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(54) GARMENT HAVING CUP PORTIONS

(57) The present invention provides a garment with cup portions, which can reduce the bounce of breasts during exercise effectively, while keeping the shape of the breasts without squashing the breasts when it is worn. In each cup portion 101 of the garment having cup portions, a support member 110 is provided so as to extend along the periphery of the swell of a wearer's breast. The support member 110 includes a lower support member 110A and an upper support member 110B. The lower support member 110A is stretchable in a direction connecting the front center side and the lateral side of the cup portion 101. The upper support member 110B is non-stretchable or slightly stretchable in a direction orthogonal to the above-described direction. At least part of a front center side-portion and at least part of a lateral side-portion of the upper support member 110B are fixed to the garment. At least part of a lateral side-portion of the lower support member 110A is fixed to the garment so that the lower support member 110A is displaceable relative to the cup portion 101.

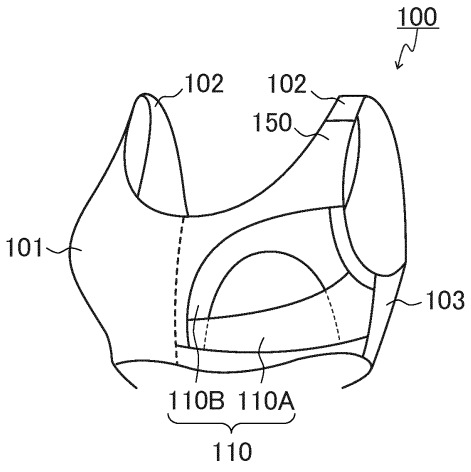

FIG. 1

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Description

Technical Field

[0001] The present invention relates to a garment with cup portions.

Background Art

[0002] When women practice some sports such as running, they may be bothered by the bounce of their breasts, and some actions such as jumping may cause a large impact to be exerted on their breasts. Heretofore, in the development of sports brassieres for use during exercise, attempts have been made to suppress the above-described bounce of breasts. For example, in order to suppress the bounce of a wearer's breasts during exercise with less burden to the wearer such as a feeling of tight pressure in wearing, there has been proposed a women's garment in which stretchable protective tapes are sewn along the following two lines: the line connecting a top region where each nipple is to be located and a lateral side-lower region where a lateral side-lower part of each breast is to be located when the garment is worn; and the line connecting the top region and a front center-side upper region where a front center-side upper part of each breast is to be located when the garment is worn (see Patent Document 1, for example). Also, there has been proposed a garment for sports in which, along the periphery of each of cup portions for accommodating breasts of a wearer, a portion is provided in which the modulus of elasticity in the principal direction of the bounce of the breasts is different from that in the direction orthogonal to the principal direction, thereby enabling the control of the bounce of the breasts during exercise (see Patent Document 2, for example).

Citation List

Patent Document(s)

[0003]

Patent Document 1: JP 11(1999)-286803 A
Patent Document 2: JP 2006-104613 A

Summary of the Invention

Problem to be Solved by the Invention

[0004] However, the above-described garments cannot sufficiently prevent the bounce of the breasts or impact exerted on the breasts. With the configuration where the top portions of a wearer's breasts are pressed against her body, although the bounce of the breasts can be suppressed to some extent, the breasts are squashed, so that the bust silhouette is prone to be deteriorated. Besides, the wearer may have a feeling of tight pressure in wearing. Furthermore, with the configuration of the latter garment, although the bounce of the breasts can be suppressed to some extent, the cup portions cannot completely follow the deformation of the breasts caused by the bounce of the breasts. Therefore, the garment cannot support the breasts when the breasts are apart from the cup portions, which makes the control of the bounce of the breasts difficult.

[0005] It is an object of the present invention to provide a garment with cup portions, which can reduce the bounce of breasts during exercise effectively, while keeping the shape of the breasts without squashing the breasts when it is worn.

Means for Solving Problem

[0006] In order to achieve the above object, the present invention provides a garment with cup portions, including: a pair of cup portions; a shoulder strap; and a back cloth. The shoulder strap is arranged above the pair of cup portions. The back cloth is arranged on lateral sides of the cup portions. In each of the cup portions, a support member is provided so as to extend along a periphery of swell of a wearer's breast. The support member includes: a lower support member that is provided at a lower part of the cup portion to support a breast region of the wearer from below; and an upper support member that is provided at a portion extending from a front center side to the lateral side of the cup portion via an upper part of the cup portion to support the breast region of the wearer from above. The lower support member is stretchable in a direction connecting the front center side and the lateral side of the cup portion. The upper support member is non-stretchable or slightly stretchable in a direction orthogonal to the direction. At least part of a front center side-portion and at least part of a lateral side-portion of the upper support member are fixed to the garment. At least part

of a lateral side-portion of the lower support member is fixed to the garment so that the lower support member is displaceable relative to the cup portion.

Effects of the Invention

[0007] The garment with cup portions according to the present invention can reduce the bounce of breasts during exercise effectively, while keeping the shape of the breasts without squashing the breasts when it is worn. Therefore, the garment with cup portions according to the present invention allows a wearer to enjoy sports without being bothered by the bounce of the breasts while keeping a fine bust silhouette.

Brief Description of Drawings

[0008]

[FIG. 1] FIG. 1 is a perspective view showing, as an example of the garment with cup portions according to the present invention, a sports brassiere according to a first embodiment. FIG. 1 shows the state where an outer fabric has been removed from a cup portion for covering a left breast.
[FIG. 2] FIG. 2 illustrates an example of the shape of a support member included in the garment with cup portions according to the present invention. FIG. 2A shows a lower support member. FIG. 2B shows an upper support member. FIG. 2C shows the state where the upper support member and the lower support member are combined with each other.
[FIG. 3] FIG. 3A shows, as another example of the garment with cup portions according to the present invention, a sports brassiere according to a second embodiment. FIG. 3B shows the shape of an upper support member. FIG. 3C shows the shapes of lower support members.
[FIG. 4] FIG. 4 shows perspective views of other examples of the garment with cup portions according to the present invention. FIG. 4A shows an example of a wired brassiere according to a third embodiment. FIG. 4B shows a modified example of the brassiere shown in FIG. 4A. FIG. 4C shows an example of a camisole according to a fourth embodiment.
[FIG. 5] FIG. 5 shows breast shapes during a wearing evaluation test. FIG. 5A shows the state where a breast of a test user bounced upward during running. FIG. 5B shows the state where the breast that had bounced upward then bounced back to reach a lowest position. FIG. 5C shows the vicinity of the breast at rest, as viewed from the side.
[FIG. 6] FIG. 6 shows schematic views illustrating how a breast bounces during exercise.

Mode for Carrying Out the Invention

[0009] The garment with cup portions according to the present invention will be described with reference to illustrative examples. It is to be noted, however, that the present invention is by no means limited to or restricted by the following examples.

(First Embodiment)

[0010] FIG. 1 shows a brassiere 100 according to the first embodiment of the garment with cup portions of the present invention. The brassiere 100 of the present embodiment is the so-called sports brassiere, and it includes, as main components: a pair of cup portions 101; a pair of shoulder straps 102; and a back cloth 103. The brassiere 100 of the present embodiment is a pull-on type brassiere in which the back cloth 103 has no interlocking connection portion. The pair of shoulder straps 102 are provided above the pair of cup portions 101. In the present embodiment, the pair of shoulder straps 102 are formed integrally with the back cloth 103 on the back side. The pair of cup portions 101 are integrated by being connected to each other at a portion corresponding to the front center. The term "front center" as used herein means a region that is located between right and left breasts and adjacent to the right and left breasts. The back cloth 103 is attached to both lateral parts of the integrated cup portions.

[0011] FIG. 1 shows the state where an outer fabric has been removed from the cup portion 101 for covering the left breast, in order to depict the structure of the cup portion 101 more clearly. In each of the cup portions 101, a support member 110 is provided so as to extend along the periphery of the swell of a wearer's breast when it is worn. In the present embodiment, the cup portion 101 is arranged on the skin side (the side to be in contact with a wearer's skin) of the support member 110. The support member 110 includes: a lower support member 110A that is provided at a lower part of the cup portion 101 to support a breast region of the wearer from below; and an upper support member 110B that is provided at a portion extending from the front center side to the lateral side of the cup portion 101 via an upper part of the cup portion 101 to support the breast region of the wearer from above. In the cup portion 101, a region outside

of the upper edge of the upper support member 110B is formed so as to exhibit a lower elongation (i.e., so as to serve as a low elongation member 150) by being formed of a non-stretchable or slightly stretchable material or a low elongation material, or by using a laminate of these materials.

[0012] The lateral side of the lower support member 110A is attached to the back cloth 103 or to the fixing position between the cup portion 101 and the back cloth 103. The front center side of the lower support member 110A is attached to the front center side of the cup portion 101. The lower edge and the upper edge of this lower support member 110A are not fixed to the cup portion 101 so that they are in the released state. The lateral side and the front center side of the lower support member 110A may be attached to the cup portion 101. Alternatively, the lateral side and the front center side of the lower support member 110A may be fixed to the upper support member 110B, instead of being fixed to the cup portion 101.

[0013] In the upper support member 110B, a portion extending from the front center to the front center side-upper end edge is attached to the cup portion 101. The front center side-end of the upper support member 110B may be fixed to the lower support member 110A, instead of being fixed to the cup portion 101. The back cloth side-end of the upper support member 110B is attached to the cup portion 101 or to the fixing position between the cup portion 101 and the back cloth 103. The back cloth side-end of the upper support member 110B may be fixed to the upper support member 110B, instead of being fixed to the cup portion 101. The lower edge and the lateral side-upper edge of the upper support member 110B are not fixed to the cup portion 101 so that they are in the released state.

[0014] FIG. 2 shows the shape of the support member 110 in the present embodiment. FIG. 2A shows the lower support member 110A, and FIG. 2B shows the upper support member 110B. The lower support member 110A is stretchable in the arrow direction shown in FIG. 2A, i.e., the direction connecting the front center side and the lateral side of the cup portion 101. On the other hand, the upper support member 110B is non-stretchable or slightly stretchable in the arrow direction shown in FIG. 2B, i.e., the direction orthogonal to the direction connecting the front center side and the lateral side of the cup portion 101. The term "non-stretchable or slightly stretchable" as used herein means non-stretchable or slightly stretchable (low stretchable) as compared to the stretchability in the direction connecting the front center side and the lateral side.

[0015] The bounce of breasts during exercise will be explained in the following. FIG. 6 shows schematic views illustrating how a breast bounces during exercise. The bounce of breasts includes: "vertical bounce" where breasts bounce vertically (FIG. 6A); and "lateral bounce" where breasts bounce from side to side (FIG. 6B). The bounce of naked breasts of a subject when she ran was observed closely with a high-speed camera. As a result, it was found that the lateral bounce is a movement where the breasts swing up from below to the lateral side or from below to the inside (the front center side), and the swing-up movement from below to the lateral side is particularly large. Also, it was found that this swing-up movement becomes large in reaction to the impact exerted on a lower port of the breast owing to the downward bounce of the breast. Existing techniques try to reduce the bounce of breasts by pressing the breasts against the wearer's body or by suppressing the swing-up movement of the breasts. In contrast, the inventors of the present invention found out that, based on the finding that a large impact is caused by the downward bounce, it is possible to reduce the bounce of breasts by suppressing not only the swing-up movement of the breasts but also the impact caused by the downward bounce, thereby achieving the present invention.

[0016] FIG. 2C shows the state where the lower support member 110A and the upper support member 110B are combined with each other. As shown in FIG. 2C, a portion around the top of a wearer's breast is not pressed by the support member 110. Thus, it is possible to provide a fine bust silhouette while keeping the shape of the breasts without bothering the wearer with a feeling of tight pressure in wearing. The upper support member 110B formed of a material slightly stretchable in the vertical direction is arranged so that it is located on an upper part of the wearer's breast when the brassier is worn. Thus, it is possible to suppress the swinging-up movement of the breasts as well as the lateral bounce of the breasts to the front center side and to the lateral side during exercise. The lower support member 110A is formed of the so-called stretch material that is stretchable in the direction connecting the front center side and the lateral side of the cup portion 101. Thus, the lower support member 110A can reduce and receive an impact caused by the breast that has once swung up and then fallen down during exercise. The support member 110 is arranged so as to press the periphery of the swell of the breast in a circular manner. Thus, the bounce of the breasts caused during exercise etc. can be suppressed effectively. It is difficult to suppress the bounce of breasts during exercise completely. Conventional brassieres have problems in that their cup portions cannot follow the deformation of breasts caused by the bounce of the breasts, so that spaces are formed between the cup portions and the breasts. The conventional brassieres cannot exhibit their effects, such as breast-supporting effects, to the breasts when they are apart from the cup portions as described above. In the present invention, the lower support member 110A is not entirely fixed to the cup portion, but is fixed to the garment in the above-described manner so that the lower support member 110A is displaceable relative to the cup portion 101. With this configuration, the respective lower support members 110A can follow the deformation of the breasts, so that the bounce of the breasts can be suppressed effectively. The lateral side-upper edge of the upper support member 110B is not fixed to the cup portion. With this configuration, the upper support member 110B is prevented from being displaced upward accompanying the wearer's operation such as raising her arm ,

for example.

[0017] As shown in FIG. 2C, it is preferable that the support member 110 includes an overlapping portion where the lower support member 110A and the upper support member 110B overlap each other on the lateral side. When the lower support member 110A and the upper support member 110B are sewn to each other at this overlapping portion, the overlapping portion can serve as a supporting point when the support member 110 follows the movement of the breast, and besides, the stretchability in the overlapping portion can be suppressed still further. Therefore, it is expected that this configuration also brings about an effect of supporting the flesh on the lateral side and pushing up the breast.

[0018] As a material of the lower support member 110A, it is possible to use a power net fabric, a two-way tricot, a one-way triconet, or the like, for example. As a material of the upper support member 110B, it is possible to use a tricot, a marquisette fabric, a one-way triconet, or the like. It is preferable that the upper support member 110B is formed of a material that is slightly stretchable not only in the vertical direction but also in the horizontal direction, because it allows the bounce of the breasts to be suppressed more effectively. However, in the case where the brassiere 100 of the present embodiment is a brassiere for teenagers, the upper support member 110B preferably is formed of a material that is stretchable in the horizontal direction, so as to avoid pressing breasts in a growth spurt more than necessary.

[0019] By using a stretchable material as a cup fabric constituting the main body of the cup portion 101 (the main body is a portion other than the support member 110 and the low elongation member 150), it is possible to suppress the bounce of the breasts without restricting the movement of the wearer's body, such as raising her arm. A cup fabric for the right cup portion and a cup fabric for the left cup portion may be provided separately and connected to each other at the front center. Alternatively, it is possible to use a cup fabric in an integrated form designed so as to cover a wearer's breast region including right and left breasts.

[0020] The support member 110 may be provided on the skin side of the brassiere 100, or may be provided on the outer side (the surface on the side opposite to the skin side). In either case, the support member 110 can follow the movement of the breast. In the case where the cup fabric is a laminate of two fabrics, namely, a fabric on the skin side and an outer fabric, the support member 110 may be sandwiched between these two fabrics. With this configuration, the wearing comfort is improved by the fabric on the skin side, and the fashionability is improved by the outer fabric. Moreover, because the support member 110 not fixed to the cup portion 101 is sandwiched between the two fabrics, it can be handled easily during laundry.

[0021] In the brassiere 100 of the present embodiment, the pair of shoulder straps 102 are formed integrally with the back cloth 103 on the back side. In the cup portion 101, it is preferable that a region outside of the upper edge of the upper support member 110B is formed of a non-stretchable or slightly stretchable material or a low elongation material, or a laminate of these materials, thus providing the low elongation member 150. The low elongation member 150 may be attached to the upper edge of the upper support member 110B. Alternatively, the upper support member 110B itself may extend to the strap position, thus forming the low elongation member 150. The low elongation member 150 may be formed of a non-stretchable or slightly-stretchable material. When the low elongation member 150 is formed of a low elongation material, the low elongation member 150 preferably is configured so that, as compared to an elongation in the direction connecting the front center side and the lateral side of the cup portion 101, an elongation in the direction orthogonal thereto (corresponding to the vertical direction when the brassier is worn) is lower. By forming the low elongation member 150 in the region outside of the upper edge of the upper support member 110B, it is possible to suppress the swing-up movement of the breasts more effectively. Also, by adapting a portion connected to each shoulder strap to exhibit a low elongation, it is possible to suppress the downward movement of the breasts. If the elongation of the entire shoulder straps is reduced, a load may be applied to the wearer's shoulders. On this account, it is preferable to provide the low elongation member 150 so as to extend to the vicinity of the wearer's collarbones, instead of providing the shoulder straps 120 that exhibit a low elongation.

[0022] The shoulder straps 102 are not limited as long as they allows the cup portions 101 to be suspended from the wearer's shoulders. The shoulder straps 102 are not limited to the so-called "round type" straps (wide straps as used in a tank top) used in the brassiere 100 of the present embodiment, and they may be formed of cords or fabric tapes. The form of the shoulder straps 102 is not limited to the one such that the pair of shoulder straps 102 are attached to the pair of cup portions 101 in one-to-one correspondence with the ends of each shoulder strap being connected to an upper part of the cup portion 101 and to the back cloth 103. For example, the two shoulder straps 102 may be integrated with each other on the back side, and this integrated strap may be attached to the back cloth 103. Also, the shoulder straps 102 may be in the form of the so-called "halter-neck" type in which the shoulder straps 102 are attached only to the cup portions 101. The positions at which the shoulder straps 102 are attached can be determined depending on the shape of the cup portions 101 and the design of the garment with cup portions.

[0023] Although the brassiere of the present example uses the back cloth 103 that has no interlocking connection portion, the back cloth 103 may be configured so as to include an interlocking connection portion that can be attached/detached freely at around the back center. The term "back center" as used herein refers to a position in the vicinity of the center of the width of the wearer's back when the brassiere of the present example is worn. As the interlocking connection portion, a hook closure (e.g., a hook-and-eye closure), a gripper, a button, a cord, and a hook-and-loop

fastener also can be selected and used as appropriate depending on the design or use of the brassiere. When the above-described hook-and-eye closure, gripper, or button is used, it is also preferable to provide a plurality of locking positions beforehand so as to allow fine adjustment of the degree of fastening. Other kinds of connection devices also may be used. Alternatively, the brassiere may be a front closure type brassiere in which no interlocking connection portion is provided in the back cloth, or may be a brassiere with back cloths to be fastened by tying them together.

(Second Embodiment)

[0024] FIG. 3 shows a brassiere 200 according to the second embodiment of the garment with cup portions according to the present invention. FIG. 3A shows the state of a support member 210 in the brassiere 200. FIG. 3B shows the shape of an upper support member 210B, and FIG. 3C shows the shape of lower support members 210A. The brassiere 200 of the present embodiment is the so-called sports brassiere that includes, as main components: a pair of cup portions 201, a pair of shoulder straps 202, and a back cloth 203. The back cloth 203 is attached to lateral parts of the respective cup portions 201. The brassiere 200 of the present embodiment is a pull-on type brassiere in which no interlocking connection portion is provided in the back cloth 203.

[0025] In the present embodiment, the upper support member 210B is in the right-and-left integrated form and is provided so as to surround a wearer's breasts along the periphery of the swell of the upper edges of the breasts extending from the front center side to the lateral side. The lower support members 210A have substantially the same shapes as the lower support members 110A in the first embodiment. However, in the present embodiment, the front center sides of the lower support members 210A are attached to the upper support member 210B. Also, the lower support members 210A may be in the right-and-left integrated form. In the upper support member 210B, the front center side-bottom and the lateral side- and front side-upper end edges are attached to the brassiere 200. The pair of shoulder straps 202 are provided above the pair of cup portions 201.

[0026] The pair of shoulder straps 202 are attached to the back cloth 203 on the back side. The upper support member 210B extends to the attachment positions of the shoulder straps 202. Other configurations are the same as those in the first embodiment, and the same effect as in the first embodiment also can be obtained. It is preferable that the upper support member 210B is formed of a material that is slightly stretchable not only in the vertical direction but also in the horizontal direction, because it allows the bounce of the breasts to be suppressed more effectively. In the case where the brassiere 200 of the present embodiment is a brassiere for teenagers, the upper support member 210B preferably is formed of a material that is stretchable in the horizontal direction, so as to avoid pressing breasts in a growth spurt more than necessary.

(Third Embodiment)

[0027] FIG. 4A is a perspective view showing, as another example of the garment with cup portions of the present invention, a wired brassiere 300 according to the third embodiment. The brassiere 300 according to the present embodiment includes, as main components: a pair of cup portions 301; a pair of shoulder straps 302; a back cloth 303; and a base portion 304, and it further includes support members 310. Wires 305 are provided in portions extending along the verge's lines in the base portion 304. The term "verge's line" refers to a contour on the lower edge of each breast. The wire 305 is formed of a tape-like interlining member such as an amorphous wire, a metal wire, a resin wire, or a fabric tape, for example. The back cloth 303 is attached to both ends of the base portion 304. In the case where the garment with cup portions according to the present invention is a wired brassiere, the back cloth 303 preferably includes an interlocking connection portion (not shown) that can be attached/detached freely at around the center of a wearer's back, because it allows the brassiere to be put on and taken off easily. Each of the pair of shoulder straps 302 is configured so that one end thereof is attached to an upper part of the cup portion 301, and the other end thereof is attached to an upper edge of the back cloth 303. The end portion of each shoulder strap 302 is attached to the upper part of the cup portion 301 in such a manner that it passes through a ring-shaped engagement device 306A attached to the upper part of the cup portion 301 and then turns around to be introduced into a length adjuster 306B, which is an eight-shaped ring. When the shoulder straps 302 are attached in the above-described manner, it becomes possible to adjust the lengths of the shoulder straps 302.

[0028] In the present embodiment, the front center side and the lateral side of upper support member 310B are attached to a portion where the wire 305 is arranged. The front center side of the upper support member 310B may be fixed to the lower support member 310A. The front side-upper end edge of the upper support member 310B is attached to the upper edge of the cup portion 301 so that the attachment position thereof extends from the front center side to the strap-attachment position. It is more preferable that the front side-upper end edge of the upper support member 310B is attached to the cup portion 301 only at the strap-attachment position. With this configuration, the support member 310 and the cup portion 301 are allowed to move differently, so that the support member 310 can exhibit improved movement followability. The lateral side-upper end edge and the lower end of the upper support member 310B are released from

the cup portion 301. The front center side and the lateral side of the lower support member 310A are sewn to the upper support member 310B or to a portion where the wire 305 is arranged, and other portions of the lower support member 310A are released from the cup portion 301. Other configurations are the same as those in the first embodiment. Thus, according to the present invention, even when wires and a base portion are provided as in the present embodiment, it is possible to provide a brassiere that can suppress the bounce of a wearer's breasts effectively while maintaining the bust silhouette. Thus, design variations of the brassiere can be increased.

[0029] In the present embodiment, as shown in FIG. 4B, the lower support member 310A and the upper support member 310B may extend to the fixing position between the base portion 304 and the back part 303, and may be fixed to the back portion 303 at the fixing position. FIG. 4B shows the state where an outer fabric has been removed from a portion for covering the left breast.

(Fourth Embodiment)

[0030] FIG. 4C is a perspective view showing, as still another example of the garment with cup portions according to the present invention, a camisole 400 according to the fourth embodiment. The brassiere-corresponding part of this camisole 400 is designed based on substantially the same concept as that for the brassiere 200 of the second embodiment described with reference to FIG. 3. In the present embodiment, the camisole 400 has a lower chest bodice 420 below the cup portions 201. Other configurations are substantially the same as those in the brassiere 200 shown in FIG. 3. Components identical to those in FIG. 3 are given the same reference numerals, and duplicate explanations are omitted. Although the present embodiment is directed to the camisole having the brassiere-corresponding part designed based on substantially the same concept as that for the brassiere 200 according to the second embodiment, the present invention is not limited thereto, and the camisole may have a brassiere-corresponding part according to any other embodiment. The camisole according to the present example may be embodied in the form without the back cloth 203.

[0031] The camisole of the present embodiment is not necessarily configured so that the bodice is provided below the brassiere-corresponding part, and the brassiere-corresponding part may be provided on the inner side of a bodice of the camisole. In this case, the camisole has a bodice provided so as to cover the brassiere-corresponding part. With this configuration, it is possible to increase variations of the appearance when the camisole is worn while maintaining the effect of the present invention. Also, the cup portions can be made more inconspicuous via any clothes worn on the camisole.

(Subjective Evaluation in Wearing Test)

[0032] Brassieres 100 according to the present invention having the configuration shown in FIG. 1 were produced to conduct a wearing evaluation test. A plurality of test users were required to run indoors on a treadmill in the state where they wore each of the brassiere 100 and a conventional brassiere A. Thereafter, the test users were asked for comments regarding wearing feeling. The conventional brassiere A was one form of the brassiere described in Patent Document 1. More specifically, the conventional brassiere A was one form of the brassiere described in Patent Document 1, which is configured so that stretchable protective tapes are sewn along the following two lines: the line connecting a top region where each nipple is to be located and a lateral side-lower region where a lateral side-lower part of each breast is to be located when the brassiere is worn; and the line connecting the top region and a front center-side upper region where a front center-side upper part of each breast is to be located when the brassiere is worn. The test users were made up of five persons. Out of the five test users, two had a cup size of C70; one had a cup size of D70; one had a cup size of E70; and one had a cup size of F70. In response to the question which of the brassiere 100 and the conventional brassiere A suppressed the bounce of the breasts during the running, five out of the five test users commented the brassiere according to the present invention did. In response to the question which of the brassiere 100 and the conventional brassiere A was suitable for sports, four out of the five test users commented the brassiere according to the present invention was, and one commented the conventional brassiere A was. In response to the question which of the brassiere 100 and the conventional brassiere A provided a finer silhouette when worn, four out of the five test users commented the brassiere according to the present invention did, and one commented the conventional brassiere A did. In response to the question which of the brassiere 100 and the conventional brassiere A they would like to use during the running, five out of the five test users commented they would like to use the brassiere according to the present invention.

(Objective Evaluation in Wearing Test)

[0033] The following are the results of objective wearing evaluation on the brassiere 100 according to the present invention having the configuration shown in FIG. 1. Movement of the breasts of the test user having a cup size of E70 was observed when she underwent the running trial in the state where she wore each of the brassiere 100 and the

conventional brassiere A. Also, the same observation was carried out in the state where she did not wear any brassiere.

[0034] FIG. 5 shows the chest part of the test user with her breasts being naked and in the states where she wore the two kinds of brassieres, as viewed from the side. FIG. 5A shows the state where the breast bounced upward during the running, and FIG. 5B shows the state where the breast that had bounced upward then bounced back to reach a lowest position. In each of FIGs. 5A and 5B, (a) shows the state where the test user wore the brassiere 100; (b) shows the state where the test user wore the conventional brassiere A; and (c) shows the chest part of the test user with her breasts being naked. Each of FIGs. 5A and 5B include a reference line to make the movements of the breasts more comprehensible. The naked breasts bounced upward largely during the running. Also, it can be seen that the breasts then bounced downward as if they were hit on the test user's body, so that she felt an impact at the time of the downward bounce. It can be seen that, when the test user wore the brassiere according to the present invention, the swing-up movement and the impact exerted on lower parts of the breasts were suppressed while keeping the shape of the breasts without squashing the breasts. When the test user wore the conventional brassiere A, although the bounce of the breasts was suppressed to some extent, the impact exerted on lower parts of the breasts could not be reduced. Thus, the conventional brassiere A could not resist the downward bounce of the breasts, resulting in downward displacement of the lowest point of the brassiere. In addition, lower parts of the cup portions became rounded. Thus, the bust silhouette provided by the conventional brassiere A was inferior to the bust silhouette provided by the brassiere according to the present invention.

[0035] FIG. 5C shows the chest part of the test user at rest when she wore each of the two kinds of brassiere, as viewed from the side. In FIG. 5C, (a) shows the state where the test user wore the brassiere 100, and (b) shows the state where the test user wore the conventional brassiere A. Even when the test user was out of exercise, the conventional brassiere A squashed her breasts entirely, thus providing a planar bust silhouette. In contrast, the brassiere according to the present invention did not squash her breasts, so that a three-dimensional silhouette was obtained. Moreover, the bust top position of the test user was higher when she wore the brassiere according to the present invention. From these results, it can be seen that the bust silhouette provided by the brassiere according to the present invention when it was worn was superior to the bust silhouette provided by the conventional brassiere A.

[0036] Both the subjective and objective evaluations demonstrate that the brassiere according to the present invention can provide a fine bust silhouette when it is worn, and can reduce the bounce of breasts during exercise.

[0037] The present invention has been described above with reference to specific examples of its embodiment, namely, a brassiere and a camisole. It is to be noted, however, the garment with cup portions according to the present invention is not limited to these specific examples, and can be embodied in various forms. For example, the present invention is applicable not only to garments such as those described in the above embodiments, but also to bodysuits, brassiere-provided slips, swimsuits, leotards, and other various garments with cup portions. The present invention also is applicable to front closure type garments whose front center portions are connected to each other using a hook closure that can be connected and disconnected freely.

Industrial Applicability

[0038] The garment with cup portions according to the present invention can be embodied in various forms. For example, the present invention is applicable not only to the garments described in the above embodiments but also to various garments with cup portions such as foundation garments, sportswear, and outerwear.

Explanation of reference numerals

[0039]

100, 200, 300:	brassiere
400:	camisole
101, 201, 301:	cup portion
102, 202, 302:	shoulder strap
103, 203, 303:	back cloth
110, 210, 310:	support member
110A, 210A, 310A:	lower support member
110B, 210B, 310B:	upper support member
150:	low elongation member
304:	base portion
305:	wire
306A:	ring-shaped engagement device
306B:	length adjuster

420: bodice

Claims

1. A garment with cup portions, comprising:

   a pair of cup portions;
   a shoulder strap; and
   a back cloth,
   wherein the shoulder strap is arranged above the pair of cup portions,
   the back cloth is arranged on lateral sides of the cup portions,
   in each of the cup portions, a support member is provided so as to extend along a periphery of swell of a wearer's breast,
   the support member comprises: a lower support member that is provided at a lower part of the cup portion to support a breast region of the wearer from below; and an upper support member that is provided at a portion extending from a front center side to the lateral side of the cup portion via an upper part of the cup portion to support the breast region of the wearer from above,
   the lower support member is stretchable in a direction connecting the front center side and the lateral side of the cup portion,
   the upper support member is non-stretchable or slightly stretchable in a direction orthogonal to the direction,
   at least part of a front center side-portion and at least part of a lateral side-portion of the upper support member are fixed to the garment, and
   at least part of a lateral side-portion of the lower support member is fixed to the garment so that the lower support member is displaceable relative to the cup portion.

2. The garment according to claim 1, wherein each of the cup portions is arranged on a skin side of the support member.

3. The garment according to claim 1 or 2, wherein the upper support member is formed of a non-stretchable or slightly stretchable material.

4. The garment according to any one of claims 1 to 3, wherein, in each of the cup portions, a non-stretchable or slightly stretchable material, or a material in which, as compared to an elongation in the direction connecting the front center side and the lateral side of the cup portion, an elongation in the direction orthogonal thereto is lower is provided along an outside of a front side-upper end edge of the upper support member.

5. The garment according to claim 4, wherein a portion that is provided along the outside of the front side-upper end edge of the upper support member and is formed of the non-stretchable or slightly stretchable material or the material that exhibits a lower elongation in the orthogonal direction is formed integrally with the shoulder strap.

6. The garment according to any one of claims 1 to 5, wherein the support member includes an overlapping portion where the lower support member and the upper support member overlap each other on a lateral side, and the lower support member and the upper support member are sewn to each other at the overlapping portion.

7. The garment according to any one of claims 1 to 6, wherein the garment is a brassiere.

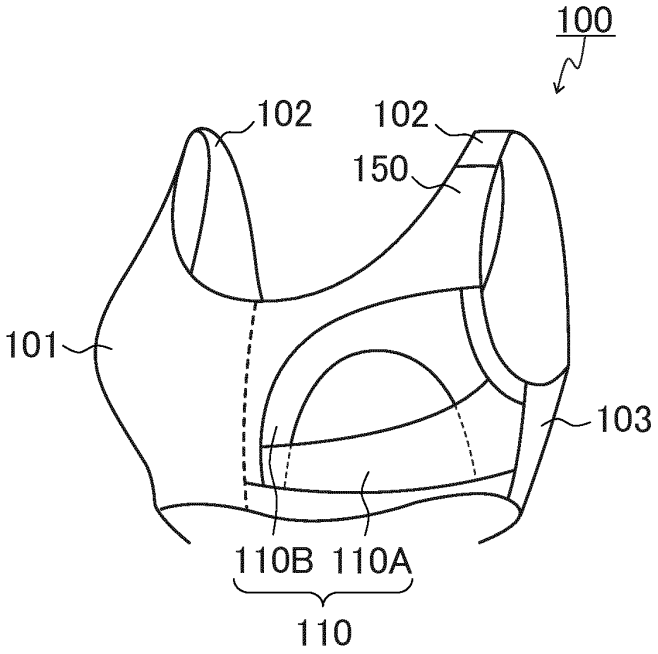

FIG. 1

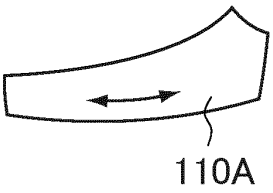

FIG. 2A

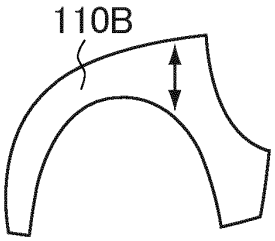

FIG. 2B

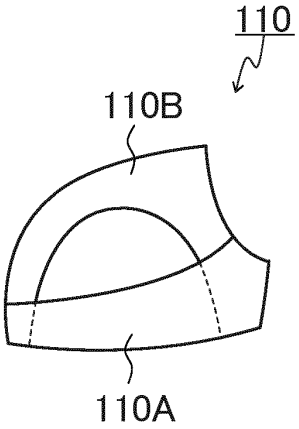

FIG. 2C

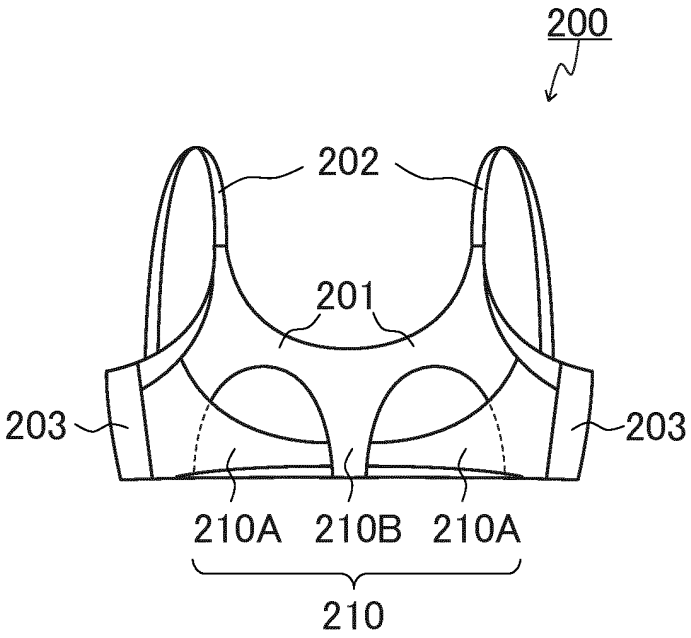

FIG. 3A

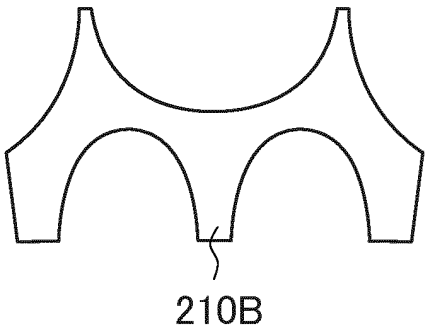

FIG. 3B

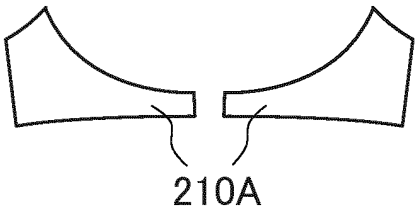

FIG. 3C

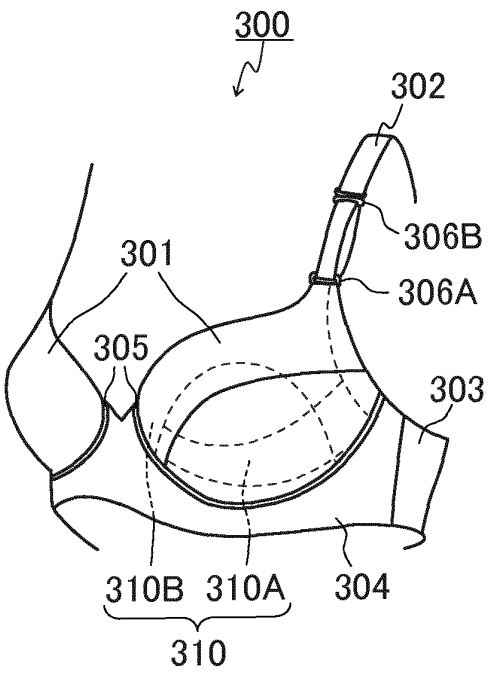

FIG. 4A

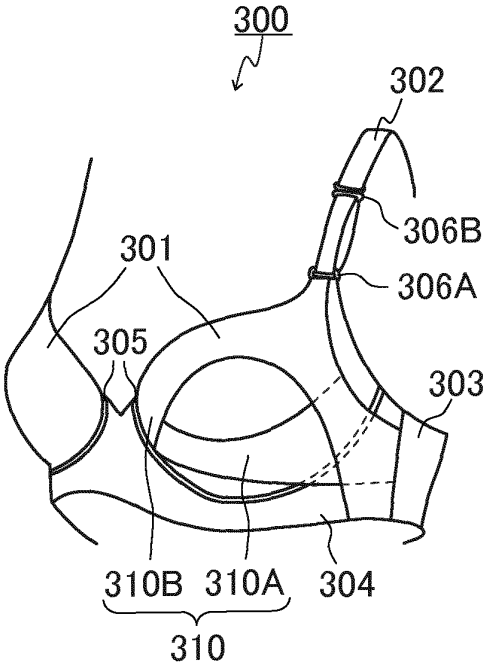

FIG. 4B

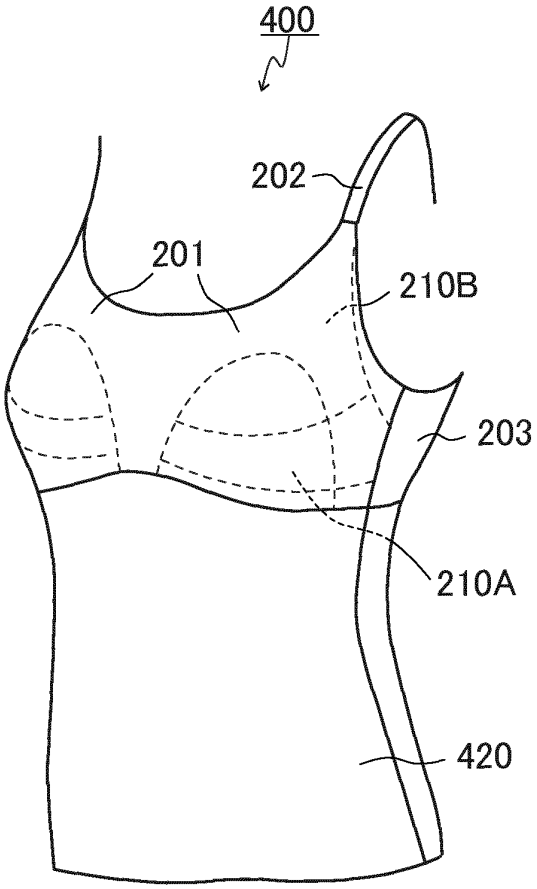

FIG. 4C

Change in breast during maximum upward bounce

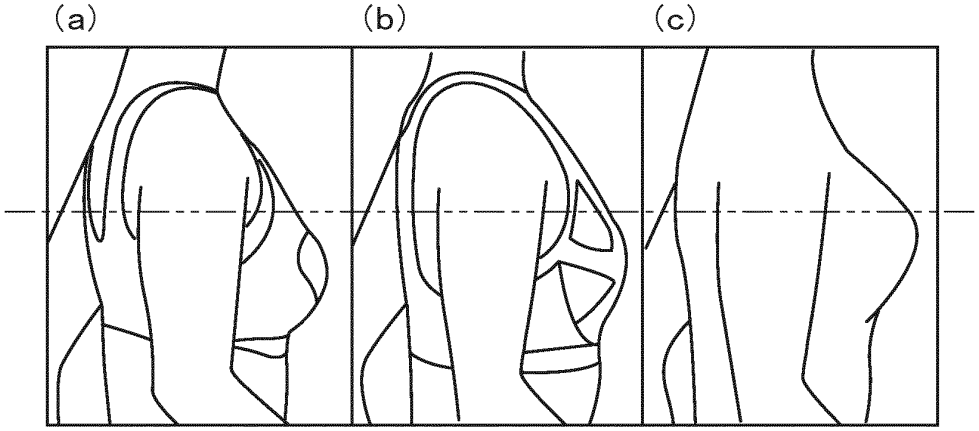

FIG. 5A

Change in breast during maximum downward bounce

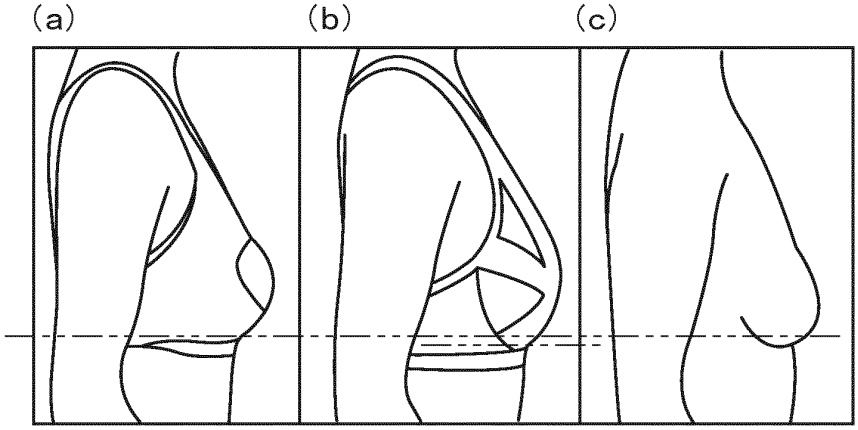

FIG. 5B

At rest

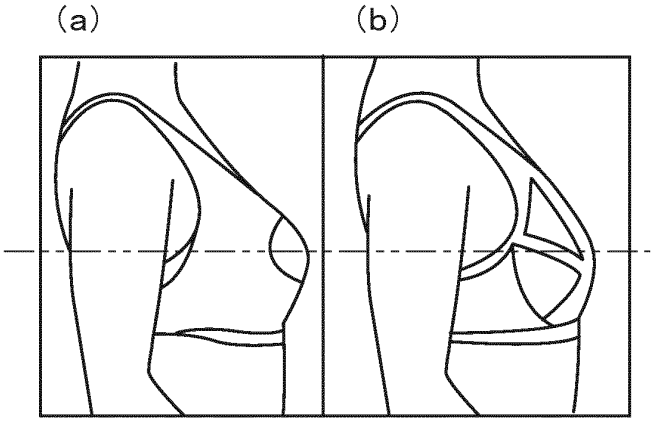

FIG. 5C

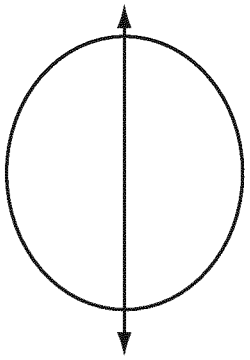

FIG. 6A

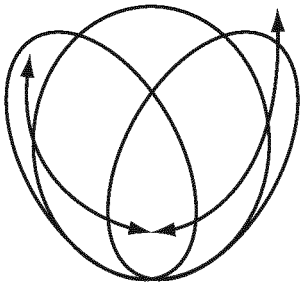

FIG. 6B

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2012/057418

A. CLASSIFICATION OF SUBJECT MATTER
A41C3/00(2006.01)i, *A41C3/10*(2006.01)i, *A41C3/12*(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A41C3/00, A41C3/10, A41C3/12

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Jitsuyo Shinan Koho 1922-1996 Jitsuyo Shinan Toroku Koho 1996-2012
Kokai Jitsuyo Shinan Koho 1971-2012 Toroku Jitsuyo Shinan Koho 1994-2012

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2005-139592 A (Wacoal Corp.), 02 June 2005 (02.06.2005), paragraphs [0008], [0012], [0018] to [0027]; fig. 1 to 5 (Family: none)	1-7
A	JP 2008-537034 A (Nike, Inc.), 11 September 2008 (11.09.2008), entire text; all drawings & US 2006/0252346 A1 & EP 2362739 A & WO 2007/027215 A2	1-7

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
30 May, 2012 (30.05.12)	12 June, 2012 (12.06.12)
Name and mailing address of the ISA/ Japanese Patent Office Facsimile No.	Authorized officer Telephone No.

Form PCT/ISA/210 (second sheet) (July 2009)

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Patent documents cited in the description

- JP 11286803 A **[0003]**
- JP 2006104613 A **[0003]**