



US 20220053839A1

(19) **United States**

(12) **Patent Application Publication**
Douglas

(10) **Pub. No.: US 2022/0053839 A1**

(43) **Pub. Date: Feb. 24, 2022**

(54) **ATHLETIC BRA WITH HEAVY DUTY
HOOK-AND-LOOP TYPE FASTENERS FOR
SIZE AND COMPRESSION ADJUSTMENT**

Publication Classification

(51) **Int. Cl.**
A41C 3/00 (2006.01)
(52) **U.S. Cl.**
CPC *A41C 3/0028* (2013.01)

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(21) Appl. No.: **16/996,809**

(22) Filed: **Aug. 18, 2020**

(57) **ABSTRACT**

An athletic bra with heavy duty hook-and-loop type fasteners for size and compression adjustment providing bi-lateral cup size and compression and band size variability.

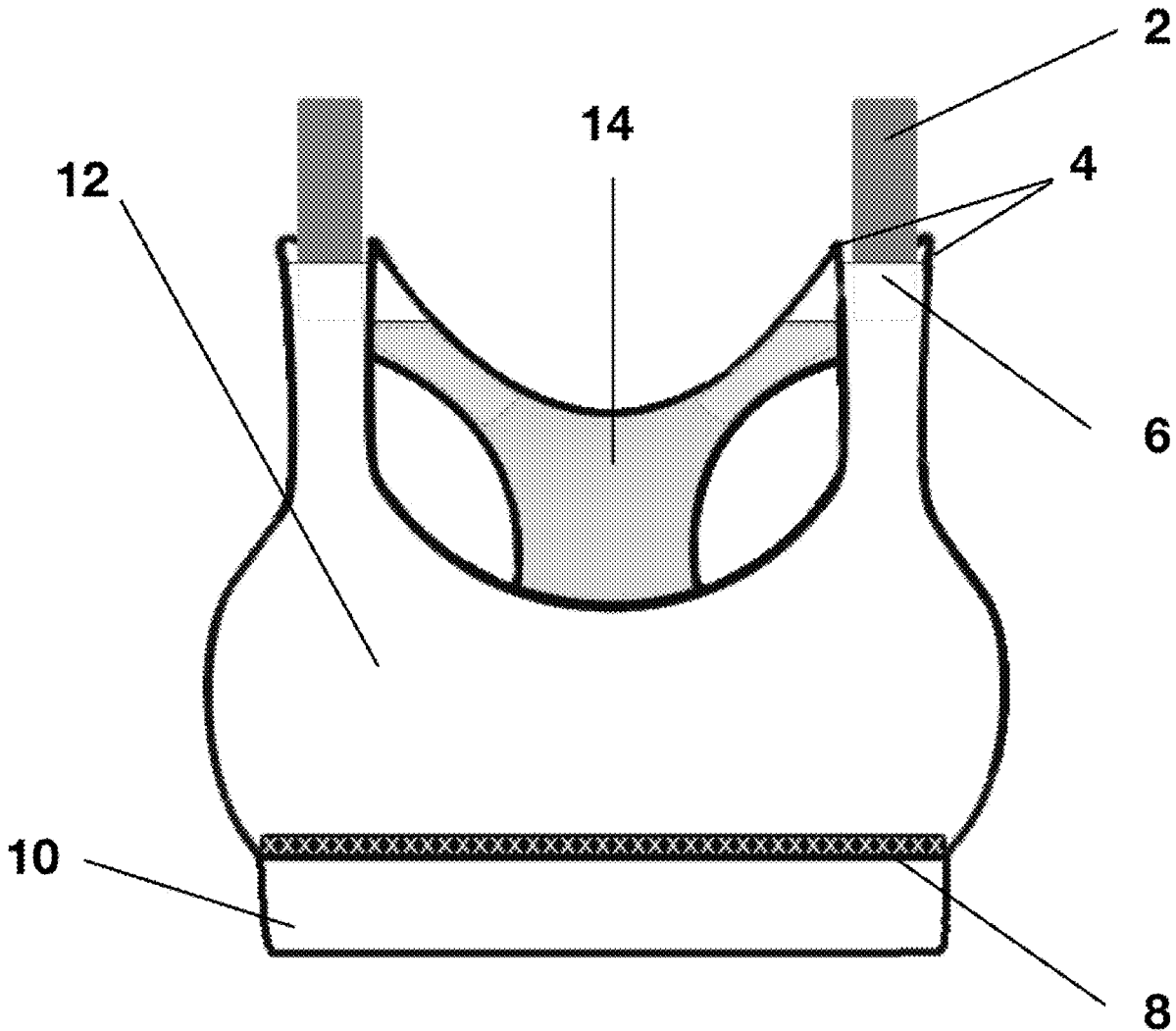


FIG. 1

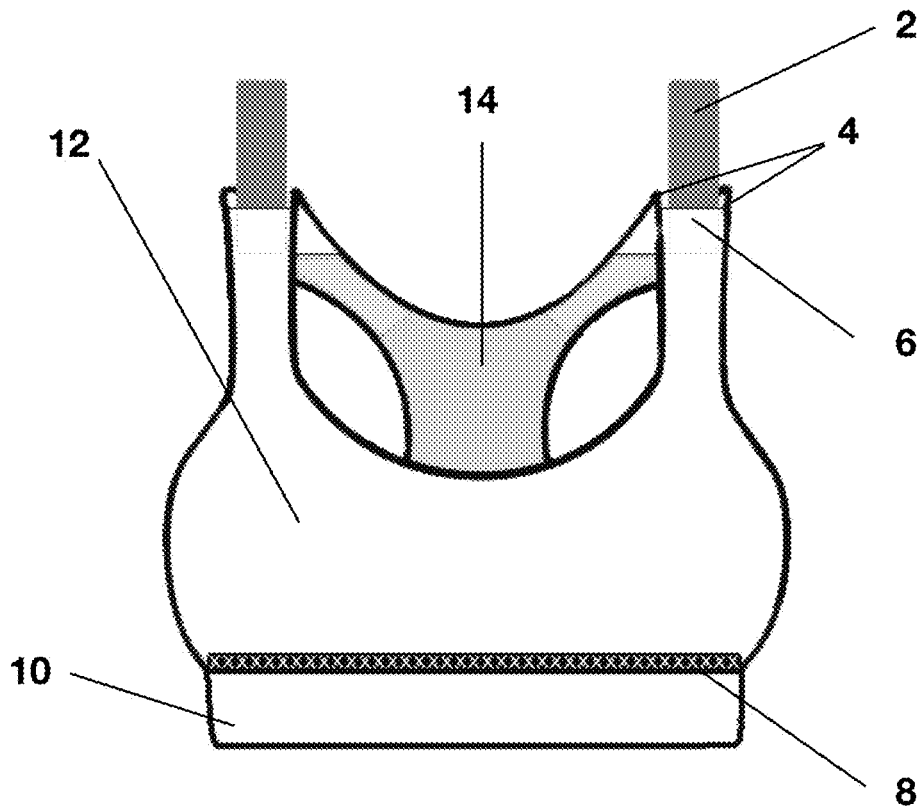


FIG. 2

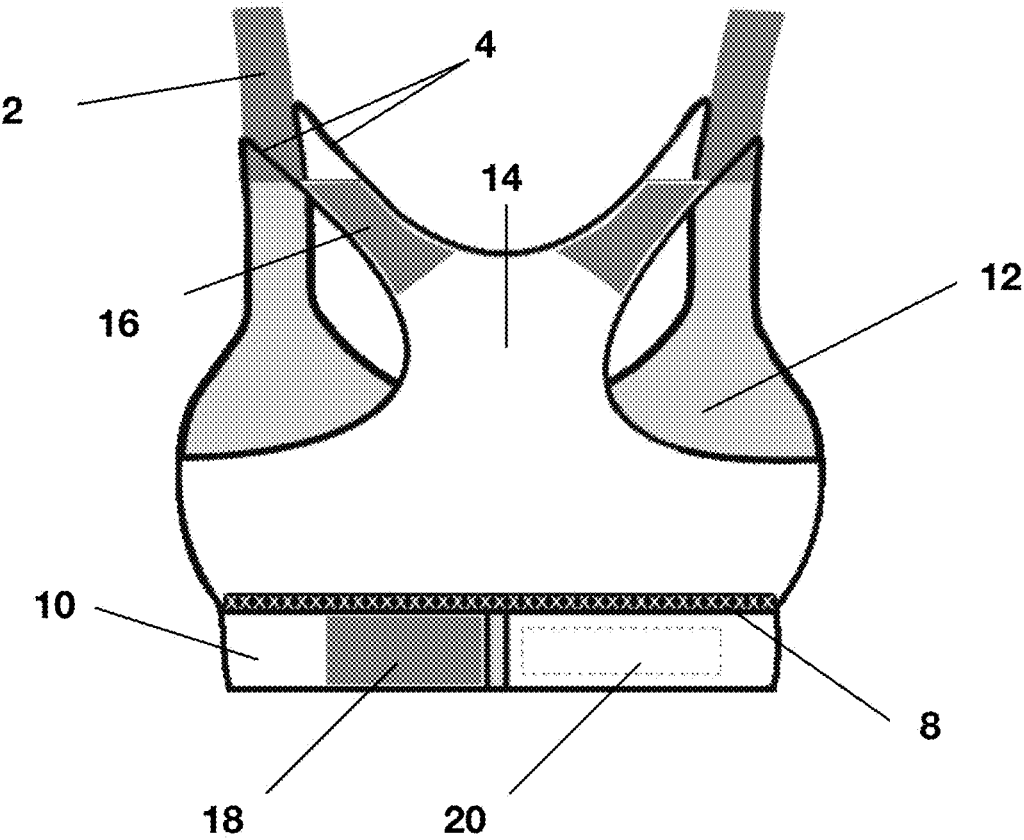


FIG. 3

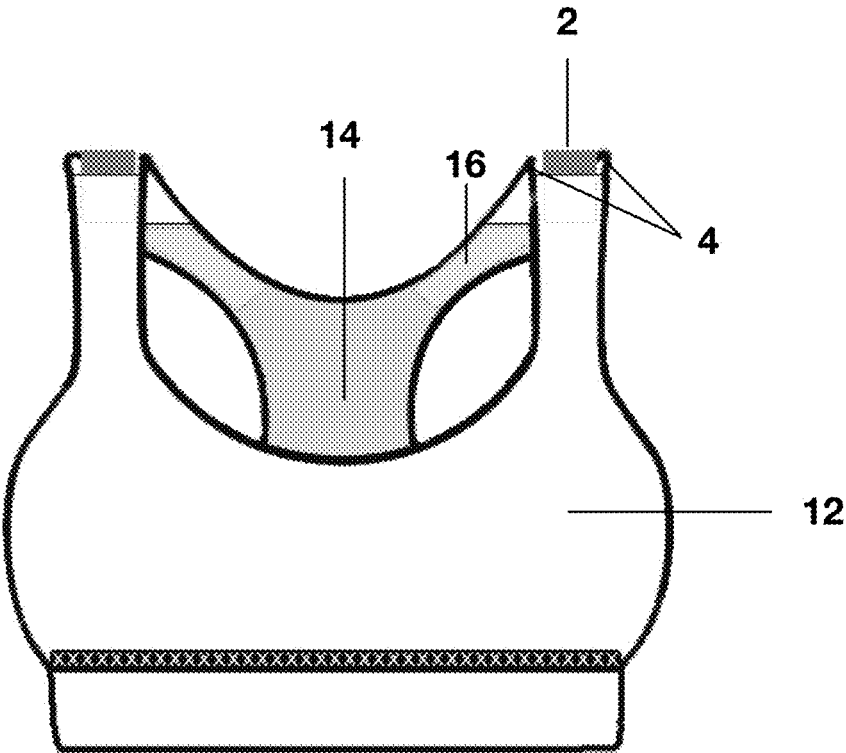


FIG. 4

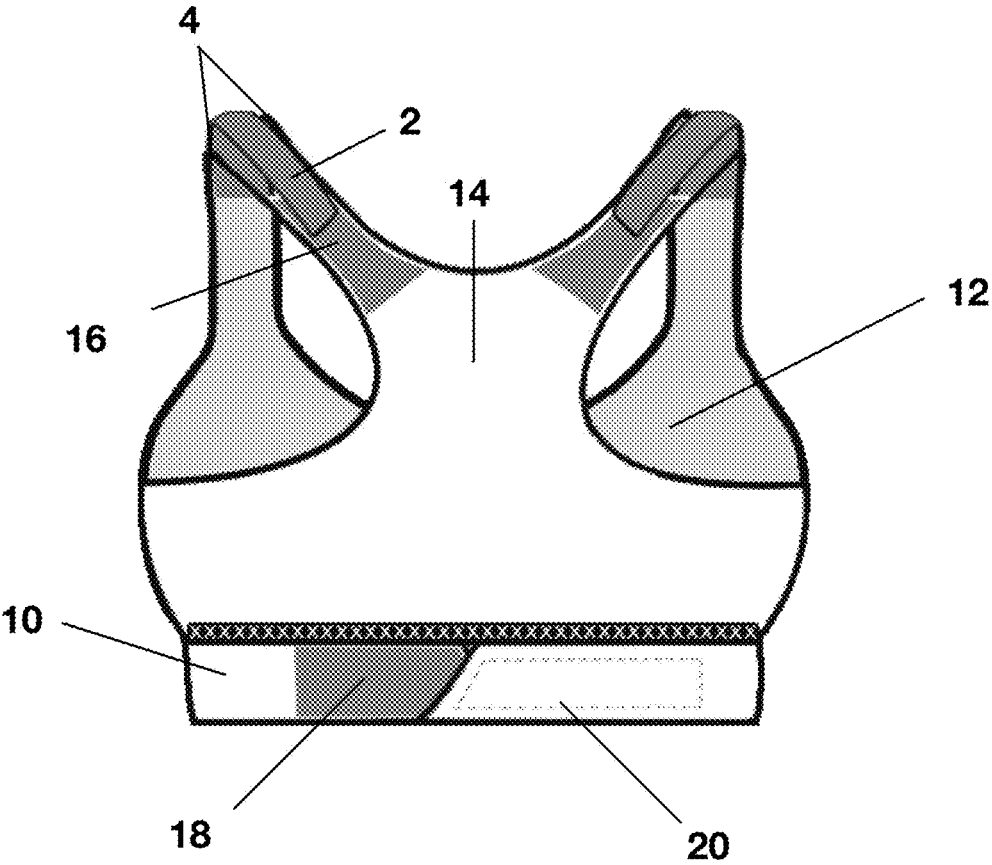


FIG. 5

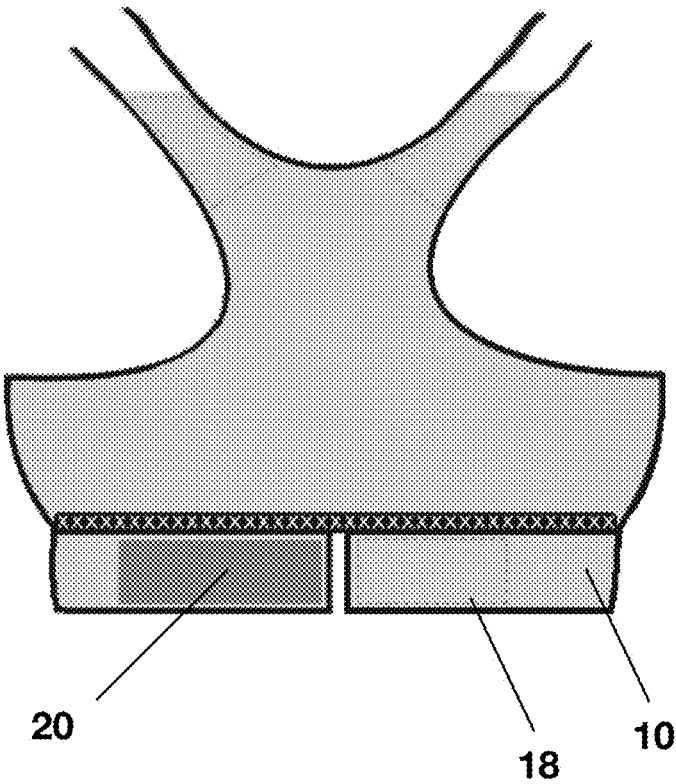


FIG. 6

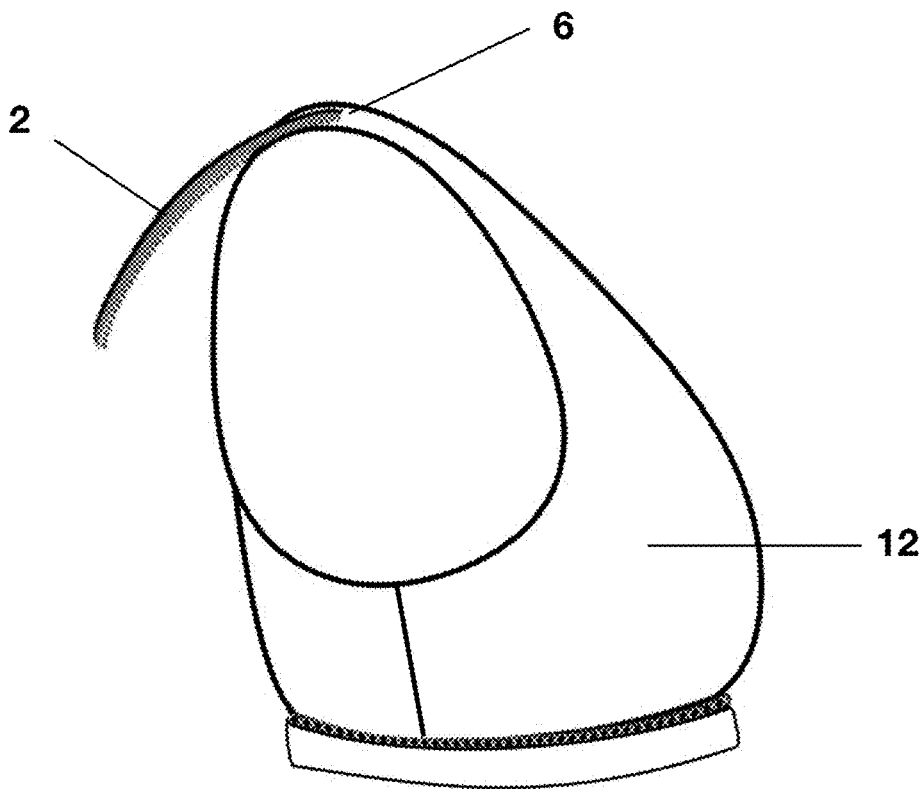
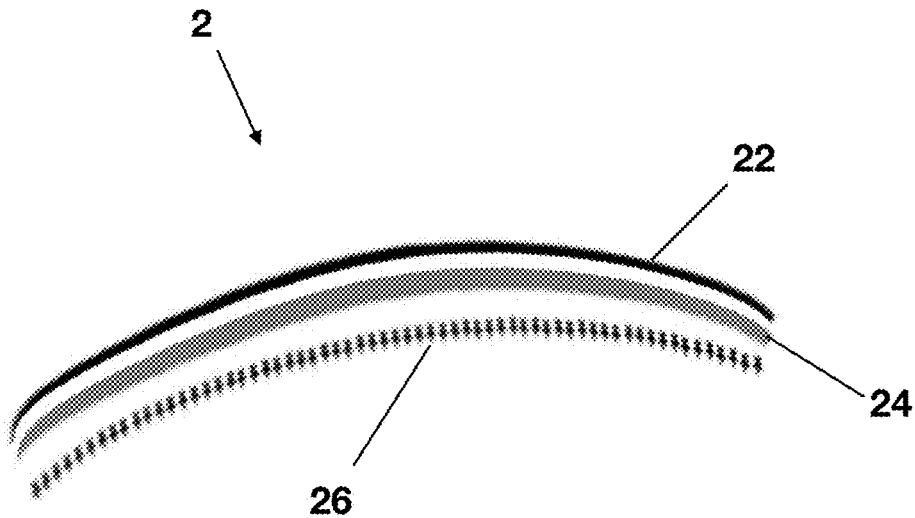


FIG. 7



ATHLETIC BRA WITH HEAVY DUTY HOOK-AND-LOOP TYPE FASTENERS FOR SIZE AND COMPRESSION ADJUSTMENT

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] Not Applicable

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not Applicable

THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT

[0003] Not Applicable

STATEMENT REGARDING PRIOR DISCLOSURES BY THE INVENTOR OR A JOINT INVENTOR

[0004] Not Applicable

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0005] The present invention relates generally to brassieres and more specifically it relates to a brassiere for sport activities with size and configuration adjustment means using heavy duty hook-and-loop type fasteners.

2. Description of Related Art

[0006] In the art of brassiere (or “bra”) configuration many variations have been developed for providing breast support and compression. Common athletic bra configurations include static cup and band size and compression within a single garment. Additionally, those existing athletic bra configurations with adjustable elements are constructed with elements made of hard materials which can cause pain and discomfort during physical activity.

[0007] Many people have difficulty finding bras for athletic activities which are adjustable to their unique anatomy. Variations in band and cup size are necessary to accommodate proper fit. Furthermore, growth, fluctuations in weight, fluid retention, injury, and other physiological changes can cause an individual to experience variations in breast size and sensitivity, requiring adjustments in bra size and compression. Breast asymmetry can also cause a need for varied cup size and compression within a single bra.

[0008] Bras with adjustable elements are commonly constructed with closures, rings and sliders made of hard materials such as metal or plastic which can cause pain and discomfort during athletic activities. Furthermore, those commonly used adjustable elements may be difficult to maneuver for those with physical limitations.

[0009] Bras configured with adjustable bands may become unfastened during physical activity which can result in a sudden loss of garment fit and support. Furthermore, sports bras in which the front and back panel fit the breast anatomy may have bands which are too large for the chest circumference, resulting in the band of the bra shifting upward from its proper position at the inframammary fold (where the breast and chest meet).

[0010] People may experience pain and discomfort from shoulder straps which are unable to be adjusted and put pressure on the anatomical structures of the shoulders.

[0011] Hence, there is a clear need for an athletic bra with heavy duty hook-and-loop type fasteners for size and compression adjustment which not only provides breast support and compression, but also allows for adjustments in individual cup size and compression as well as band size and compression, utilizes fasteners constructed of soft, pliable materials, provides padding for the anatomical structures of the shoulders, and provides structural reinforcement to keep the band securely in place at the inframammary fold.

BRIEF SUMMARY OF THE INVENTION

[0012] In view of the foregoing disadvantages inherent in the known types of athletic bra configurations now present in the prior art, the present invention provides a new athletic bra with heavy duty hook-and-loop type fasteners for size and compression adjustment whereby the same can be utilized for providing unique, adjustable levels of support and compression for the right and left breasts with comfort padding on the shoulder straps as well as adjustable fit of the band with all adjustable elements utilizing flexible fasteners.

[0013] The general purpose of the present invention, which will be subsequently described in greater detail, is to provide a new athletic bra with heavy duty hook-and-loop type fasteners for size and compression adjustment that has many of the advantages of the bras mentioned heretofore and many novel features which are not anticipated, rendered obvious, suggested, or even implied by any of the prior art bras, either alone or in any combination thereof.

[0014] To attain this, the present invention generally comprises an athletic bra constructed with two padded shoulder straps adjustable by fastening the posterior portion of the shoulder strap to the back panel of the bra with heavy duty hook-and-loop type fasteners, an adjustable band which can be overlapped and fastened in the desired position with heavy duty hook-and-loop type fasteners, and a band seam reinforced with elasticized stitching to secure its position at the inframammary fold.

[0015] The present invention is comprised of a front panel, a back panel, four string straps, two padded straps, and a band.

[0016] The top of the front panel is permanently attached to the top of the back panel by four string straps (two on the left side and two on the right side). There is an additional padded shoulder strap on the left side and on the right side which are permanently attached to the left and right upper interior portions of the front panel of the bra, respectively. The front panel of the bra is attached to the band of the bra with a seam no less than ¼-inch in thickness sewn with a stitch configuration and thread material which allows the seam to stretch and retract. The front portion of the band is constructed of a single piece of material which connects to the front panel and back panel.

[0017] The right and left padded shoulder straps are constructed of three layers. The exterior portion (top layer) of the padded shoulder straps is constructed of the same fabric as the front panel of the bra. The center portion (middle layer) of the padded shoulder straps are constructed of acoustic foam no less than 3 mm in thickness. The interior portion (bottom layer) of the padded shoulder straps are constructed of the hook material of the heavy duty hook-and-loop type fasteners. The padded shoulder straps are

permanently affixed to the front panel by stitching. The padded shoulder straps are impermanently affixed to the back panel by pressing the hook fasteners on the padded shoulder straps into the loop fasteners on the back panel at the desired position. The width of the padded shoulder straps may vary but are not to exceed the width between the two string straps on either side.

[0018] The tops of the back and front panels are permanently attached by four string straps (two on the right side and two on the left side). Loop material of the heavy duty hook-and-loop type fasteners is permanently attached to the upper exterior portion of the back panel, providing an impermanent attachment point for the padded shoulder straps.

[0019] The back panel of the bra is attached to the band of the bra with a seam no less than ¼-inch in thickness sewn with a stitch configuration and thread material which allows the seam to stretch and retract.

[0020] The back portion of the band is split vertically along the center line of the back panel of the bra. Loop material of the heavy duty hook-and-loop type fasteners is permanently attached to the left exterior portion of the back of the band. Hook material of the heavy duty hook-and-loop type fasteners is permanently attached to the right interior portion of the back of the band.

[0021] The padded shoulder straps are adjusted by pulling the padded shoulder strap over the shoulder to the desired position and attaching the hook fastener material of the Interior portion of the padded shoulder strap to the loop fastener material on the upper exterior portion of the back panel.

[0022] The band is adjusted by pulling the right interior portion of the back of the band over the left exterior portion of the back of the band to the desired position and affixing the hook fastener material of the right interior portion of the band to the loop fastener material on the left exterior portion of the band.

[0023] In this respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments and of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of the description and should not be regarded as limiting.

[0024] A primary object of the present invention is to provide an athletic bra with heavy duty hook-and-loop type fasteners for size and compression adjustment that will overcome the shortcomings of the prior art devices.

[0025] A second object is to establish an athletic bra with heavy duty hook-and-loop type fasteners for size and compression adjustment that enables variable and individual fit, support and compression in the left and right cups.

[0026] Another object is to establish an athletic bra with heavy duty hook-and-loop type fasteners for size and compression adjustment that enables variable fit of the band.

[0027] Another object is to establish an athletic bra with heavy duty hook-and-loop type fasteners for size and compression adjustment that utilizes adjustment and fastener mechanisms which are pliable and able to contour to the shape of the body.

[0028] A further object is to establish an athletic bra with heavy duty hook-and-loop type fasteners for size and compression adjustment that enables the band to remain in place in the event that the band closure becomes unfastened.

[0029] Another object is to establish an athletic bra with heavy duty hook-and-loop type fasteners for size and compression adjustment that provides padding on the shoulder straps for enhanced comfort.

[0030] Other objects and advantages of the present invention will become obvious to the reader and it is intended that these objects and advantages are within the scope of the present invention.

[0031] To the accomplishment of the above and related objects, this invention may be embodied in the form illustrated in the accompanying drawings, attention being called to the fact, however, that the drawings are illustrative only, and that changes may be made in the specific construction illustrated and described within the scope of the appended claims.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0032] Various other objects, features and attendant advantages of the present invention will become fully appreciated as the same becomes better understood when considered in conjunction with the accompanying drawings, in which like reference characters designate the same or similar parts throughout the several views and wherein:

[0033] FIG. 1 depicts a front view of the present invention in an open position.

[0034] FIG. 2 depicts a rear view of the present invention in an open position.

[0035] FIG. 3 depicts a front view of the present invention in a closed position.

[0036] FIG. 4 depicts a rear view of the present invention in a closed position.

[0037] FIG. 5 depicts a sectional view of the interior of the back panel of the present invention.

[0038] FIG. 6 depicts a side view of the present invention in an open position.

[0039] FIG. 7 depicts an exploded view of the padded shoulder strap with hook fastener of the present invention.

DRAWINGS—REFERENCE NUMERALS

- [0040]** 2—Padded Shoulder Strap with Hook Fastener
- [0041]** 4—String Shoulder Straps
- [0042]** 6—Permanent Attachment Point
- [0043]** 8—Reinforced Elasticized Stitch Band Seam
- [0044]** 10—Band
- [0045]** 12—Front Panel
- [0046]** 14—Back Panel
- [0047]** 16—Loop Fastener Shoulder Strap Attachment Point
- [0048]** 18—Loop Fastener on Band
- [0049]** 20—Hook Fastener on Band
- [0050]** 22—Outer Fabric on Padded Shoulder Strap
- [0051]** 24—Acoustic Foam on Padded Shoulder Strap
- [0052]** 26—Hook Fastener on Padded Shoulder Strap

DETAILED DESCRIPTION OF THE INVENTION

[0053] The inventor provides a unique athletic bra with heavy duty hook-and-loop type fasteners for size and com-

pression adjustment for fitting variations in breast and chest size, providing multiple levels of support within a single garment, providing additional comfort for the shoulders, and facilitating adjustments with fasteners which are pliable and contour to the shape of the body.

[0054] The present invention is described in enabling detail in the following examples, which may represent more than one embodiment of the present invention.

[0055] FIG. 1 depicts a front view of the present invention in an open position according to an embodiment of the present invention. The Padded Shoulder Strap with Hook Fastener 2 in this example is connected to the Front Panel 12 at the Permanent Attachment Point 6. The String Shoulder Straps 4 in this example are placed on either side of the Padded Shoulder Strap with Hook Fastener 2 connecting the Front Panel 12 to the Back Panel 14. The Front Panel 12 is attached to the Band 10 by the Reinforced Elasticized Stitch Band Seam 8 according to an embodiment of the present invention. The configurations of the Padded Shoulder Strap with Hook Fastener 2, Permanent Attachment Point 6, and String Shoulder Straps 4 are present on the left and right side of the present invention in this example.

[0056] FIG. 2 depicts a rear view of the present invention in an open position according to an embodiment of the present invention. FIG. 2 includes many of the same components introduced in FIG. 1. Those components that are unchanged in this embodiment retain their original element numbers and are not reintroduced. The Padded Shoulder Strap with Hook Fastener 2 in this example is positioned between the String Shoulder Straps 4 and detached from the Loop Fastener Shoulder Strap Attachment Point 16. In this example the Loop Fastener Shoulder Strap Attachment Point 16 is permanently attached to the Back Panel 14. The configurations of the Padded Shoulder Strap with Hook Fastener 2, Shoulder Strap Attachment Point 16, and String Shoulder Straps 4 are present on the left and right side of the present invention in this example. The Back Panel 14 is attached to the Band 10 by the Reinforced Elasticized Stitch Band Seam 8 according to an embodiment of the present invention. In this example the Loop Fastener on Band 18 is permanently attached to the exterior portion of the Band 10. The Hook Fastener on Band 20 is permanently attached to the interior portion of the Band 10, in this example.

[0057] FIG. 3 depicts a front view of the present invention in a closed position according to an embodiment of the present invention. FIG. 3 includes many of the same components introduced in FIG. 1 and FIG. 2. Those components that are unchanged in this embodiment retain their original element numbers and are not reintroduced. The Padded Shoulder Strap with Hook Fastener 2 is lowered between the String Shoulder Straps 4 to provide an additional attachment point between the Front Panel 12 and the Back Panel 14 by attaching the Padded Shoulder Strap with Hook Fastener 2 to the Loop Fastener Shoulder Strap Attachment Point 16 on the Back Panel 14. The configurations of the Padded Shoulder Strap with Hook Fastener 2, String Shoulder Straps 4, and Loop Fastener Shoulder Strap Attachment Point 16 are present on the left and right side of the present invention in this example.

[0058] FIG. 4 depicts a rear view of the present invention in a closed position according to an embodiment of the present invention. FIG. 4 includes many of the same components introduced in FIG. 1 and FIG. 2. Those components that are unchanged in this embodiment retain their original

element numbers and are not reintroduced. The Padded Shoulder Strap with Hook Fastener 2 is lowered between the String Shoulder Straps 4 to provide an additional attachment point between the Front Panel 12 and the Back Panel 14 by attaching to the Loop Fastener Shoulder Strap Attachment Point 16 on the Back Panel 14. The Padded Shoulder Strap with Hook Fastener 2 can be adjusted to provide less compression and more cup space by attaching at a higher point on Loop Fastener Shoulder Strap Attachment Point 16. The Padded Shoulder Strap with Hook Fastener 2 can be adjusted to provide more compression and less cup space by attaching at a lower point on Loop Fastener Shoulder Strap Attachment Point 16. The Padded Shoulder Strap with Hook Fastener 2 is pressed into the Loop Fastener Shoulder Strap Attachment Point 16 to secure the Padded Shoulder Strap with Hook Fastener 2 into the desired position in this example. The configurations of the Padded Shoulder Strap with Hook Fastener 2, Shoulder Strap Attachment Point 16, and String Shoulder Straps 4 are present on the left and right side of the present invention in this example. In this example the Hook Fastener on Band 20 is pulled across the center line overlapping the Loop Fastener on Band 18 while the Loop Fastener on Band 18 is pulled across the center line underlapping the Hook Fastener on Band 20. The Hook Fastener on Band 20 is pressed into the Loop Fastener on Band 18 to secure the Band 10 into the desired position in this example.

[0059] FIG. 5 depicts a sectional view of the interior of the back panel of the present invention according to an embodiment of the present invention. FIG. 5 includes many of the same components introduced in FIG. 1 and FIG. 2. Those components that are unchanged in this embodiment retain their original element numbers and are not reintroduced. In this example the Hook Fastener on Band 20 is permanently attached to the interior of the Band 10 and the Loop Fastener on Band 18 is permanently attached to the exterior portion of the Band 10.

[0060] FIG. 6 depicts a side view of the present invention in an open position according to an embodiment of the present invention. FIG. 6 includes many of the same components introduced in FIG. 1 and FIG. 2. Those components that are unchanged in this embodiment retain their original element numbers and are not reintroduced. The Padded Shoulder Strap with Hook Fastener 2 in this example is connected to the Front Panel 12 at the Permanent Attachment Point 6.

[0061] FIG. 7 depicts an exploded view of the padded shoulder strap with hook fastener of the present invention according to an embodiment of the present invention. FIG. 7 includes some of the same components introduced in FIG. 1 and FIG. 2. Those components that are unchanged in this embodiment retain their original element numbers and are not reintroduced. The Padded Shoulder Strap with Hook Fastener 2 is comprised of three layers in the current example. In this example the Outer Fabric on Padded Shoulder Strap 22 is the top (external) layer of the Padded Shoulder Strap with Hook Fastener 2 positioned on top of the Acoustic Foam on Padded Shoulder Strap 24. In this example the Acoustic Foam on Padded Shoulder Strap 24 is the middle (center) layer of the Padded Shoulder Strap with Hook Fastener 2 positioned between the Outer Fabric on Padded Shoulder Strap 22 and the Hook Fastener on Padded Shoulder Strap 26. In this example the Hook Fastener on Padded Shoulder Strap 26 is the bottom (internal) layer of the Padded Shoulder Strap with Hook Fastener 2 positioned

underneath the Acoustic Foam on Padded Shoulder Strap 24. The Outer Fabric on Padded Shoulder Strap 22, Acoustic Foam on Padded Shoulder Strap 24 and Hook Fastener on Padded Shoulder Strap 26 are permanently connected to each other, in this example, by bonding, adhesive or stitching or some other means of attachment.

[0062] As to a further discussion of the manner of usage and operation of the present invention, the same should be apparent from the above description. Accordingly, no further discussion relating to the manner and usage of operation will be provided.

[0063] With respect to the above description, then, it is to be realized that the optimum dimensional relationships for the parts of the invention to include variations in size, materials, shape, form, function, and manner of operation, assembly, and use are deemed to be within the expertise of those skilled in the art, and all equivalent structural variations and relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention.

[0064] Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown, described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the spirit and scope of the invention.

What is claimed is:

1. An athletic bra with heavy duty hook-and-loop type fasteners for size and compression adjustment, the athletic bra comprising:

- a. adjustable straps over the right and left shoulders, constructed with heavy duty hook type fasteners on the interior side and padded with acoustic foam, which are permanently attached to the front panel and reinforced by two smaller straps permanently attached to the front and back panels placed on either side of each adjustable strap;
- b. a back panel with heavy duty loop type fasteners on the upper section of the exterior side so that a person can attach the adjustable straps over the right and left shoulders in multiple positions by pressing the heavy duty hook type fasteners of the adjustable straps over the right and left shoulders into the heavy duty loop type fasteners on the back panel and detach the adjustable straps over the right and left shoulders by pulling apart the heavy duty hook type fasteners of the adjustable straps over the right and left shoulders from the heavy duty loop type fasteners on the back panel;
- c. a band with a single vertical cut in the center of the back of the band to split the back portion of the band into equal left and right sections with heavy duty hook type fasteners on the right interior portion and heavy duty loop type fasteners on the left exterior portion so that a person can attach the band in multiple positions by pressing the heavy duty hook type fasteners on the right

interior portion into the heavy duty loop type fasteners on the left exterior portion and detach the band by pulling apart the heavy duty hook type fasteners on the right interior portion from the heavy duty loop type fasteners on the left exterior portion;

- d. a seam no less than 1/4-inch in thickness and sewn with a stitch configuration and thread material which allows the seam to stretch and retract connecting the band to the front and back panels;

2. The athletic bra with heavy duty hook-and-loop type fasteners for size and compression adjustment of claim 1 wherein the heavy duty hook type fastener is placed on the back panel and the heavy duty loop type fastener is placed on the interior of the adjustable straps over the right and left shoulders.

3. The athletic bra with heavy duty hook-and-loop type fasteners for size and compression adjustment of claim 1 wherein the adjustable straps over the right and left shoulders are permanently attached to the back panel and the heavy duty loop type fasteners are placed on the upper section of the exterior side of the front panel.

4. The athletic bra with heavy duty hook-and-loop type fasteners for size and compression adjustment of claim 1 wherein the adjustable straps over the right and left shoulders are permanently attached to the back panel, the heavy duty loop type fasteners are placed on the interior of the adjustable straps over the right and left shoulders, and the heavy duty hook type fasteners are placed on the upper section of the exterior side of the front panel.

5. The athletic bra with heavy duty hook-and-loop type fasteners for size and compression adjustment of claim 1 wherein the heavy duty hook type fastener is placed on the left exterior portion of the band and the heavy duty loop type fastener is placed on the right interior portion of the band.

6. The athletic bra with heavy duty hook-and-loop type fasteners for size and compression adjustment of claim 1 wherein the heavy duty hook type fastener is placed on the left interior portion of the band and the heavy duty loop type fastener is placed on the right exterior portion of the band.

7. The athletic bra with heavy duty hook-and-loop type fasteners for size and compression adjustment of claim 1 wherein the heavy duty hook type fastener is placed on the right exterior portion of the band and the heavy duty loop type fastener is placed on the left interior portion of the band.

8. The athletic bra with heavy duty hook-and-loop type fasteners for size and compression adjustment of claim 1 wherein the band is contiguous and not adjustable.

9. The athletic bra with heavy duty hook-and-loop type fasteners for size and compression adjustment of claim 1 wherein the band is split in a manner other than a single vertical cut at the center line of the back panel.

10. The athletic bra with heavy duty hook-and-loop type fasteners for size and compression adjustment of claim 1 wherein the padding of the adjustable strap over the right and left shoulders is comprised of a material other than acoustic foam.

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