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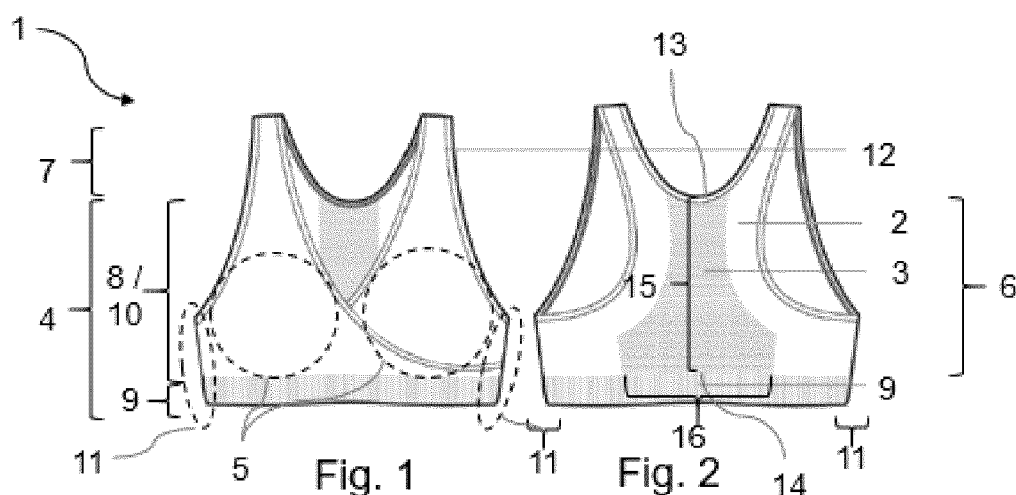
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(54) **BREATHABLE BRA**

(57) The present invention relates to a functional bra (1), in particular a maternity and/or nursing bra, comprising a front section (10) shaped to cover at least a portion of a chest area of a wearer, including a pair of cup portions (5) shaped to accommodate respective ones of breasts of the wearer, and a back section (6) shaped to cover at least a portion of a back of the wearer. In order to ensure breathability without compromising support, at least one

of the cup portions (5) and the back section (6) is formed from knit fabric with different knit structures representing zones of different breathability such as at least a cool zone (3) and a support zone (2), wherein the cool zone (3) is adapted to cover a sweat-sensitive area on skin of a wearer, and has a different knit structure than the support zone (2) with a higher breathability.



Description**TECHNICAL FIELD**

[0001] The present disclosure relates generally to wearing apparel and, more specifically, to an undergarment, in particular to a functional bra that is suited for the unique needs of a woman whose body temperature increases as she progresses through pregnancy and afterwards when she may be nursing a child. The present disclosure also relates to a method for manufacturing same.

BACKGROUND

[0002] A bra is an article of clothing that covers and supports a woman's breasts.

[0003] Common bras have two cups to cover and hold the breasts, shoulder straps connected to each of the cups, and a band encircling the torso under the breasts.

[0004] Nursing and maternity bras as one type of functional bras were created to permit a woman to breastfeed a baby without having to remove her bra entirely. This is accomplished either through a specialized opening in a bra cup to expose part of the breast, or through bras with cups that have clasps above them that can be detached to pull down one or more cups of the bra to expose the breast underneath.

[0005] Such nursing and maternity bras are often made of yarn, preferably cotton, with the same knitted fabric that absorbs leaking milk and sweat produced. However, during pregnancy, when the woman's breasts become heavier and at the same time the body temperature increases, the yarn alone is not enough to meet the needs in terms of support and breathability.

[0006] WO 2018 204 681 A1 discloses a bra with multilayer pad to absorb fluids and increase breathability. JP 312 9647 U discloses a bra with a cooler insertion part for receiving frozen coolers. US 2016 021 940 A1 discloses a bra with zones of different knit structure for optimizing breast support.

PROBLEM TO BE SOLVED

[0007] In view of the above, there is a need to provide a functional bra, in particular a nursing and/or maternity bra that ensures breathability without compromising support.

SUMMARY

[0008] According to a first aspect of the present invention, there is provided a functional bra, in particular a maternity and/or nursing bra. The bra comprises a front section shaped to cover at least a portion of a chest area of a wearer, including a pair of cup portions shaped to accommodate respective ones of breasts of the wearer, and a back section shaped to cover at least a portion of a back of the wearer. At least one of the cup portions and the back section is formed from knit fabric with different knit structures representing zones of different breathability such as at least a cool zone and a support zone. The cool zone is adapted to cover a sweat-sensitive area on skin of a wearer, and has a different knit structure than the support zone with a higher breathability.

[0009] The knit fabric, preferably the functional bra, may be fabricated from a single yarn composed of a stretchable-material, preferably from a cotton-free material, in particular from a material blend of polyester and elastane or polyamide and elastane, in particular nylon and spandex. This may result in a single piece of knit fabric without any seam, sewing or stitching between the cool zone and the support zone in spite of the different knit structures.

[0010] The knit fabric may be composed of a blend including 80 to 98%, more preferably in between 85 to 97%, in particular 86 to 95% polyamide/nylon and an inversely corresponding percentage of elastane/spandex. The selected yarn may absorb humidity, i.e. sweat, and may convey it from the skin to the environment outside the bra.

[0011] The functional bra may further comprise a midriff portion, in particular a seamless rib knit band, which may underline the cup portions. The seamless rib knit band may be adapted to extend at least partially around a portion of a torso under the breast of the wearer. The seamless rib knit band may be formed from knit fabric composed of a blend including 70 to 95%, more preferably in between 75 to 92%, in particular 80 to 90% polyamide/nylon and an inversely corresponding percentage of elastane/spandex.

[0012] The knit structure of the cool zone may have a wider or coarser mesh than the support zone. This may lead to larger meshes for air passage in the cool zone and a better support, in particular relatively lower elasticity, of the support zone.

[0013] The volumetric mass density of the knit fabric in the cool zone may be about 1,5 to 20, preferably 2 to 15, in particular 5 to 10 times lower than in the support zone.

[0014] The different knit structures of the cool and support zone may differ in their mesh size so that they can be seen

with the naked eye.

[0015] The knit structure of the cool zone may be at least one of a jacquard knit and an open knit mesh. The knit structure of the support zone may be a jersey knit.

[0016] The cool zone may be at least partially or completely enclosed by the support zone.

[0017] The cool zone may be adapted to cover at least a portion of a thoracic spine area, in particular a floating rib area, and an upper or lower edge area of the breast.

[0018] The cool zone may be provided on the cup portions and may extend partially along a pair of neckline portions of respective ones of the cup portions. The neckline portions preferably continuously transition into each other, preferably by way of a U or V shape, and partially along a pair of lower edge portions of respective ones of the cup portions. The cool zone on a respective one of the pair of neck portions may have a strip shape with a constant wideness. The upper and lower edges of the cool zone may be parallel. The cool zone may widen towards the neckline.

[0019] The cool zone may be provided on the back section and may extend at least partially along a thoracic spine portion of the back section, preferably between the upper edge and the lower edge of the back section with an hourglass and/or trapezoidal shape or a shape that may correspond to an inverted T. Edges of the T between a longitudinal portion of the T and transversal portion of the T may be smoothed. Alternatively, the cool zone may have the shape of a U.

[0020] The functional bra may be composed of the knit fabric as a single layer.

[0021] Alternatively, the functional bra may comprise a double layer of knit fabric disposed to overlap the front section, in particular the pair of cup portions. The layers may be composed of the same material and knit structure. The layers may define a cavity, in particular an opening or closable pocket, for receiving a foam cup. The use of two layers at the breast nipple zone may allow for improved support, hiding of nipple, and breast modeling as an esthetic function.

[0022] The functional bra may further comprise a foam cup, preferably a pitted or riddled foam cup, between the layers. The foam cup may be provided with ventilation elements for enhanced breathability, in particular holes. The holes in the foam cup allow the passage of air, may improve breathability and cooling.

[0023] The cool zone(s) at the cup portions may at least partially cover the foam cup or at least a perforated portion of the foam cup. Alternatively, said cool zone(s) may be arranged below or above the foam cup, preferably so that the foam cup is adjacent to the cool zone.

[0024] The functional bra may further comprise a pair of shoulder portions extending between respective ones of cup portions and the back section. The shoulder portions may be adapted to extend over respective ones of shoulders of the wearer.

[0025] The functional bra may further comprise a midriff portion, preferably composed of a rib knit, in particular a 2x1 rib knit. The midriff portion may underline the cup portions and may be adapted to extend at least partially around a portion of a torso under the breast of the wearer.

[0026] The functional bra may further comprise an opposed pair of side sections extending between the front section and the back section. The side sections may be shaped to cover at least a portion of respective ones of sides under arms of the wearer.

[0027] According to a second aspect of the present invention, there is provided a method for manufacturing a functional bra, in particular a maternity and/or nursing bra. The method comprises a first step of providing a single yarn composed of a stretchable and breathable material, preferably a cotton-free material, in particular a material blend/composition of polyester and elastane or polyamide and elastane, in particular nylon and spandex. The method further comprises a second step of forming the single yarn to a knit fabric with different knit structures representing zones of different breathability such as a cool zone and a support zone, and a third step of forming at least one of cup portions, shaped to accommodate respective ones of breasts of the wearer, and a back section, shaped to cover at least a portion of a back of the wearer, of the bra from said knit fabric. The cool zone is adapted to cover a sweat-sensitive area on skin of a wearer, and has a different knit structure than the support zone with a higher breathability.

TERMS AND DEFINITIONS

[0028] The term translational direction includes opposite directions along a translational axis and preferably any parallel direction, along an inferior-superior direction of a human.

[0029] The term transversal direction includes opposite directions along a transversal direction and preferably any parallel direction, along an anterior-posterior direction of a human. The transversal direction is perpendicular to the longitudinal direction.

[0030] The terms upper, top, lower and bottom are with respect to the longitudinal direction being the direction from the inferior towards the superior of a human.

[0031] The term front refers to the anterior body face of a human and any parallel face in a direction extending from the anterior body face away from the body.

[0032] The term back or rear refers to the posterior body face of a human and any parallel face in a direction extending from the posterior body face away from the body.

BRIEF DESCRIPTION OF DRAWINGS

[0033]

Fig. 1 shows a front view of a functional, in particular breathable, bra according to a first embodiment of the invention.
Fig. 2 shows a rear view of the bra according to Fig. 1.

Fig. 3 shows a front view of a functional, in particular breathable, bra according to a second embodiment of the invention.

Fig. 4 shows a rear view of the bra according to Fig. 3.

Fig. 5 shows a front view of a functional, in particular breathable, bra according to a third embodiment of the invention.

Fig. 6 shows a rear view of the bra according to Fig. 5.

Fig. 7 shows a front view of a functional, in particular breathable, bra according to a fourth embodiment of the invention.

Fig. 8 shows a rear view of the bra according to Fig. 7.

Fig. 9 shows a front view of a functional, in particular breathable, bra according to a fifth embodiment of the invention.

Fig. 10 shows a rear view of the bra according to Fig. 9.

Fig. 11 shows a perspective view of a foam cup, which may be used in a functional, in particular breathable, bra according to the preceding embodiments of the invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

[0034] A functional garment made from knit fabric, in particular a bra with functionalities for maternity and/or nursing is described herein. The knit fabric used for the functional garment may instead be used for other functionalities where high breathability is required such as underpants for sport activities.

[0035] Referring to Figs. 1 to 10, five types of maternity and/or nursing bras 1 are illustrated in both front and rear view. Said bras 1 each provide both a support zone 2 and a breathable zone, i.e., cool zone 3 in a restricted portion of the bra 1 adapted to extend across a certain part of the body portion 4 adapted to cover a sweat-sensitive area of skin, in particular a pair of cup portions 5, and/or a back section 6. The knit structure of the cool zone 3 is at least one of a jacquard knit and an open knit mesh and has a wider or coarser mesh than the support zone 2, which is preferably made of a jersey knit, leading to larger meshes for air passage in the cool zone 3, and a better support of the support zone 2. However, the application is not limited to the aforementioned knit structures. Other knit structures may instead be used as long as the breathability of the cool zone is higher than that of the support zone.

[0036] Each of the of the maternity and/or nursing bras 1 shown in Figures 1 to 10 are formed at least by a first layer of knit fabric. The knit fabric is fabricated from a single yarn composed of a stretchable and breathable material, preferably from a cotton-free material, in particular from a material blend of polyester and elastane or polyamide and elastane, in particular nylon and spandex. The selected yarn absorbs moisture, i.e. sweat, only moderately compared to cotton and instead transfers it from the skin to the environment outside the bra 1.

[0037] Each of the maternity and/or nursing bras 1 comprises a body portion 4 and a pair of shoulder portions 7.

[0038] The body portion 4 is divided into a breast portion 8 and a midriff portion 9.

[0039] The breast portion 8 includes a front section 10 shaped to cover at least a portion of a chest area of a wearer, a back section 6 shaped to cover at least a portion of a back of the wearer, and an opposed pair of side sections 11 which extend between the front section 10 and the back section 6 and shaped to cover at least a portion of respective ones of sides under the arms of the wearer. The breast portion 8 is composed of a blend including 80 to 98%, more preferably in between 85 to 97%, in particular 86 to 95% polyamide/nylon and an inversely corresponding percentage of elastane/spandex.

[0040] The front section 10 comprises a pair of cup portions 5 adapted to accommodate respective ones of breasts of the wearer.

[0041] Under the cup portions 5, there is provided said midriff portion 9, in particular a seamless band composed of rib knit, adapted to extend at least partially around a portion of a torso under the breast of the wearer. The midriff portion 9 is formed from knit fabric composed of a blend including 70 to 95%, more preferably in between 75 to 92%, in particular 80 to 90% polyamide/nylon and an inversely corresponding percentage of elastane/spandex.

[0042] The pair of shoulder portions 7 extends between respective ones of the cup portions 5 and the back section 6 and are adapted to extend over respective ones of shoulders of the wearer.

[0043] At least one of the cup portions 5 and the back section 6 is formed from knit fabric with different knit structures representing zones of different breathability such as at least a cool zone 3 and a support zone 2. The cool zone 3 is adapted to cover a sweat-sensitive area on skin of the wearer, and has a different knit structure than the support zone 2 with a higher breathability.

Sleeping and Lounging Bra

[0044] Referring now to Figures 1 and 2, there is provided a maternity and/or nursing bra 1 optimized for sleeping and lounging since it is free of buckles or the like.

[0045] The cup portions 5 are formed as cup panels 12, in particular overlapping cup panels 12, adapted to extend diagonally over the breast of the wearer.

[0046] The pair of shoulder portions 7 defines continuous transitions from respective ones of the cup panels 12 to the back section, and an opposed pair of side sections 11, which also defines continuous transitions from respective ones of the cup panels 12 to the back section 6, in particular the support zone 2 of the back section 6.

[0047] The cool zone is provided (only) on the back section 6 and extends at least partially along a thoracic spine portion of the back section 6, in particular between an upper edge 13 and a lower edge 14 of the back section 6.

[0048] The shape of the cool zone 3 converges and then diverges, preferably exponentially, from the upper edge 13 towards the lower edge 14 of the back section 6 up to a portion of maximum width, forming a constriction in between (hourglass shape), and then converges, preferably linearly, from portion of maximum width up to the lower edge 14 (trapezoidal shape). The shape of the cool zone 3 as seen in Fig. 2 roughly corresponds to an inverted T, preferably with smoothed edges between a longitudinal portion 15 of the T and transversal portion 16 of the T.

[0049] The cup panels 12, the shoulder portions 7, and the side sections 11 are made of the same knit structure as the support zone 2, preferably jersey knit.

Daily Bras

[0050] Referring now to Figures 3 to 10, there are provided four types of maternity and/or nursing bras 1 optimized for daily wear. The daily wear bras 1 differ in their design, in particular, the arrangement of the cool zone(s) 3 and the used knit structures of certain bra portions.

[0051] In contrast to the sleeping and lounging bra of Figures 1 and 2, the back section 6 is further segregated into an opposed, generally identical pair of wing segments 17, which are releasably attachable to each other via a wing attachment means 18, preferably by complementary sets of hooks and eyes, preferably including a matrix of 3x4 eyes and 3x1 hooks, or vice versa.

[0052] The pair of shoulder portions 7 are shoulder straps 19, in particular length-adjustable shoulder straps. Each of the shoulder straps 19 includes a back end 20 contiguous to a respective one of the wing segments 17, and an opposed front end 21 releasably attached to respective ones of the cup portions 5. The cup portions 5 are releasably attached by way of a selectively releasable shoulder attachment means 22, such as buckles, or clasps, as to allow them to be selectively folded downwardly for nursing. The shoulder straps 19 are composed of a jersey knit, in particular the same jersey knit as used for the support zone 2.

[0053] The shoulder straps 19 are further attached to respective ones of a pair of support slings 23, which are operative to maintain the functional bra 1 on the upper body of the wearer when either or both of the cup portions 5 are detached from the corresponding one of the straps 19.

[0054] The breast portion 8 further includes a center gore portion 24, which extends at least partially between the cup portions 5 and/or at least partially between at least one of the cup portions 5 and the corresponding side section 11.

[0055] Each of the bras 1 shown in Figures 3 to 10 is provided with a cool zone 3 at the cup portions 5, which extends at least partially along a pair of neckline portions 25 of respective ones of the cup portions 5. The neckline portions 25, and thus the respective cool zones 3, continuously transition into each other by way of a V shape. Preferably, the upper and lower edges of the cool zones 3 run parallel to the neckline portions 25, wherein the upper edge is directly adjacent to the neckline portions 25. Preferably, the width of the cool zones 3 maybe in the range from 5 to 50 mm. In other, not shown embodiments, the cool zones 3 of the neckline portions 25 and/or the neckline portion 25 itself form a U.

[0056] Referring now to the fourth and fifth embodiments of the bra 1 shown in Figures 7, 8 and 9, 10, respectively, a second cool zone 3 is provided in addition to the cool zones 3 adjacent to the neckline portions 25. The second cool zone 3 extends on the wing segments 17. In particular, the second cool zone 3 extends at least partially along a thoracic spine portion of the back section 6, preferably between upper edges 26 and lower edges 27 of the wing segments 17. The second cool zone 3 is shaped to correspond to a U with the wing attachment means 18 in between in a closed state thereof, i.e. a J-shape and mirrored J-shape on each of the wing segments 17 in an open state of the wing attachment means 18.

[0057] Besides, there is provided a push zone 33 on respective ones of the cup portions 5 of the bra according to the fourth and fifth embodiments of the bra 1 shown in Figures 7, 8 and 9, 10, respectively. The push zone 33 is adapted to press the breasts together and upwards. The push zone is made of a 1x1 rib knit. The push zone 33 according to the fourth embodiment of the bra 1 shown in Figures 7 and 8 extends at least partially along a pair of lower edge portions 28 of respective ones of the cup portions 5, preferably with a J-shape or mirrored J-shape on each of the cup portions 5, so that the upper/longer leg of the (mirrored) J-shape runs adjacent to and ends on to the respective side section 11

and the lower/shorter leg of the (mirrored) J-shape runs adjacent to and ends the midriff portion 9 and/or the center gore portion 24. Preferably, the J-shape/width of the cool zone 3 on each cup portion 5 converges from the upper end to the lower end, following the natural anatomy of the breast.

[0058] In the fifth embodiment of the bra 1 shown in Figures 9 and 10, the push zone 33 also extends at least partially along a pair of lower edge portions 28 of respective ones of the cup portions 5, preferably with a J-shape or mirrored J-shape on each of the cup portions 5. However, contrary to the fourth embodiment, the upper/longer leg of the (mirrored) J-shape running adjacent to the respective side section 11 is longer and connects to the first cool zone 3, whereas the lower/shorter leg of the (mirrored) J-shape still runs adjacent to and ends on the midriff portion 9 remote from the center gore portion 24. Preferably, the J-shape of the cool zone 3 on each cup portion 5 converges from the upper end to the lower end, following the natural anatomy of the breast.

[0059] Referring further to the fourth embodiment of the bra 1 shown in Figures 7 and 8, there is provided a third cool zone 3. The third cool zone 3 extends at least partially along a pair of lower edge portions 28 of respective ones of the cup portions 5, preferably with a J-shape or mirrored J-shape on lower edges of the cup portions 5, so to run adjacent at the midriff portion 11 and the push zone 33.

[0060] The side sections 11 are, according to the second and fourth embodiments of the bra 1 shown in Figures 3, 4 and 7, 8, respectively, composed of jersey knit, in particular the same jersey knit as used for the support zone 2. In contrast, according to the third and fifth embodiments of the bra 1 shown in Figures 3, 4 and 7, 8, respectively, a rib knit same as the midriff portion 9, in particular a 2x1 rib knit is used.

[0061] The one or more center gore portions 24 according to the second and fifth embodiment of the bra 1 shown in Figures 3, 4 and Figures 9, 10, respectively, are composed of a rib knit same as the midriff portion 9, in particular a 2x1 rib knit. In contrast, according to the third and fourth embodiments of the bra 1 shown in Figures 3, 4 and 5, 6, respectively, a 1x1 rib knit is provided.

[0062] The wing segments 17 according to the second embodiment of the bra 1 shown in Figures 3, 4 are composed of jersey knit, in particular the same jersey knit as used for the support zone 2. The wing segments 17 according to the third embodiment of the bra 1 shown in Figures 5, 6 are formed of a rib knit same as the midriff portion 9, in particular a 2x1 rib knit. The support zone 2 of the wing segments 17 according to the fourth embodiment of the bra 1 shown in Figures 7, 8 is formed of a knit fabric. The wing segments 17 according to the fifth embodiment of the bra 1 shown in Figures 9, 10 are formed of a pique knit.

[0063] Referring now to Figure 11, there is shown a foam cup 29, also known as pad, which may be inserted in the cup portions 5 of any one of the bras 1 described with respect to Figures 1 to 10. The foam cup is provided with one or more ventilation elements 30 for enhanced breathability, in particular holes. Preferably, the foam cup 29 is a pitted or riddled foam cup.

[0064] Referring to the fourth and fifth embodiments of the bra 1 shown in Figures 7, 8 and 9, 10, respectively, there is provided a cavity on a respective cup portion 5, in particular an opening 31 or closable pocket, for receiving the foam cup 29. To provide said cavity, the front section, in particular the pair of cup portions 5, is formed by a double layer of knit fabric. The layers have the same design, and are composed of the same material and knit structure.

[0065] The functional bra 1 according to the first and third embodiments preferably comprises a single-layer knitted fabric. The functional bra 1 according to the second, fourth and fifth embodiments preferably comprises a double-layer knit fabric.

[0066] The following table contains a list of preferred yarn blends of the bra 1 according to respective embodiments of the invention.

Type of bra 1	Body portion 4	Midriff portion 9
Embodiment 1 (Figures 1 and 2)	95% Nylon/Polyamide, 5% Spandex/Elastane	92% Nylon/ Polyamide, 8% Spandex/Elastane
Embodiment 2 (Figures 3 and 4)	90% Nylon/Polyamide, 10% Spandex/Elastane	80% Nylon/ Polyamide, 20% Spandex/Elastane
Embodiment 3 (Figures 5 and 6)	92% Nylon/Polyamide, 8% Spandex/Elastane	89% Nylon/ Polyamide, 11% Spandex/Elastane
Embodiment 4 (Figures 7 and 8)	86% Nylon/Polyamide, 14% Spandex/Elastane	86% Nylon/ Polyamide, 14% Spandex/Elastane
Embodiment 5 (Figures 9 and 10)	92% Nylon/Polyamide, 8% Spandex/Elastane	89% Nylon/ Polyamide, 11% Spandex/Elastane

[0067] The following table contains a list of preferred materials for the foam cup 29 and a foam cup insert lining of the

bra 1 according to respective embodiments of the invention.

	Type of bra 1	Foam Cup Insert Lining	Foam Cup 29
5	Embodiment 1 (Figures 1 and 2)	none	
	Embodiment 2 (Figures 3 and 4)		
	Embodiment 3 (Figures 5 and 6)		
10	Embodiment 4 (Figures 7 and 8)	100% Polyester	100% Polyurethane
	Embodiment 5 (Figures 9 and 10)	100% Polyester	100% Polyurethane

[0068] The following list defines, in order, the knitting patterns used herein starting from low stretch to high stretch:

- 15 1. 1x1 low knit
2. Pique knit
3. 2x1 rib knit
- 20 4. Jersey knit
5. Open knit mesh / Jacquard knit

25 REFERENCE SIGNS LIST

[0069]

- 1 Functional bra (Maternity and/or Nursing bra)
- 30 2 Support zone
- 3 Cool zone
- 4 Body portion
- 5 Cup portions
- 6 Back section
- 35 7 Shoulder portions
- 8 Breast portion
- 9 Midriff portion (Seamless rib knit band)
- 10 Front section
- 11 Side sections
- 40 12 Cup panels
- 13 Upper edge of back section
- 14 Lower edge of back section
- 15 Longitudinal portion of T-shaped cool zone
- 16 Transversal portion of T-shaped cool zone
- 45 17 Wing segments
- 18 Wing attachment means
- 19 Shoulder straps (with U-shaped back)
- 20 Back end of shoulder strap
- 21 Front end of shoulder strap
- 50 22 Shoulder attachment means
- 23 Support slings (Inner elastic strings)
- 24 Center gore portion (Non-moulded double or single layer front with gathers for cup capacity)
- 25 Neckline portions
- 26 Upper edge of wing segments
- 55 27 Lower edge of wing segments
- 28 Lower edge portions of cup portions
- 29 Foam cup or pad (Perforated Foam Cup)
- 30 Ventilation elements

- 31 Opening for receiving the foam cup (Pocket)
- 32 Side edge of cup portions
- 33 Push zone

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Claims

1. A functional bra (1), in particular a maternity and/or nursing bra, comprising
 - 10 a front section (10) shaped to cover at least a portion of a chest area of a wearer, including a pair of cup portions (5) shaped to accommodate respective ones of breasts of the wearer, and a back section (6) shaped to cover at least a portion of a back of the wearer,
 - 15 wherein at least one of
 - the cup portions (5), and
 - the back section (6)
 - is formed from knit fabric with different knit structures representing zones of different breathability such as at least
 - 20 a cool zone (3) and a support zone (2),
 - wherein the cool zone (3) is adapted to cover a sweat-sensitive area on skin of a wearer, and has a different knit structure than the support zone (2) with a higher breathability.
2. The functional bra (1) according to claim 1, wherein the knit fabric, preferably the functional bra (1), is fabricated
 - 25 from a single yarn composed of a stretchable material, preferably from a cotton-free material, in particular from a material blend of polyester and elastane or polyamide and elastane, in particular nylon and spandex.
3. The functional bra according to any of the preceding claims, wherein the knit fabric is composed of a blend including
 - 30 80 to 98%, more preferably in between 85 to 97%, in particular 86 to 95% polyamide/nylon and an inversely corresponding percentage of elastane/spandex.
4. The functional bra (1) according to any of the preceding claims, wherein the functional bra (1) further comprises a
 - midriff portion, in particular a seamless rib knit band, which underlies the cup portions (5) and is adapted to extend
 - 35 at least partially around a portion of a torso under the breast of the wearer, and preferably is formed from knit fabric composed of a blend including 70 to 95%, more preferably in between 75 to 92%, in particular 80 to 90% polyamide/nylon and an inversely corresponding percentage of elastane/spandex.
5. The functional bra (1) according to any of the preceding claims, wherein the knit structure of the cool zone (3) has
 - 40 a wider or coarser mesh than the support zone (2), leading to larger meshes for air passage in the cool zone (3) and a better support, in particular relatively lower elasticity, of the support zone (2).
6. The functional bra (1) according to claim 5, wherein the volumetric mass density of the knit fabric in the cool zone
 - is about 1,5 to 20, preferably 2 to 15, in particular 5 to 10 times lower than in the support zone (2).
7. The functional bra (1) according to any of the preceding claims, wherein the knit structure of the cool zone (3) is at
 - 45 least one of a jacquard knit and an open knit mesh and/or wherein the knit structure of the support zone (2) is a jersey knit.
8. The functional bra (1) according to any of the preceding claims, wherein the cool zone (3) is at least partially or
 - 50 completely enclosed by the support zone (2).
9. The functional bra (1) according to any of the preceding claims, wherein the cool zone (3) is adapted to cover at
 - least a portion of a thoracic spine area, in particular a floating rib area, and an upper or lower edge area of the breast.
10. The functional bra (1) according to any of the preceding claims,
 - 55 wherein the cool zone (3) is provided on the cup portions (5) and extends at least one of: partially along a pair of neckline portions (25) of respective ones of the cup portions (5), wherein the neckline portions (25) preferably

continuously transition into each other, preferably by way of a U or V shape, and partially along a pair of lower edge portions (28) of respective ones of the cup portions (5); and/or wherein the cool zone (3) is provided on the back section (6) and extends at least partially along a thoracic spine portion of the back section (6), preferably between the upper edge and the lower edge of the back section (6) with an hourglass and/or trapezoidal shape or a shape correspond to an inverted T, i.e. a T rotated by 180°, preferably with smoothed edges between a longitudinal portion (15) of the T and transversal portion (16) of the T, or a U shape.

11. The functional bra (1) according to any of the preceding claims, wherein the functional bra (1) is composed of the knit fabric as a single layer.

12. The functional bra (1) according to any of claims 1 to 10, wherein the functional bra (1) comprises a double layer of knit fabric disposed to overlap the front section (10), in particular the pair of cup portions (5), wherein the layers are composed of the same material and knit structure, wherein the layers may define a cavity, in particular an opening (31) or closable pocket, for receiving a foam cup (29).

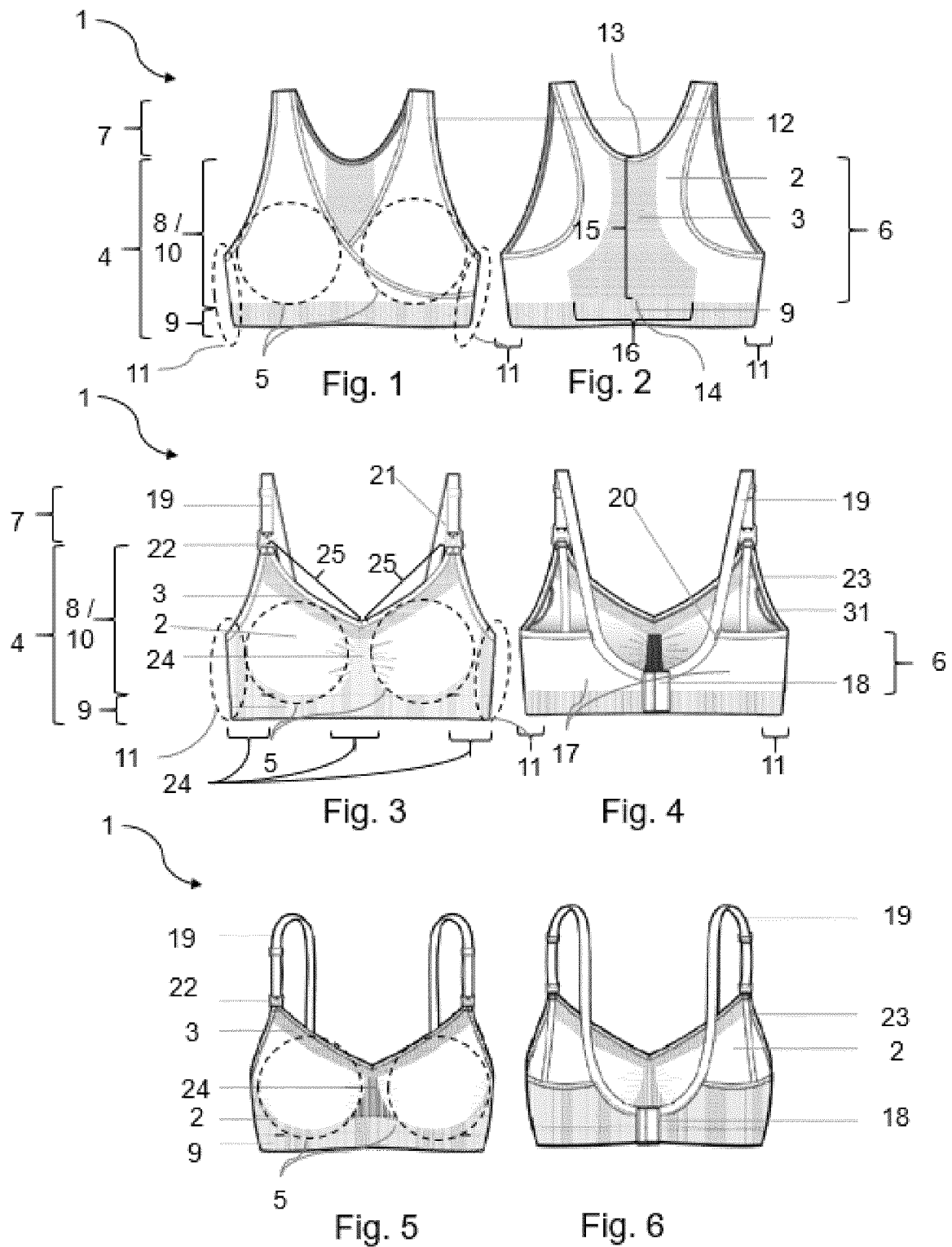
13. The functional bra (1) according to claim 12, wherein the functional bra (1) comprises a foam cup (29), preferably a pitted or riddled foam cup, between the layers, wherein the foam cup (29) is provided with ventilation elements (30) for enhanced breathability, in particular holes.

14. The functional bra (1) according to any of the preceding claims, further comprising

a pair of shoulder portions (7) extending between respective ones of cup portions (5) and the back section (6) and adapted to extend over respective ones of shoulders of the wearer, and/or a midriff portion (9), preferably composed of a rib knit, in particular a 2x1 rib knit, which underlies the cup portions (5) and is adapted to extend at least partially around a portion of a torso under the breast of the wearer, and/or an opposed pair of side sections (11) extending between the front section (10) and the back section (6) and shaped to cover at least a portion of respective ones of sides under arms of the wearer.

15. A method for manufacturing a functional bra (1), in particular a maternity and/or nursing bra, comprising:

providing a single yarn composed of a stretchable material, preferably a cotton-free material, in particular a material composition of polyester and elastane or polyamide and elastane, in particular nylon and spandex, and forming the single yarn to a knit fabric with different knit structures representing zones of different breathability such as a cool zone (3) and a support zone (2), wherein the cool zone has a different knit structure than the support zone (2) with a higher breathability, and forming at least one of cup portions (5), shaped to accommodate respective ones of breasts of the wearer, and a back section (6), shaped to cover at least a portion of a back of the wearer, of the bra (1) from said knit fabric, so that the cool zone (3) is adapted to cover a sweat-sensitive area on skin of a wearer.



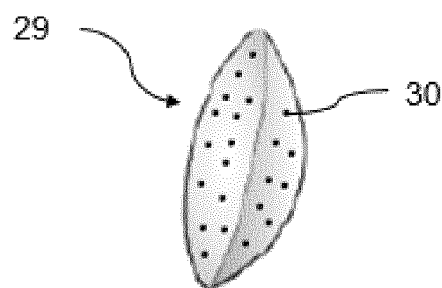
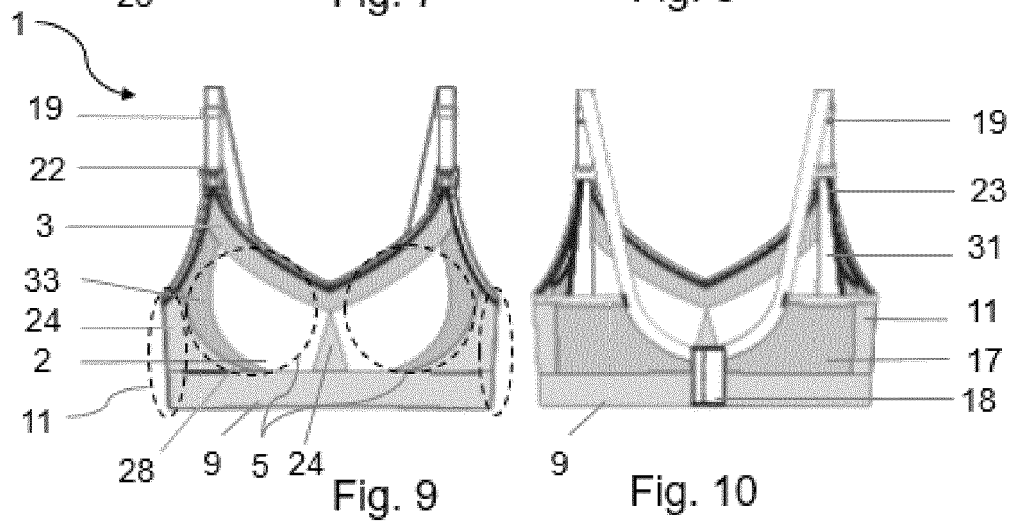
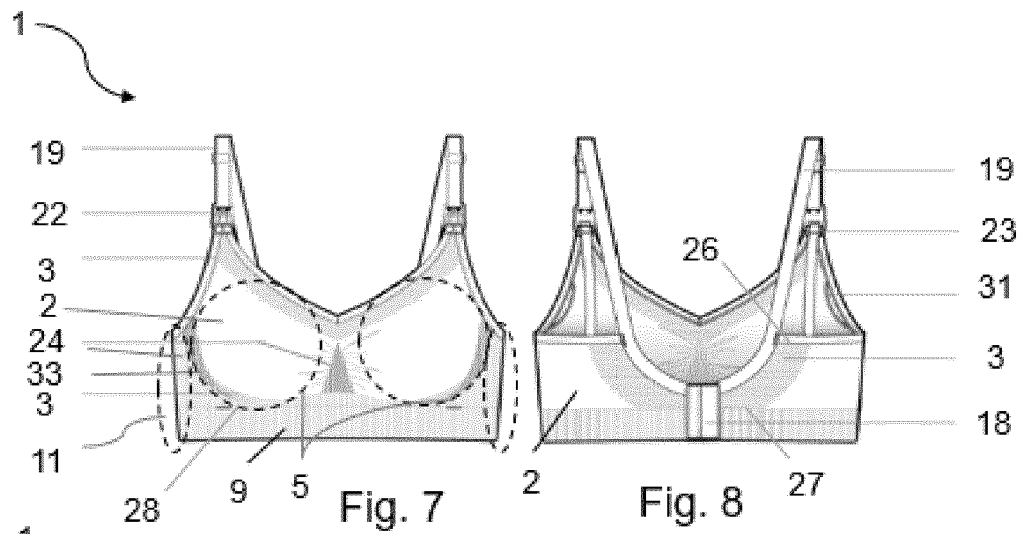


Fig. 11



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