position.

**[0009]** Other objects and advantages of the invention will become apparent as the description proceeds.

**Summary of the Invention**

**[0010]** The present invention provides a male undergarment comprising:

a) a body encircling member including a front piece

and a rear piece;

b) an elastic waist band attached to said encircling member;

c) a scrotum receiving section formed by a portion of said front piece and by an adjacent inwardly positioned piece of fabric; and

d) a pouch adapted to retain the scrotum therein and defined by said scrotum receiving section and by at least one separate border element, said pouch being produced in such a way that said at least one border element is attached to said scrotum receiving section, wherein the at least one border element is configured to contact the groin when the undergarment is worn, whereby to reduce friction between the scrotum and groin.

**[0011]** The at least one border element preferably has a width which progressively increases from one end thereof to an intermediate region thereof, for facilitating the conduction of perspiration from the groin. The intermediate region of increased width of a border element is substantially proximate to a crotch region of the undergarment.

**[0012]** The at least one border element is sufficiently flexible so as to be longitudinally folded as a result of the pressure exerted thereon by the inner thighs as the undergarment is worn.

**[0013]** The pouch is adapted to prevent lateral movement of the scrotum towards the groin, and is formed with a three-dimensional outwardly protruding shape. The outwardly protruding shape may be formed by means of a plurality of pleats substantially parallel to the waist band and extending in opposite directions from said at least one border element to a medial portion of said inwardly positioned piece of fabric. Alternatively, the outwardly protruding shape may be formed by means of a seam which longitudinally extends along a medial portion of inwardly positioned piece of fabric from the waist band to a crotch region. Alternatively, the outwardly protruding shape may be formed by means of regions of predetermined levels of shrinkage. The outwardly protruding shape may be formed by means of a horizontal seam which extends along the medial portion.

**[0014]** The inwardly positioned piece of fabric is attached to the front piece by means of seams, e.g. unseen seams, extending from the waist band to the at least one border element. The at least one border element is preferably attached to the scrotum receiving section by means of the unseen seams.

**[0015]** In one embodiment of the invention, the inclination of each border element with respect to the scrotum receiving section is variable. The border element may be U-shaped. Alternatively, two border elements may be employed. In one aspect, one attachment point of each border element is on the front piece and the other attachment point is on the rear piece.

**[0016]** Preferably, the at least one border element is

perforated, for providing ventilation. The at least one border element reduces friction and may also provide other benefits.

**[0017]** In another embodiment of the invention, the periphery of each border element is completely attached to the scrotum receiving section.

**[0018]** In one aspect, each border element is longitudinally folded in two before being attached to the scrotum receiving section.

**[0019]** In one aspect, the pouch is provided with a phallus receiving pocket.

**[0020]** In one aspect, the intermediate region of increased width of a border element is substantially perpendicular to a crotch region of the undergarment.

**[0021]** In one aspect, the at least one border element is inelastic.

**[0022]** In one aspect, the medial portion of the scrotum receiving section is seamless.

**[0023]** In one aspect, the intermediate region of increased width of a border element droops into the crotch region.

**[0024]** The male undergarment may have a substantially triangular shape (i.e bikini, slip, brief,) or may be a boxer type undergarment (i.e. knitted boxer, trunk, square-cut boxer, boxer-brief).

**[0025]** The present invention is also directed to a male undergarment which has an integral friction reducing region of a corresponding leg portion adjoining the groin when the undergarment is worn, each of said friction reducing region being made from perforated functional fabric. A portion of the front piece of the undergarment between the two friction reducing regions assumes a three-dimensional outwardly protruding shape.

**[0026]** In one aspect, an elastic strip is stitched to the portion of friction reducing region which is in closest proximity to the groin, for resisting excessive outward movement of the scrotum.

### **Brief Description of the Drawings**

**[0027]** In the drawings.

- Fig. 1 is a front view of a substantially triangular male undergarment, according to one embodiment of the invention;
- Fig. 2 is a rear view of the undergarment of Fig. 1;
- Fig. 3 is a plan view of a pouch from the interior of the undergarment of Fig. 1;
- Fig. 4 is an extended, plan view of the interior of the undergarment of Fig. 1;
- Fig. 5 is a front view of a substantially triangular male undergarment, according to another embodiment of the invention;
- Fig. 6 is a side view of the undergarment of Fig. 6;
- Fig. 7 is a front view of a male undergarment of the boxer type, according to another embodiment of the invention;
- Fig. 8 is a rear view of the undergarment of Fig. 7;

- Fig. 9 is a plan view of a pouch from the interior of the undergarment of Fig. 7;
- Fig. 10 is an extended, plan view of the interior of the undergarment of Fig. 7;
- 5 - Fig. 11 is a front view of a male undergarment of the boxer type, according to another embodiment of the invention;
- Fig. 12 is a rear view of the undergarment of Fig. 11;
- Fig. 13 is a plan view of a pouch from the interior of the undergarment of Fig. 11;
- 10 - Fig. 14 is a plan view of the rear piece from the interior of the undergarment of Fig. 11;
- Fig. 15 is an extended, plan view of the interior of the undergarment of Fig. 11;
- 15 - Fig. 16 is an extended, plan view of the exterior of the undergarment of Fig. 11; and
- Figs. 17 and 18 are a front view of a male undergarment of the boxer type according to other embodiments of the invention, respectively, which are provided with integral friction reducing regions.
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### **Detailed Description of Preferred Embodiments**

**[0028]** One embodiment of the present invention is illustrated in Figs. 1-4. A male undergarment having a substantially triangular shape, which is generally designated by numeral 1, comprises a body encircling member including a front piece 5, rear piece 7, bottom edge 9, elastic waist band 12, and pouch 20 attached to the front piece 5 by means of ends 25 and 26 of a single curved seam. Figs. 1 and 2 are front and rear views, respectively, of the undergarment. Undergarment 1 may be made of a stretchable fabric, such as cotton-Lycra, and is designed to fit snugly about the body of the wearer.

**[0029]** As shown in Fig. 3 which illustrates the pouch when viewed from the interior of the undergarment, pouch 20 has a two-ply scrotum receiving section, which is formed by inwardly positioned piece of fabric 22 and an adjacent outwardly positioned piece of fabric (not shown). The outwardly positioned piece of fabric is attached to front piece 5 (Fig. 1) by means of seam ends 25 and 26.

**[0030]** Pouch 20 is defined by the two-ply scrotum receiving section and by a separate U-shaped border element 23, which is attached to the scrotum receiving section by means of unseen seams 25 and 26, is adapted to retain the scrotum centered within the pouch; preventing lateral movement of the scrotum towards the groin. The two ends of border element 23 are attached to seam ends 25 and 26, respectively, at attachment points 28 and 29, respectively, slightly above bottom edge 9. Seam ends 25 and 26 are generally produced by a folded fabric which is concealed by a portion of the front piece and of the pouch, and are arranged such that they do not irritate the scrotum and do not significantly inwardly protrude into the pouch. Since the curved portion of such seams is further concealed by the border element and the seam therefore appears to be comprised from two elements

when viewed from the interior of the undergarment, the seam ends will be referred to hereinafter as "unseen seams." Unseen seams 25 and 26, each of which joins front piece 5, inwardly positioned fabric 22, the outwardly positioned fabric, and border element 23, follow the periphery of the scrotum receiving section.

**[0031]** Border element 23 is made of a perforated functional fabric, such as Mesh Friction-Free® fabric providing good ventilation, high flexibility, good conduction of perspiration and comfortable fit. The border element is advantageously made from inelastic material, in order to prevent constriction of the scrotum.

**[0032]** The fabric of border element 23 is two-ply, which may be one piece of fabric folded in two or two pieces which are stitched together. Border element is attached to unseen seams 25 and 26. With reference to Figs. 3 and 4, border element 23 is shaped such that its width increases progressively from attachment points 28 and 29 to attachment point 17, at which medial seams 19 are attached to the border element. Border element 23 is configured such that the relatively wider regions thereof are in contact with high friction areas between the scrotum and groin, whereat high levels of perspiration accumulation are noticeable. The portions of border element 23 which are of maximum width are proximate to crotch region 24. The portions of border element 23 adjoining crotch region 24, due to the penetration of the seam into the crotch region 24, droop towards crotch region 24. The crotch does not contact the groin and therefore lower levels of perspiration accumulation are noticeable thereat. Since the border element regions of relatively large width, and of consequently large surface area, are located below the scrotum, perspiration is released from the border element by evaporation.

**[0033]** When the undergarment is worn, border element 23 is arranged to contact the commissures of the groin, thereby reducing friction between the scrotum and groin when walking, running, or being engaged in any other activity. Due to its flexibility, border element 23 is longitudinally folded by the pressure exerted by the inner thighs as the undergarment is worn. Such longitudinal folds further reduce friction between the scrotum and groin and further assist in the absorption of perspiration.

**[0034]** Pouch 20 assumes a three-dimensional outwardly protruding shape by virtue of medial seams 19. A seam 19 longitudinally extends from waist band 12 to border element 23, along a medial portion of each of the inwardly and outwardly facing fabrics of the scrotum receiving section, attaching the right and left sides of the corresponding fabric. It will be appreciated that the three-dimensional outwardly protruding shape may also be achieved by any other means such as darts, pleats, molds, and laterally extending seams.

**[0035]** Another embodiment of the invention is illustrated in Figs. 5 and 6, wherein an undergarment generally designated by numeral 10 is provided with two border elements 27 which are completely attached to the scrotum receiving section. Fig. 5 illustrates the front of un-

dergarment 10, with the exterior face of the leg portion being shown. Each leg portion 16 of the undergarment is defined primarily by bottom elastic edge 9 and also by a border element 27 attached thereto.

**[0036]** While prior art undergarments have elastic elements which directly contact the scrotum or groin, causing significant discomfort, border elements 27 are positioned such that they contact the groin when the undergarment is worn so that friction between the scrotum and the groin may be reduced. As shown in Fig. 6, pouch 21 is seamless and is defined by the scrotum receiving section and by border elements 27 (which are inelastic) assumes a three-dimensional outwardly protruding shape. The three-dimensional outwardly protruding shape is achieved by suitably attaching border elements 27 to the scrotum receiving section such that a tensile force having a laterally extending component is applied in both lateral directions to the medial portion of the scrotum receiving section. It will be appreciated that when the outwardly protruding shape is achieved in such a fashion, there is no need for providing longitudinally or laterally extending seams within the pouch.

**[0037]** The three-dimensional outwardly protruding shape may also be produced by a plurality of darts (not shown), which extend laterally from a border element 27 to a medial portion of the inwardly positioned piece of fabric of the scrotum receiving section in opposite directions and are substantially parallel to the waist band. Accordingly, the outward protrusion of the pouch progressively increases from a border element until the distal end of each dart, i.e. the end distant from the border element. Alternatively, the outwardly protruding shape may be produced by one or more longitudinally extending medial seams, if so desired.

**[0038]** Fig. 7-10 illustrate another embodiment of the invention wherein a male undergarment of the boxer type, which is generally designated by numeral 30, comprises a body encircling member including a front piece 34 and rear piece 37 having a bottom edge 39 in the form of rectangular leg portions, elastic waist band 12, and pouch 40 attached to the front piece 35 by means of seams 35 and 36. Fig. 7 illustrates a front view of the undergarment and Fig. 8 illustrates a rear view thereof. Undergarment 30 is made of a stretchable fabric, such as cotton-Lycra.

**[0039]** The interior of the undergarment is shown in Fig. 9 and 10. Pouch 40 is defined by the scrotum receiving section and by a separate U-shaped border element 33, which is adapted to retain the scrotum within the pouch while preventing lateral movement thereof towards the groin. The regions of border element 33 having a relatively larger width are proximate to crotch region 38 shown in the extended, plan view of the interior of the undergarment shown in Fig. 10. A portion of border element 33 is shown to be drooping towards crotch region 38, due to the penetration of the seam into the crotch region.

**[0040]** Pouch 40 assumes a three-dimensional out-

wardly protruding shape by virtue of seams 42. A seam 42 longitudinally extends from waist band 12 to border element 33. along a medial portion of each of the outwardly positioned fabric of the scrotum receiving section and fabric 32, attaching the right and left sides of the corresponding fabric. It will be appreciated that the three-dimensional outwardly protruding shape may also be achieved by any other means such as darts, pleats, molds, and laterally extending seams.

**[0041]** In another embodiment of the invention, a male undergarment of the boxer type is illustrated in Figs. 11-16, and is generally designated by numeral 50. Fig. 11 illustrates a front view of the undergarment and Fig. 12 illustrates a rear view thereof. Fig. 13 and 14 illustrate front and rear views of the interior of the undergarment. Undergarment 50 has a pouch 60, which is attached to the front piece by means of unseen seams 55 and 56. Pouch 60 is defined by a two-ply scrotum receiving section 62 and by two separate border elements 64 and 66, which are attached at attachment points 67 and 68 of the front piece, respectively, to unseen seams 56 and 55, respectively. Border elements 64 and 66 are attached to the transversal side of scrotum receiving section 62 and terminate at attachment points 73 and 72 of the rear piece, respectively. As shown in the extended, plan view of the interior and exterior of the undergarment in Figs. 15 and 16, respectively, unseen seams 55 and 56 extend throughout the front and rear pieces, the spacing therebetween narrowing at crotch region 69. The spacing between unseen seams 55 and 56 on the front piece defines the pouch, while the spacing therebetween on the rear piece defines a buttocks piece. As shown in Fig. 15, border elements 64 and 66 are shaped such that their width increases progressively from the corresponding attachment point on the front piece to the corresponding attachment point on the rear piece. The relatively wider region of each border element is substantially perpendicular and proximate to crotch region 69, in order to prevent lateral movement of the scrotum towards the groin and to reduce friction between the scrotum and groin, while increasing the conduction of perspiration, as explained hereinabove.

**[0042]** Figs. 17-18 illustrate another embodiment of the invention, wherein significant reduction in friction between the scrotum and groin is achieved without using a border element, while delimiting a scrotum receiving section which provides freedom of movement yet prevents movement of the scrotum towards the groin. As shown in Fig. 17, the leg portions 83 of undergarment 80, which is of the square cut boxer type, are produced with an integral friction reducing region. Integral friction reducing region 85 of a corresponding leg portion 83 adjoins the groin when the undergarment is worn, and is made from perforated functional fabric, such as Mesh Friction-Free® fabric. A portion of front piece 87 between the two friction reducing regions 85 assumes a three-dimensional outwardly protruding shape by means of a plurality of pleats 89, each of which is produced in front piece 87 and lat-

erally extends from a corresponding friction reducing region 85. In Fig. 18, undergarment 90 achieves an outwardly protruding scrotum receiving portion using a plurality of regions having predetermined levels of shrinkage (not shown), which are spread along the border line between the front piece and the corresponding friction reducing region 95 from the inner side, so as to maintain an excess fabric length along said border line. The excess length allows obtaining a three-dimensional outwardly protruding shape while wearing undergarment 90. An elastic strip 97 is stitched to the portion of friction reducing region 95 which is in closest proximity to the groin, and therefore resists excessive outward movement of the scrotum. The same elastic strip may be used similarly in the example of Fig. 17. It will be appreciated that the three-dimensional outwardly protruding shape may also be achieved by any other means such as darts, pleats, molds, and laterally extending seams.

**[0043]** While some embodiments of the invention have been described by way of illustration, it will be apparent that the invention can be carried into practice with many modifications, variations and adaptations, and with the use of numerous equivalents or alternative solutions that are within the scope of persons skilled in the art, without departing from the spirit of the invention or exceeding the scope of the claims.

## Claims

1. A male undergarment comprising:
  - a) a body encircling member including a front piece and a rear piece;
  - b) an elastic waist band attached to said encircling member;
  - c) a scrotum receiving section formed by a portion of said front piece and by an adjacent inwardly positioned piece of fabric; and
  - d) a pouch adapted to retain the scrotum therein and defined by said scrotum receiving section and by at least one separate border element, said pouch being produced in such a way that said at least one border element is attached to said scrotum receiving section,

wherein the at least one border element is configured to contact the groin when the undergarment is worn, whereby to reduce friction between the scrotum and groin.

2. The male undergarment according to claim 1, wherein the at least one border element has a width which progressively increases from one end thereof to an intermediate region thereof, for facilitating the conduction of perspiration from the groin.
3. The male undergarment according to claim 2, where-

- in the intermediate region of increased width of a border element is substantially proximate to a crotch region of the undergarment.
4. The male undergarment according to claim 1, wherein the at least one border element is sufficiently flexible so as to be longitudinally folded as a result of the pressure exerted thereon by the inner thighs as the undergarment is worn.
  5. The male undergarment according to claim 1, wherein the pouch is formed with a three-dimensional outwardly protruding shape.
  6. The male undergarment according to claim 1, wherein the pouch is adapted to prevent lateral movement of the scrotum towards the groin.
  7. The male undergarment according to claim 5, wherein the outwardly protruding shape is formed by means of a seam which longitudinally extends along a medial portion of an inwardly positioned piece of fabric from the waist band to a crotch region.
  8. The male undergarment according to claim 5, wherein the outwardly protruding shape is formed by means of darts.
  9. The male undergarment according to claim 1, wherein the inwardly positioned piece of fabric is attached to the front piece by means of seams extending from the waist band to the at least one border element.
  10. The male undergarment according to claim 9, wherein the inwardly positioned piece of fabric is attached to the front piece by means of unseen seams.
  11. The male undergarment according to claim 10, wherein the at least one border element is attached to the scrotum receiving section by means of the unseen seams.
  12. The male undergarment; according to claim 4, wherein the inclination of each border element with respect to the scrotum receiving section is variable.
  13. The male undergarment according to claim 12, wherein one attachment point of each border element is on the front piece and the other attachment point is on the rear piece.
  14. The male undergarment according to claim 12, wherein the border element is U-shaped.
  15. The male undergarment according to claim 1, wherein the male undergarment has a substantially triangular shape.
  16. The male undergarment according to claim 1, which is a boxer type undergarment.
  17. The male undergarment according to claim 1, wherein the at least one border element is perforated, for providing ventilation
  18. The male undergarment according to claim 1, wherein the periphery of each border element is completely attached to the scrotum receiving section.
  19. The male undergarment according to claim 1, wherein each border element is longitudinally folded in two before being attached to the scrotum receiving section.
  20. The male undergarment according to claim 1, wherein each border element is of a single ply.
  21. The male undergarment according to claim 1, wherein the pouch is provided with a phallus receiving pocket.
  22. The male undergarment according to claim 3, wherein the intermediate region of increased width of a border element is substantially perpendicular to a crotch region of the undergarment.
  23. The male undergarment according to claim 5, wherein the outwardly protruding shape is formed by means of pleats.
  24. The male undergarment according to claim 5, wherein the outwardly protruding shape is formed by means of regions of predetermined levels of shrinkage.
  25. The male undergarment according to claim 1, wherein the at least one border element is inelastic.
  26. The male undergarment according to claim 1 wherein the medial portion of the scrotum receiving section is seamless.
  27. The male undergarment according to claim 3, wherein the intermediate region of increased width of a border element droops into the crotch region.
  28. A male undergarment, which has an integral friction reducing region of a corresponding leg portion adjoining the groin when the undergarment is worn, each of said friction reducing region being made from perforated functional fabric.
  29. The male undergarment according to claim 28, wherein a portion of the front piece of the undergarment between the two friction reducing regions assumes a three-dimensional outwardly protruding

shape.

- 30.** The male undergarment according to claim 28, wherein an elastic strip is stitched to the portion of friction reducing region which is in closest proximity to the groin, for resisting excessive outward movement of the scrotum.

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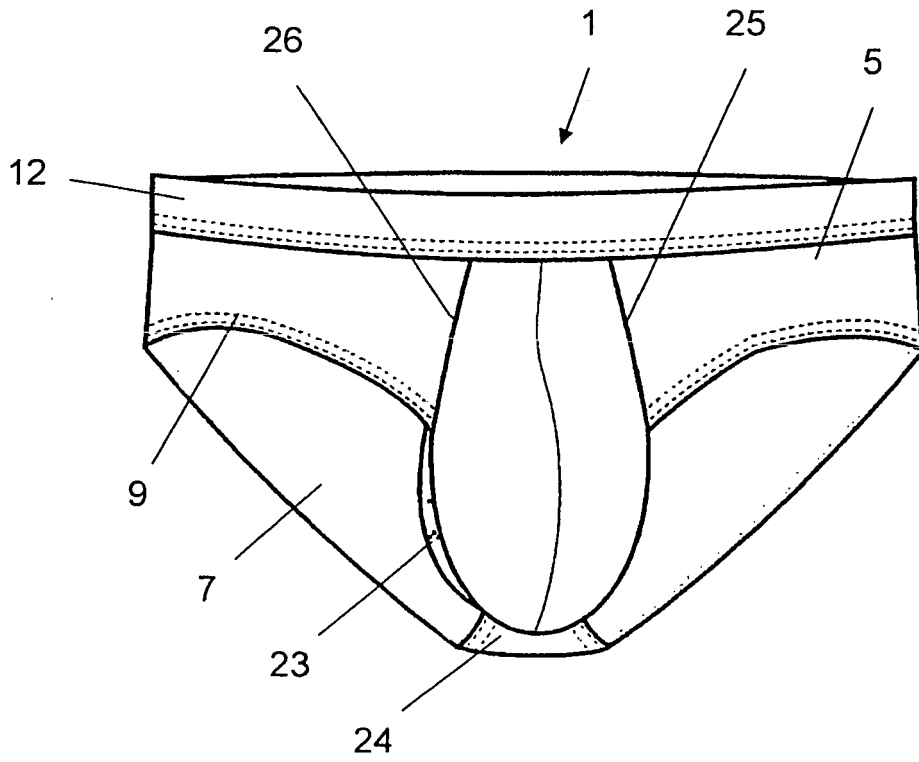


Fig. 1



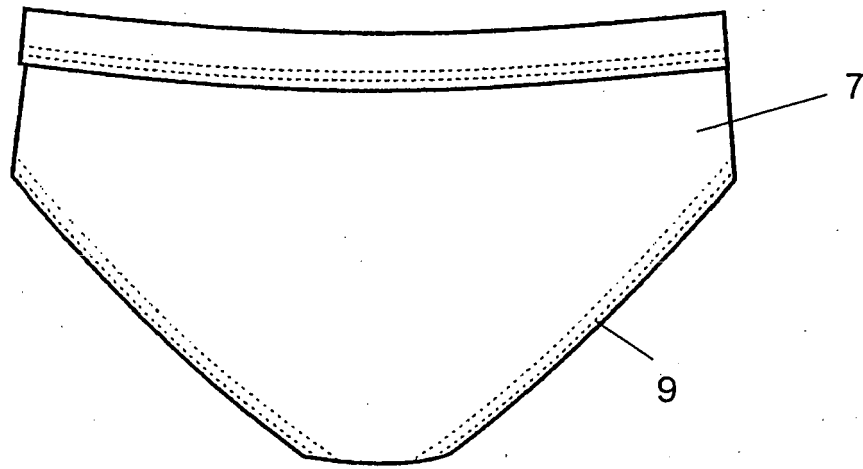


Fig. 2

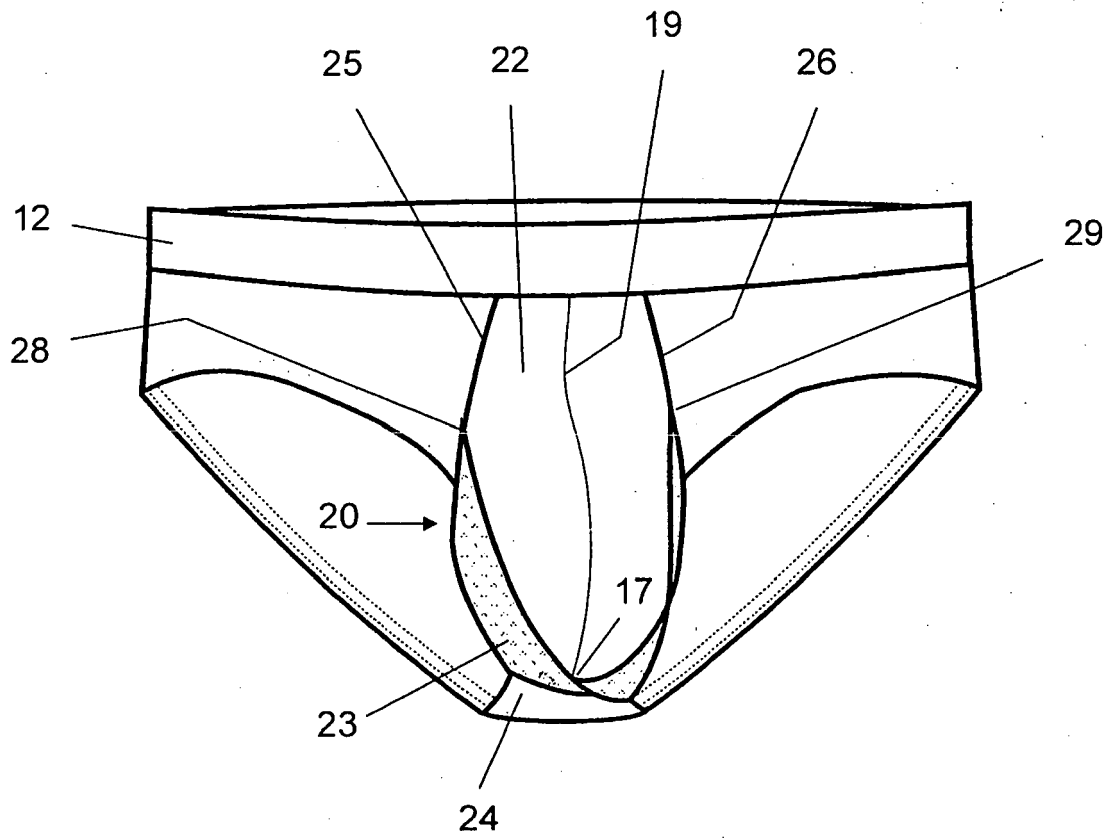


Fig. 3

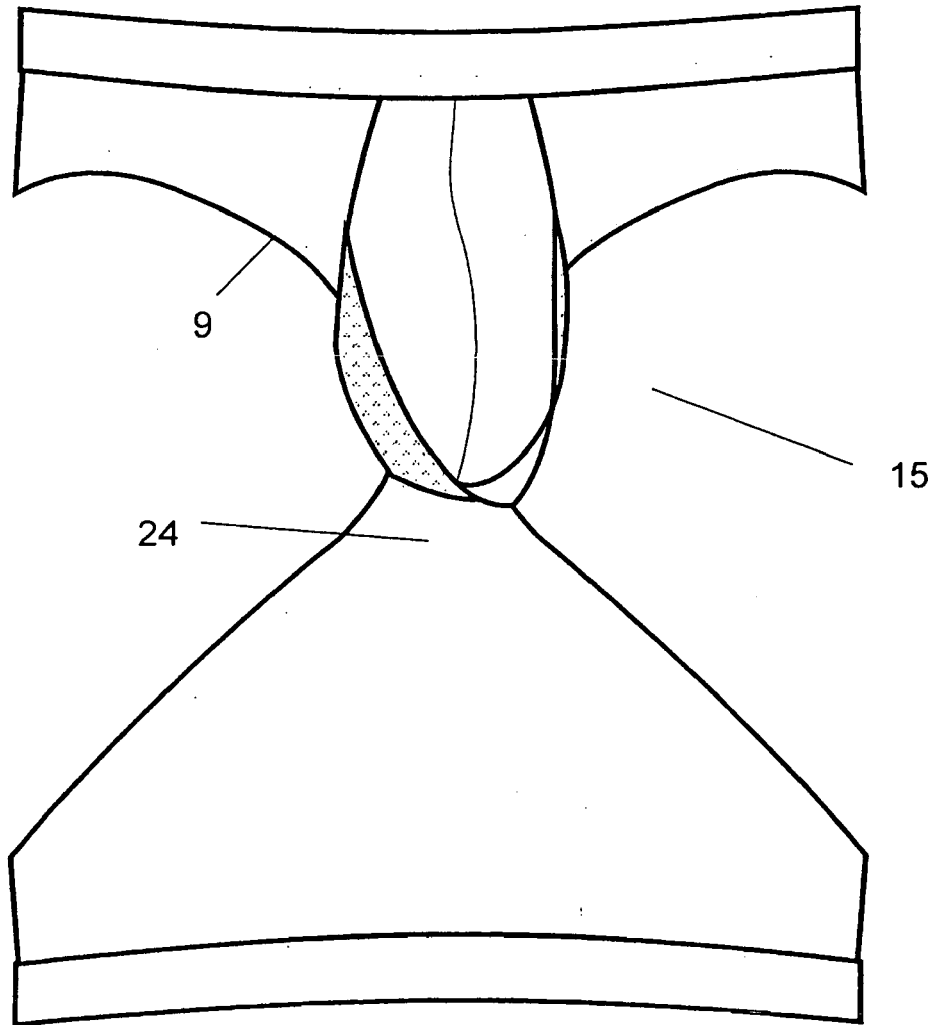


Fig. 4

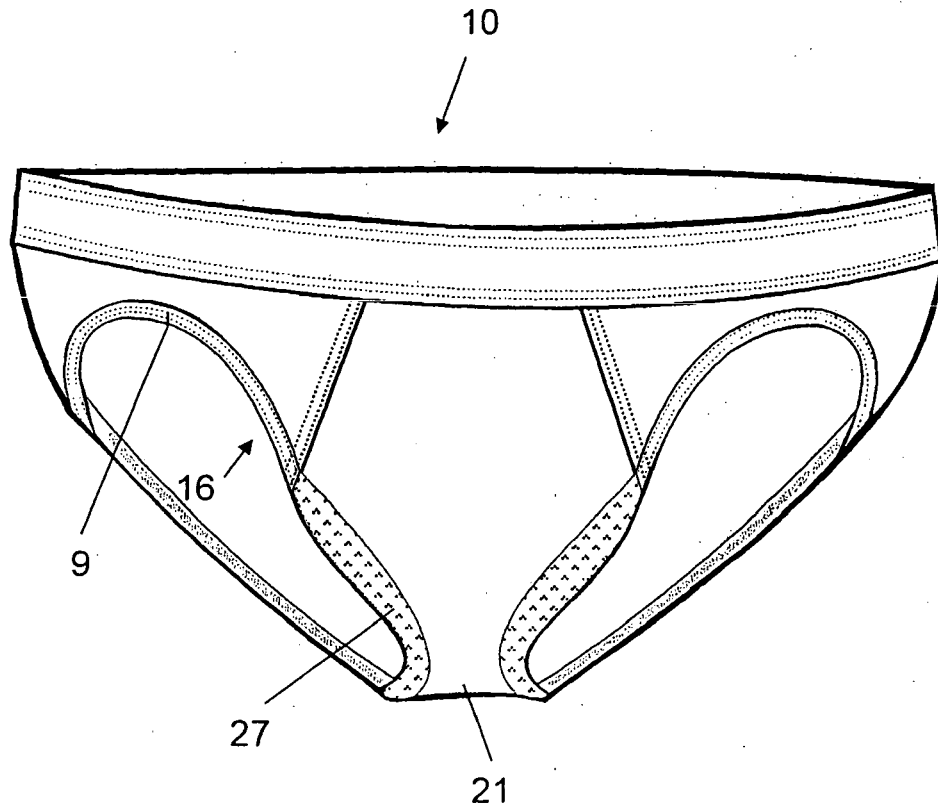


Fig. 5

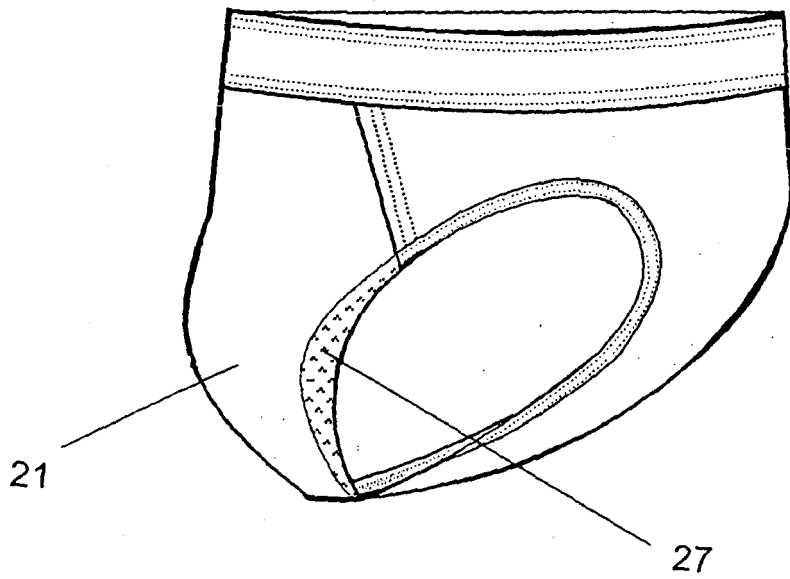


Fig. 6

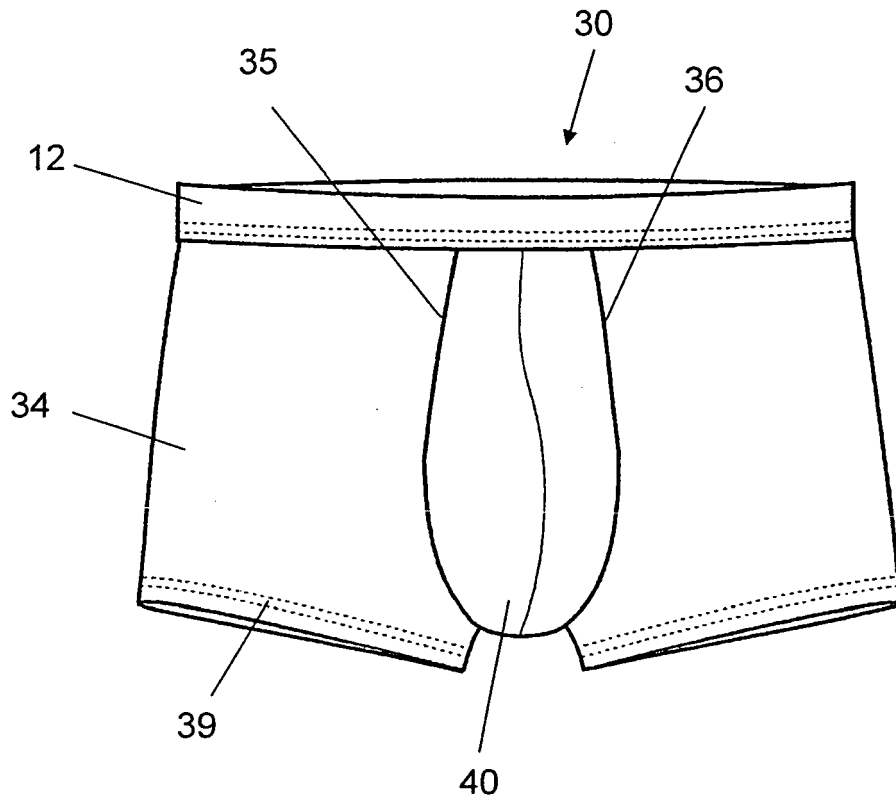


Fig. 7

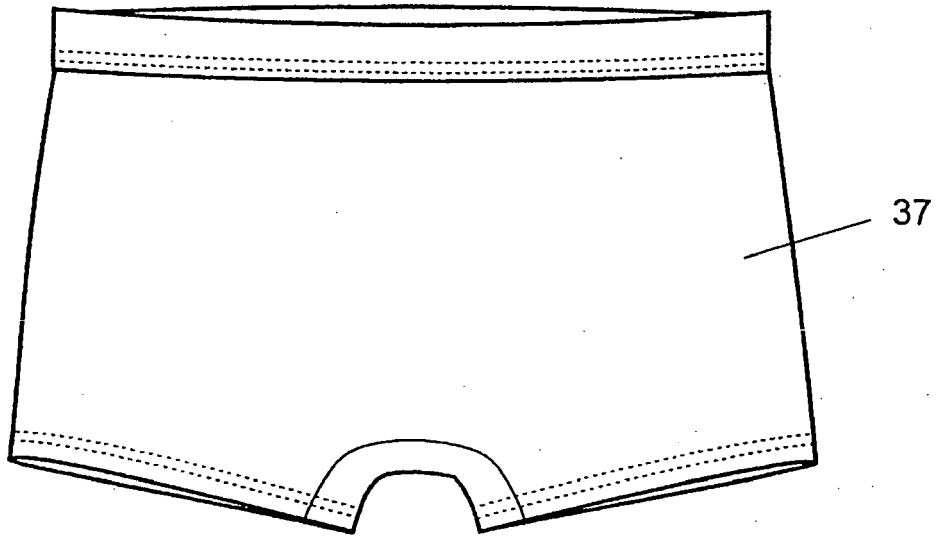


Fig. 8

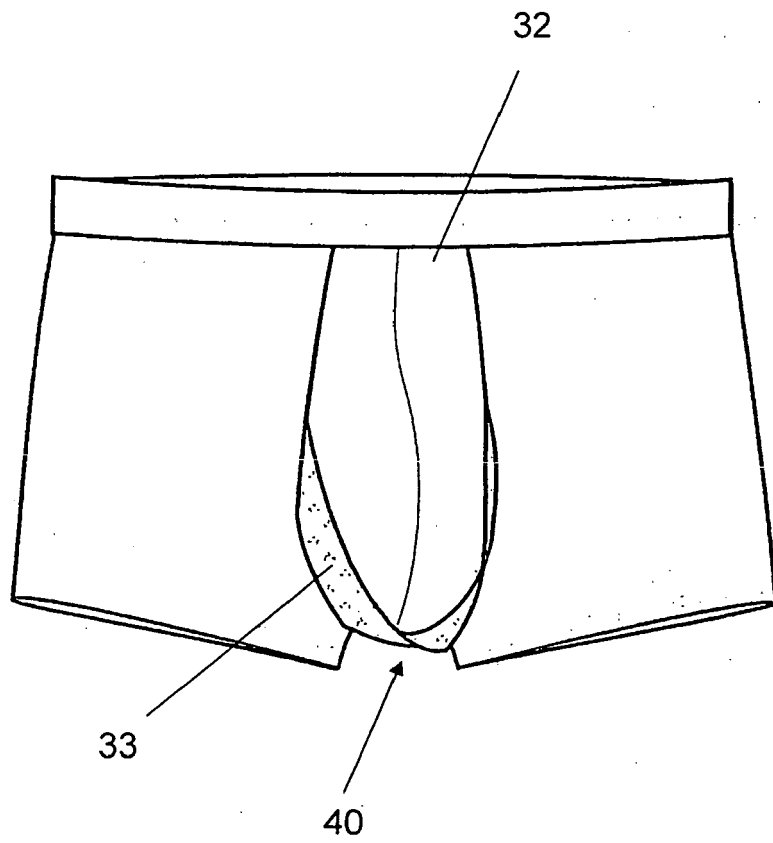


Fig. 9



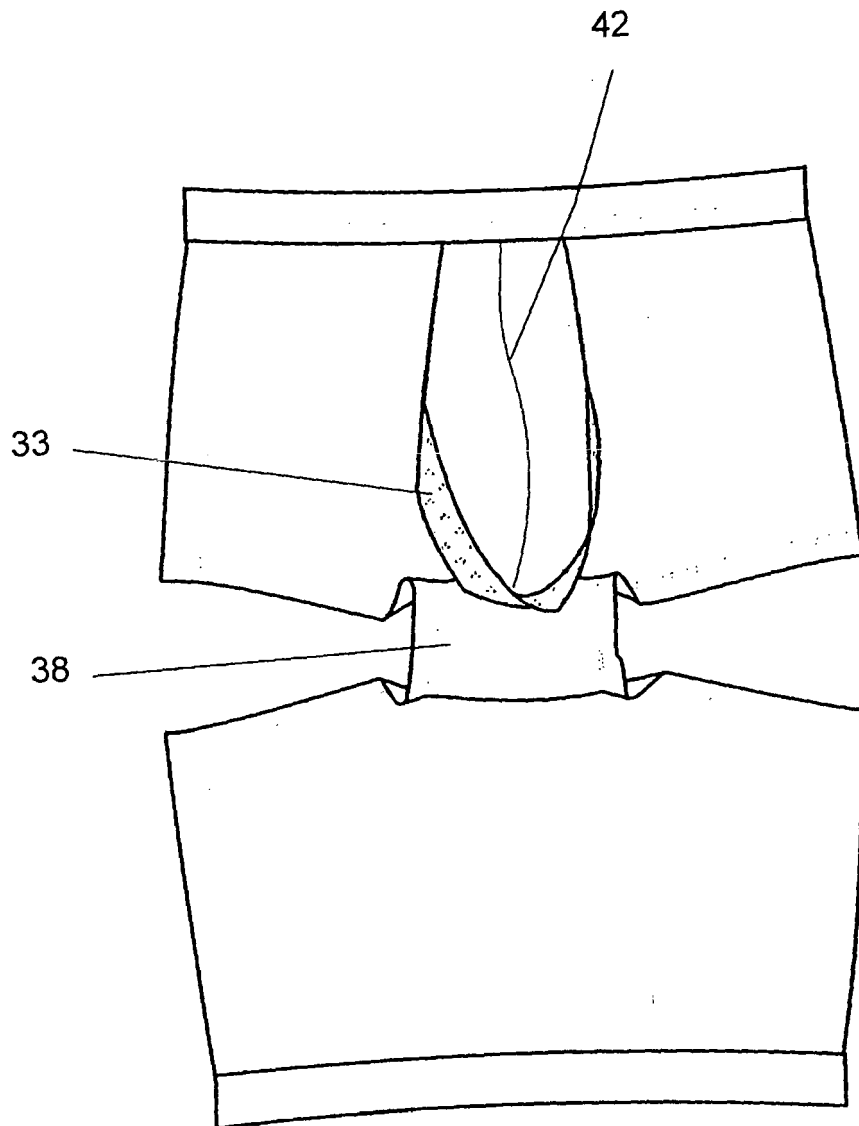


Fig. 10

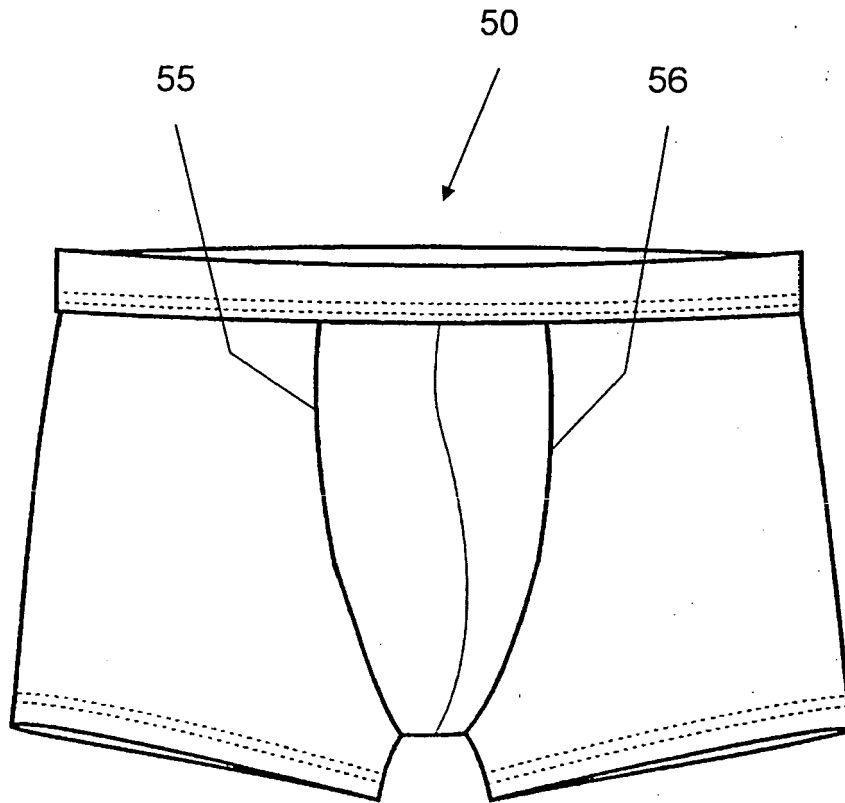


Fig. 11

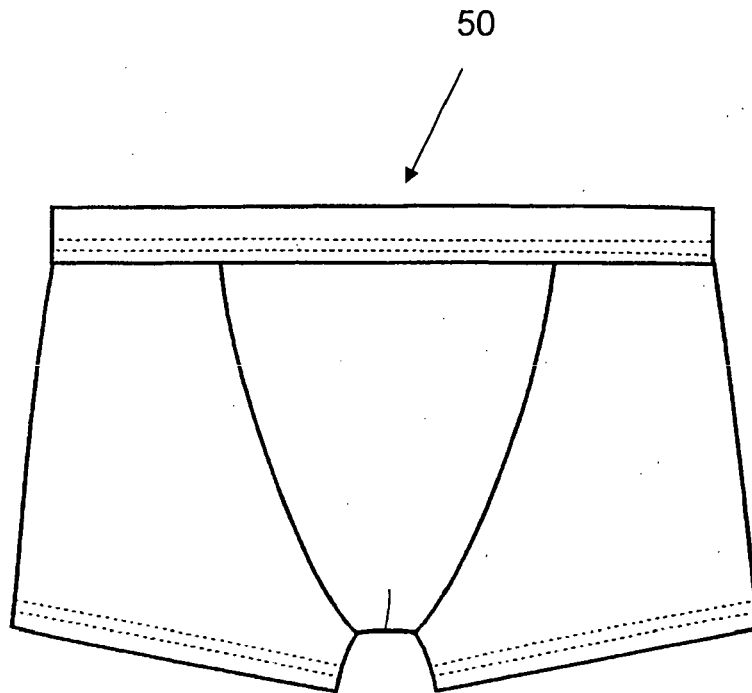


Fig. 12

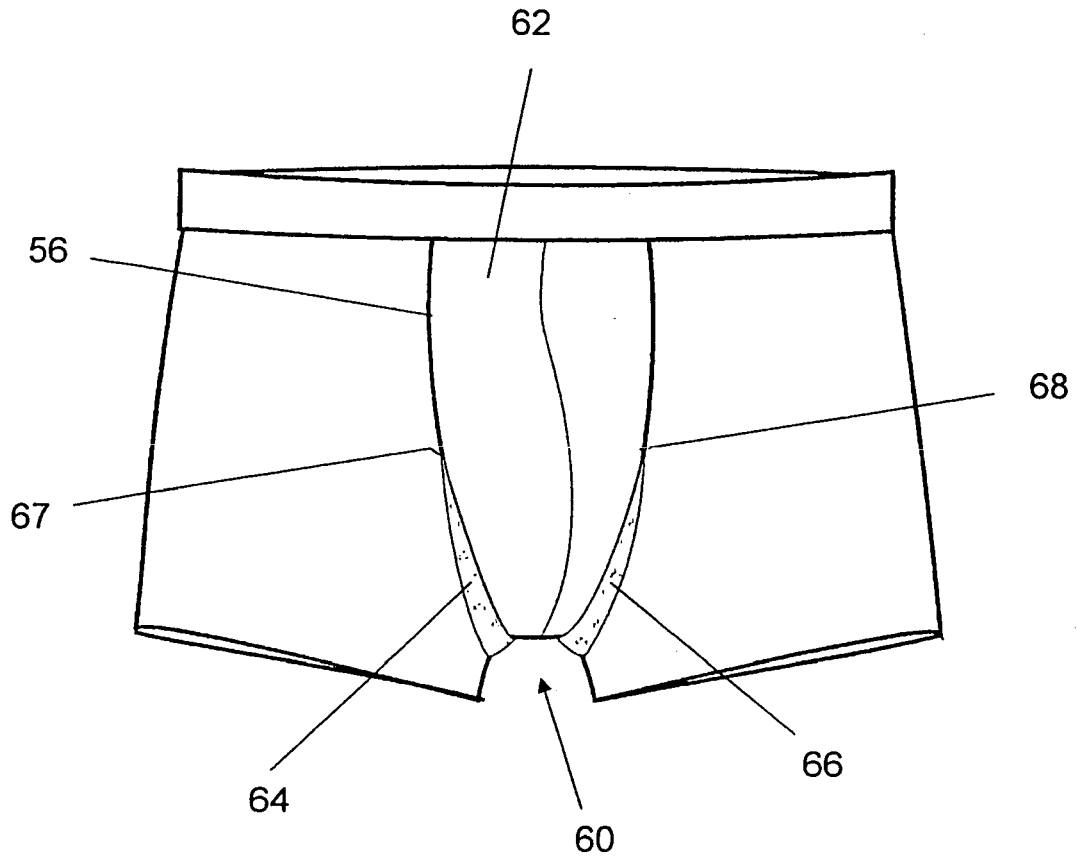


Fig. 13

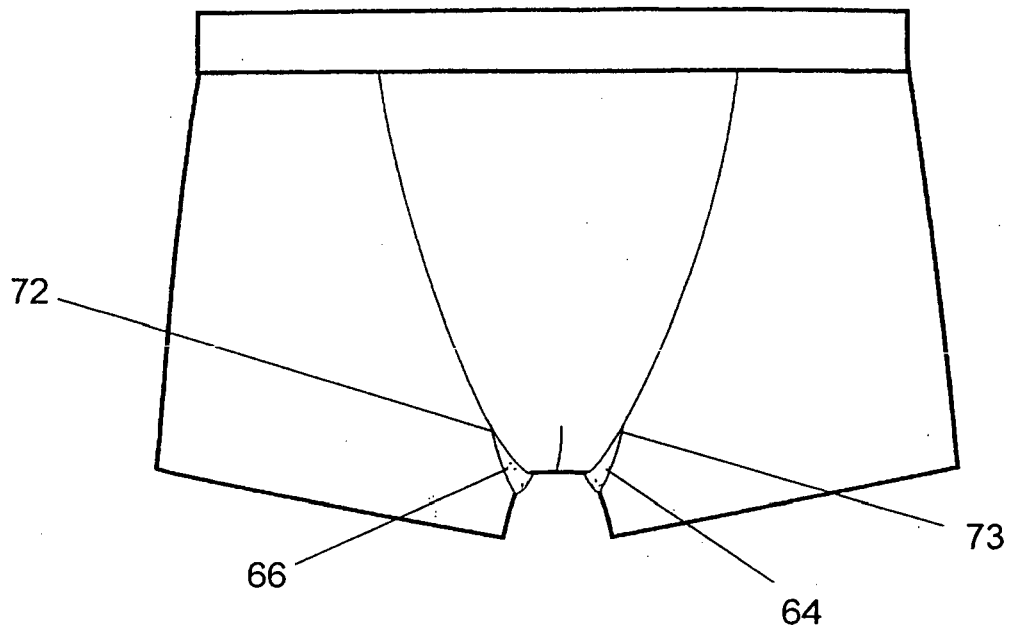


Fig. 14

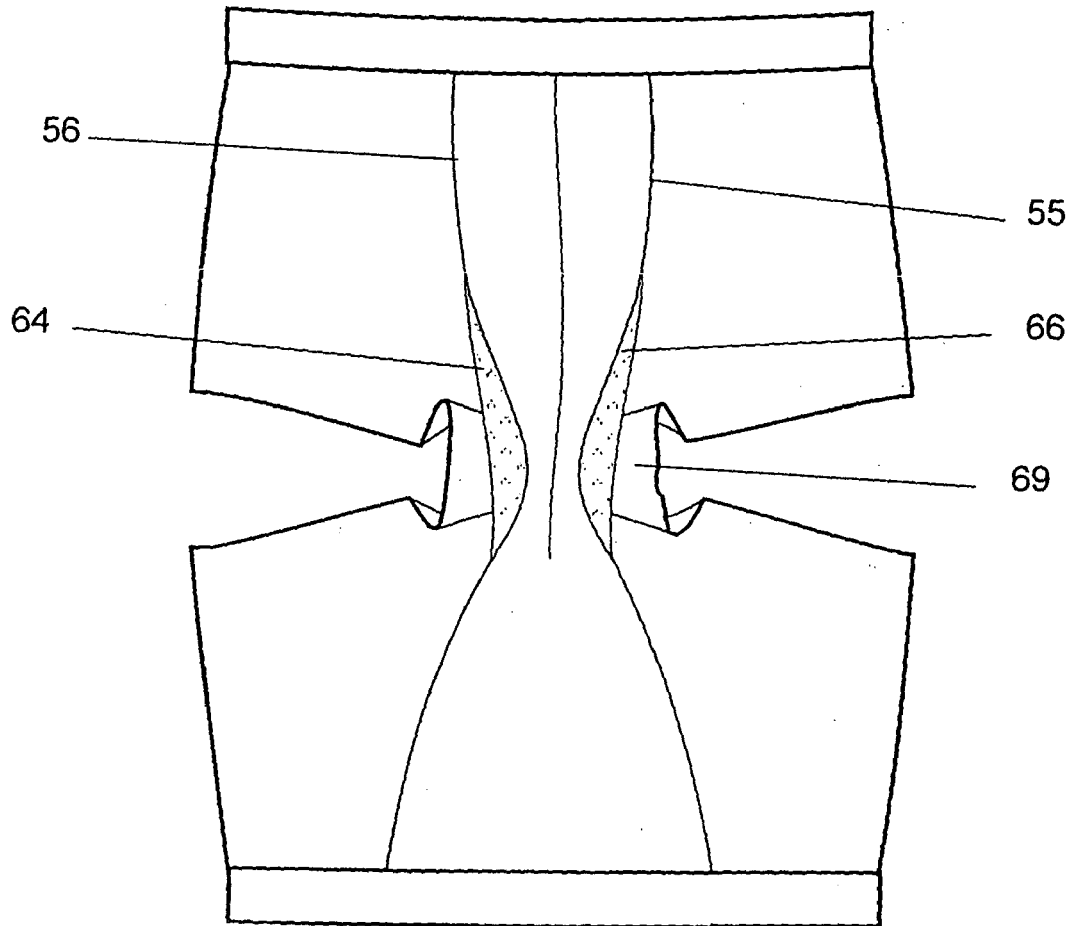


Fig. 15

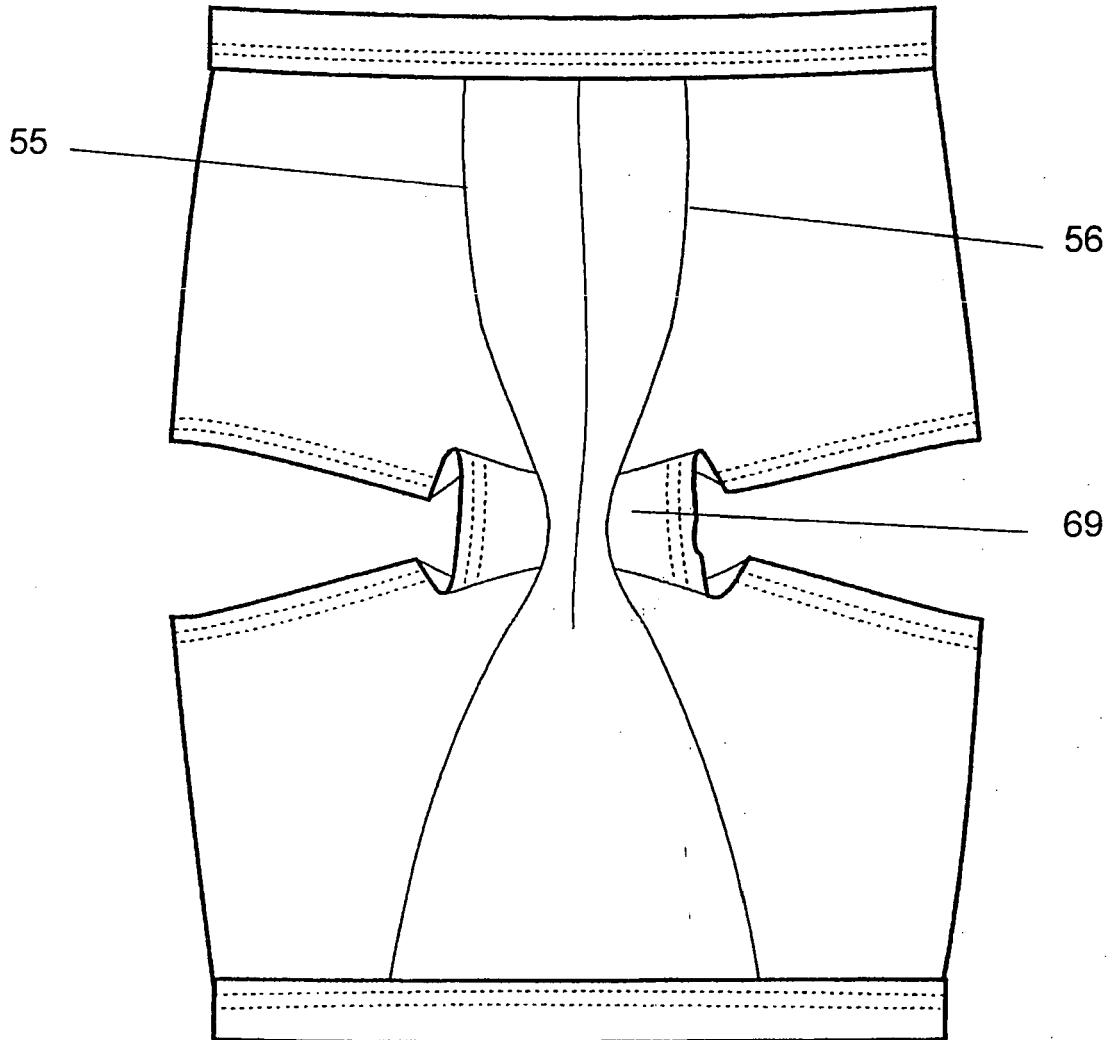


Fig. 16

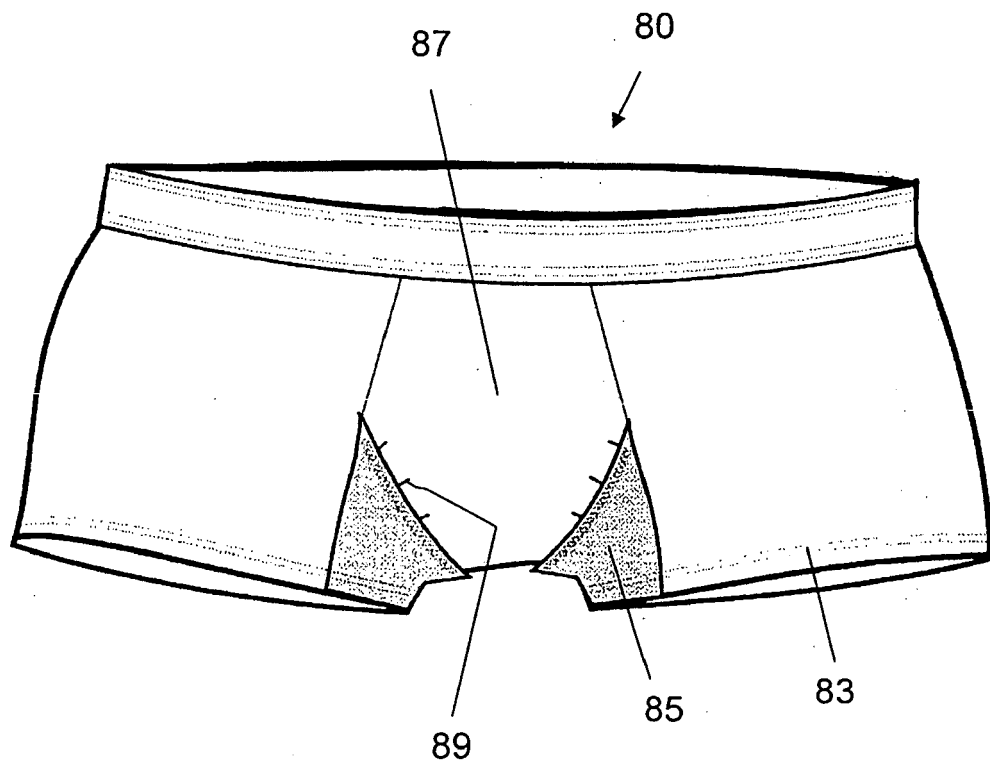


Fig. 17



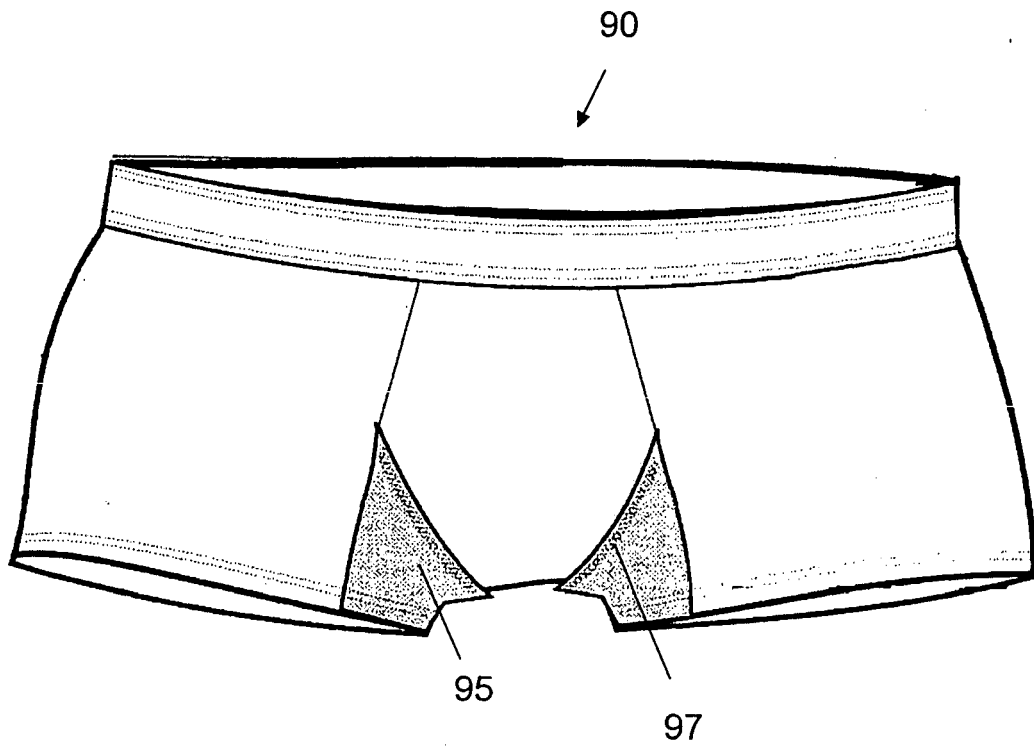


Fig. 18