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(54) **Title:** ADJUSTABLE BRA

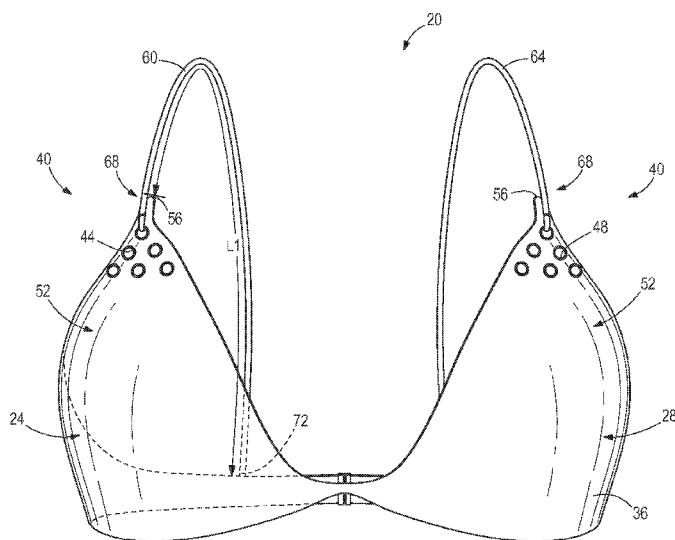


FIG. 1

(57) **Abstract:** A bra includes a right cup and a left cup proximate the right cup, each of which having at least an inner layer and an outer layer. The bra further includes a first plurality of apertures extending through the outer layer of the right cup, and a second plurality of apertures extending through the outer layer of the left cup. The first and second plurality of apertures are located proximate an upper portion of the right cup and left cup, respectively. Right and left shoulder straps are provided, each of which having a first end and a second end distal from the first end. The first end is at least partially receivable within one of the first plurality of apertures to adjust the effective lengths of the right and left shoulder straps, respectively.

ADJUSTABLE BRA

FIELD OF THE INVENTION

[0001] The present invention relates to a garment, and more particularly, a bra.

BACKGROUND OF THE INVENTION

[0002] Most bras today are sold by band and cup size. It is cost prohibitive to manufacture every combination of band and cup size, so manufacturers and retailers offer only a limited selection of combinations, i.e., typically 34A-C, 36B-D, 38C-DD, 40 D-F. However, this limited size selection makes it difficult for women with different body types that do not fit this size selection to find a bra that fits comfortably. Moreover, this limited size selection does not take into account the body fluctuations of an individual woman that may result from day to day dieting and weight gain, cold and hot climates, and pregnancy and nursing. Many women wear the wrong bra size for their bodies, and this is likely a result of the lack of size combinations available and/or the limited flexibility within each bra to accommodate body changes or adjust to fabric changes after multiple uses.

SUMMARY OF THE INVENTION

[0003] The invention provides, in one aspect, a bra including a right cup having at least an inner layer and an outer layer, the right cup configured to support a right breast. The bra further includes a left cup proximate the right cup and having at least an inner layer and an outer layer, the left cup configured to support a left breast. The bra further includes a first plurality of apertures extending through the outer layer of the right cup, and a second plurality of apertures extending through the outer layer of the left cup. The first and second plurality of apertures are located proximate an upper portion of the right cup and left cup, respectively. The bra further includes a right shoulder strap having a first end and a second end distal from the first end. The first end is at least partially receivable within one of the first plurality of apertures to adjust an effective length of the right shoulder strap. The bra further includes a left shoulder strap having a first end and a second end distal from the first end. The first end is at least partially receivable within one of the second plurality of apertures to adjust an effective length of the left shoulder strap.

[0004] The invention provides, in another aspect, a bra including a right cup and a left cup proximate the right cup. The bra further includes a first rear band extending rearward

from the right cup and a second rear band extending rearward from the left cup. The bra further includes an elongated aperture disposed in one of the first and second rear bands. The bra further includes a clasp extending from the other one of the first and second rear band. The clasp is at least partially receivable within the elongated aperture for securing the first rear band to the second rear band. A portion of an outer periphery of the clasp is composed of an elastomer to enhance the user's grip on the clasp while inserting it within the aperture.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] FIG. 1 is a front view of a bra in accordance with an embodiment of the invention.

[0006] FIG. 2 is a front view of the bra of FIG. 1, illustrating a process for adjusting the bra.

[0007] FIG. 3 is an enlarged rear view of the bra of FIG. 1, illustrating a clasping mechanism.

[0008] FIG. 4 is a plan view of the clasping mechanism of the bra of FIG. 1.

[0009] FIGS. 5-12 illustrate other embodiments of the invention.

[0010] Before any embodiments of the invention are explained in detail, it is to be understood that the invention is not limited in its application to the details of construction and the arrangement of components set forth in the following description or illustrated in the following drawings. The invention is capable of other embodiments and of being practiced or of being carried out in various ways. Also, it is to be understood that the phraseology and terminology used herein is for the purpose of description and should not be regarded as limiting.

DETAILED DESCRIPTION

[0011] FIG. 1 illustrates a garment and, more particularly, a bra 20. The bra 20 includes a right cup 24 configured to support a right breast and a left cup 28 proximate the right cup 24. Similarly, the left cup 28 is configured to support a left breast. The right and left cups 24, 28 each respectively include at least an inner layer 32 (FIG. 3) and an outer layer 36 (FIG. 1).

[0012] With continued reference to FIG. 1, the bra 20 further includes an adjustable strap mechanism 40. The mechanism 40 includes a first plurality of apertures 44 extending through the outer layer 36 of the right cup 24 and a second plurality of apertures 48 extending through the outer layer 36 of the left cup 28. The apertures 44, 48 are located proximate an upper portion 52 of the right cup 24 and left cup 28, respectively. Furthermore, the apertures 44, 48 extend downward from an upper edge 56 of the right and left cup 24, 28. Although the apertures 44, 48 extend only through the outer layer 36 of the right and left cup 24, 28, an alternative embodiment the apertures 44, 48 may extend through the outer layer 36 and the inner layer 32, defining through-holes in the right and left cup 24, 28. The apertures 44, 48 include metal eyelets to ensure that the apertures 44, 48 retain a circular shape.

[0013] With continued reference to FIG. 1, the mechanism 40 further includes right and left shoulder straps 60, 64, each of which having a first end 68 and a second end 72 distal from the first end 68. The second end 72 of the right and left shoulder straps 60, 64 are affixed, respectively, to a right and left rear band 76, 80 of the bra 20 (FIG. 3). As shown in FIG. 1, an effective length L_1 of the right and left shoulder straps 60, 64 can be defined as the spanned distance between the second end 72 of the shoulder strap 60, 64 and the point at which the first end 68 of the right and left shoulder straps 60, 64 cross the upper edge 56 of the right and left cups 24, 28. As shown in FIG. 2, the effective length L_1 can vary depending on the amount that the first end 68 of the right and left shoulder straps 60, 64 overlap the right and left cup 24, 28, respectively.

[0014] With reference to FIGS. 1 and 2, each of the shoulder straps 60, 64 includes a hook 84 extending from the first end 68. The hook 84 is configured to be at least partially received within one of the apertures 44, 48 in the right and left cups 24, 28, respectively. Subsequently, the effective length L_1 of the shoulder straps 60, 64 may be adjusted depending upon which of the apertures 44, 48 the hooks 84 of the respective straps 60, 64 are received in. As a result, the mechanism 40 is capable of independently adjusting a height of the right and left breast by varying the effective lengths L_1 of the shoulder straps 60, 64 in the manner described above.

[0015] With reference to FIG. 3, the rear band 76 extends rearward from the right cup 24, while the rear band 80 extends rearward from the left cup 28. A plurality of elongated apertures 88 are defined within the rear band 80, and a clasp 92 extends from the rear band 76. Together, the clasp 92 and the apertures 88 define a clasping mechanism for adjusting an

effective length of the bands 76, 80. The width of the clasp 92 is only nominally less than that of the rear band 76. Similarly, the length of the apertures 88 is only nominally less than that of the rear band 80. As a result, the user may more easily grasp and maneuver the clasp 92 when hooking it to one of the apertures 88 compared to known bras using multiple small clasps and hooks. The clasp 92 is appropriately dimensioned to be at least partially receivable within one of the elongated apertures 88. The rear bands 76, 80 are secured together when the clasp 92 is received within one of the elongated apertures 88. The clasp 92 additionally includes an outer periphery 96, a portion of which is composed of an elastomer to enhance the user's grip on the clasp 92.

[0016] Additional aspects of the invention are described in further detail below.

[0017] In order to gain a better understanding of the user behavior, women were observed putting on and taking off a bra. A majority of women are facing two main problems, which are uneven breast size and shoulder limitations to reach the back closure and back strap adjusters.

[0018] The uneven breast size problem is approached by providing several holes in the top of the cup spread with measured spaces to offer the same amount of adjustability in the normal strap by attaching a hook to the strap end. This approach will give women the choice to readjust the strap in an easy and convenient way without struggling to reach the back area. This approach will also lift the breast to be the same height as the other one, and give equal shape an appealing look. Also, the cup will have a second soft layer to protect the breast from the hook.

[0019] The shoulder limitation problem is approached by providing a single wide hook to be attached easily from the back without struggling to hook it in the correct hole. The single wide hook is provided with a rubber grip to facilitate an easy and comfortable way of connecting the ends of the bra.

CLAIMS

What is claimed is:

1. A bra comprising:
 - a right cup having at least an inner layer and an outer layer, the right cup configured to support a right breast;
 - a left cup proximate the right cup and having at least an inner layer and an outer later, the left cup configured to support a left breast;
 - a first plurality of apertures extending through the outer layer of the right cup and a second plurality of apertures extending through the outer layer of the left cup, the first and second plurality of apertures located proximate an upper portion of the right cup and left cup, respectively;
 - a right shoulder strap having a first end and a second end distal from the first end, the first end being at least partially receivable within one of the first plurality of apertures to adjust an effective length of the right shoulder strap; and
 - a left shoulder strap having a first end and a second end distal from the first end, the first end being at least partially receivable within one of the second plurality of apertures to adjust an effective length of the left shoulder strap.
2. The bra of claim 1, wherein the first and second plurality of apertures extend downward from an upper edge of the right and left cup.
3. The bra of claim 1, wherein a height of the right breast and the left breast can be adjusted independently based on which aperture the second end of the right and left shoulder strap is received within of the first and second plurality of apertures.
4. The bra of claim 1, wherein the first end of the right shoulder strap includes a hook receivable in one of the first plurality of apertures.
5. The bra of claim 4, wherein the first end of the left shoulder strap includes a hook receivable in one of the second plurality of apertures.
6. The bra of claim 1, wherein the first end of the right shoulder strap is at least partially receivable within a first of the first plurality of apertures to define a first effective length of the right shoulder strap.

7. The bra of claim 6, wherein the first end of the right shoulder strap is at least partially receivable within a second of the first plurality of apertures to define a second effective length of the right shoulder strap different than the first effective length.
8. The bra of claim 1, wherein the first end of the left shoulder strap is at least partially receivable within a first of the second plurality of apertures to define a first effective length of the left shoulder strap.
9. The bra of claim 8, wherein the first end of the left shoulder strap is at least partially receivable within a second of the second plurality of apertures to define a second effective length of the left shoulder strap different than the first effective length.
10. The bra of claim 1, wherein the first end of the right shoulder strap is at least partially receivable within a first of the first plurality of apertures to define a first effective length of the right shoulder strap, and wherein the first end of the left shoulder strap is at least partially receivable within a second of the second plurality of apertures to define a second effective length of the left shoulder strap different than the first effective length of the right shoulder strap.
11. The bra of claim 1, wherein each of the first and second plurality of apertures is defined by an eyelet.
12. The bra of claim 1, wherein the first plurality of apertures and the second plurality of apertures are arranged in an identical pattern.
13. The bra of claim 12, wherein the first plurality of apertures and the second plurality of apertures are arranged in an identical triangular pattern.

14. A bra comprising:
- a right cup;
 - a left cup proximate the right cup;
 - a first rear band extending rearward from the right cup;
 - a second rear band extending rearward from the left cup;
 - an elongated aperture disposed in one of the first and second rear bands; and
 - a clasp extending from the other one of the first and second rear bands, the clasp being at least partially receivable within the elongated aperture, for securing the first rear band to the second rear band,
- wherein a portion of an outer periphery of the clasp is composed of an elastomer to enhance the user's grip on the clasp while inserting it within the aperture.
15. The bra of claim 14, wherein the aperture is a first of a plurality of apertures spaced equally apart, and wherein the clasp is receivable in one of the plurality of apertures to adjust an effective length of the conjoined first and second rear bands.

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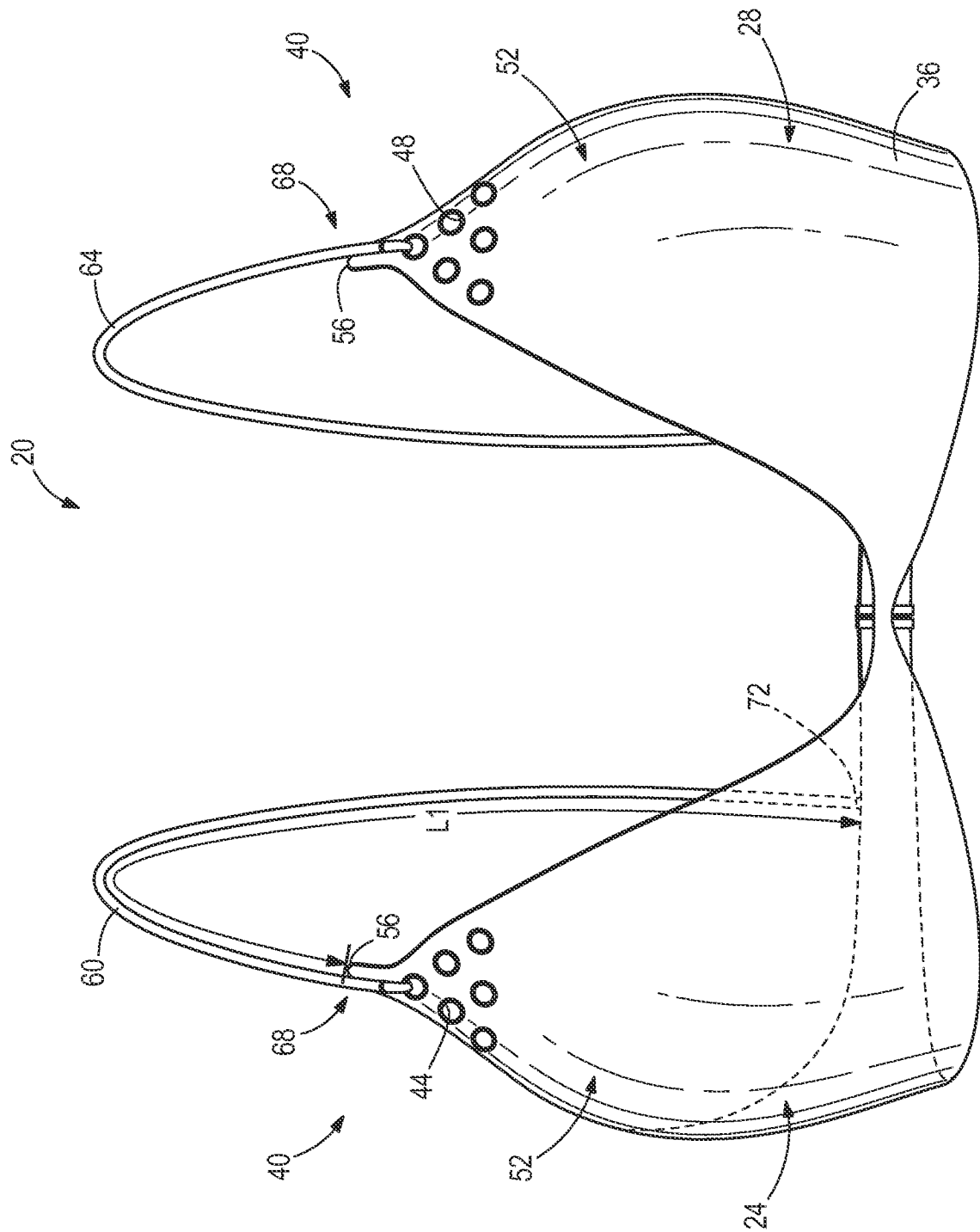


FIG. 1

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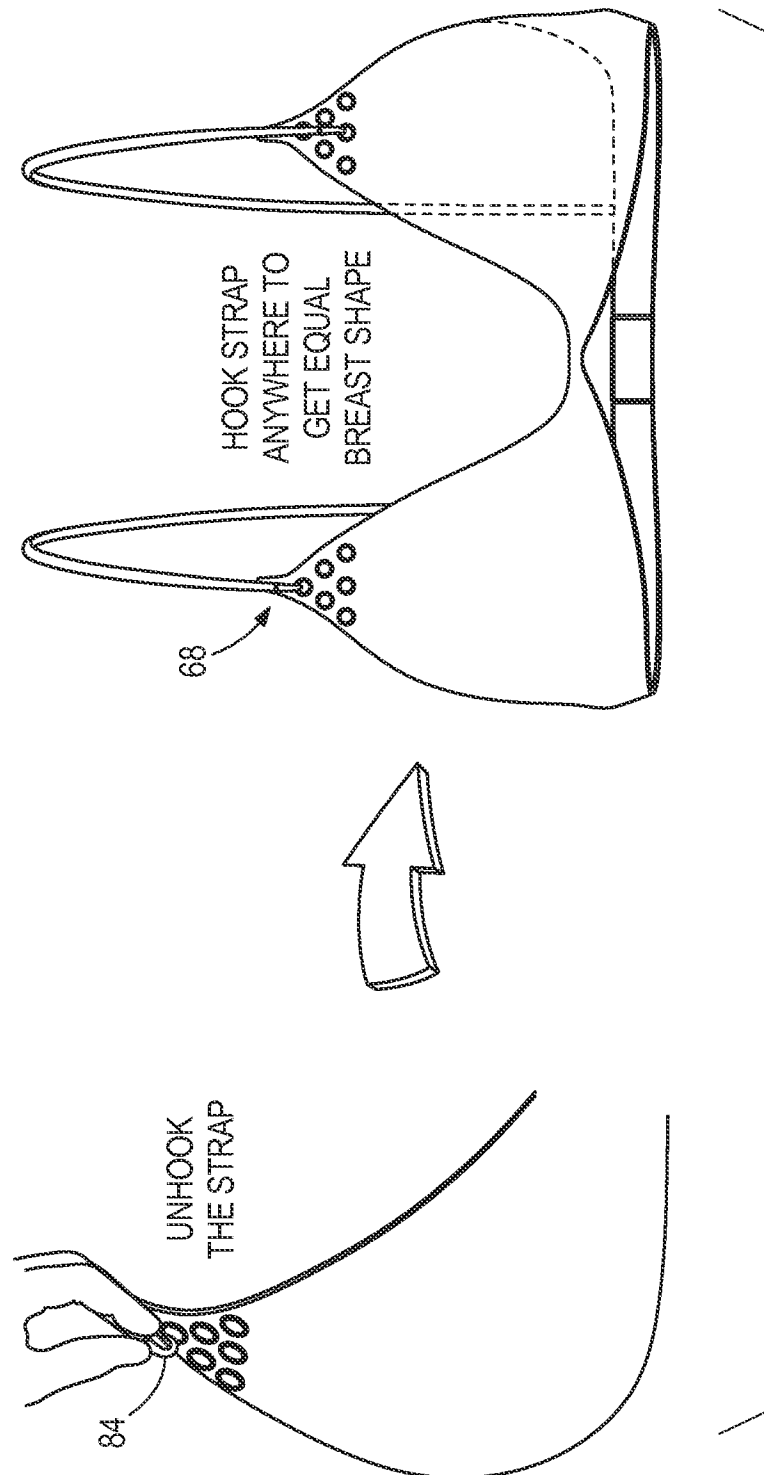


FIG. 2

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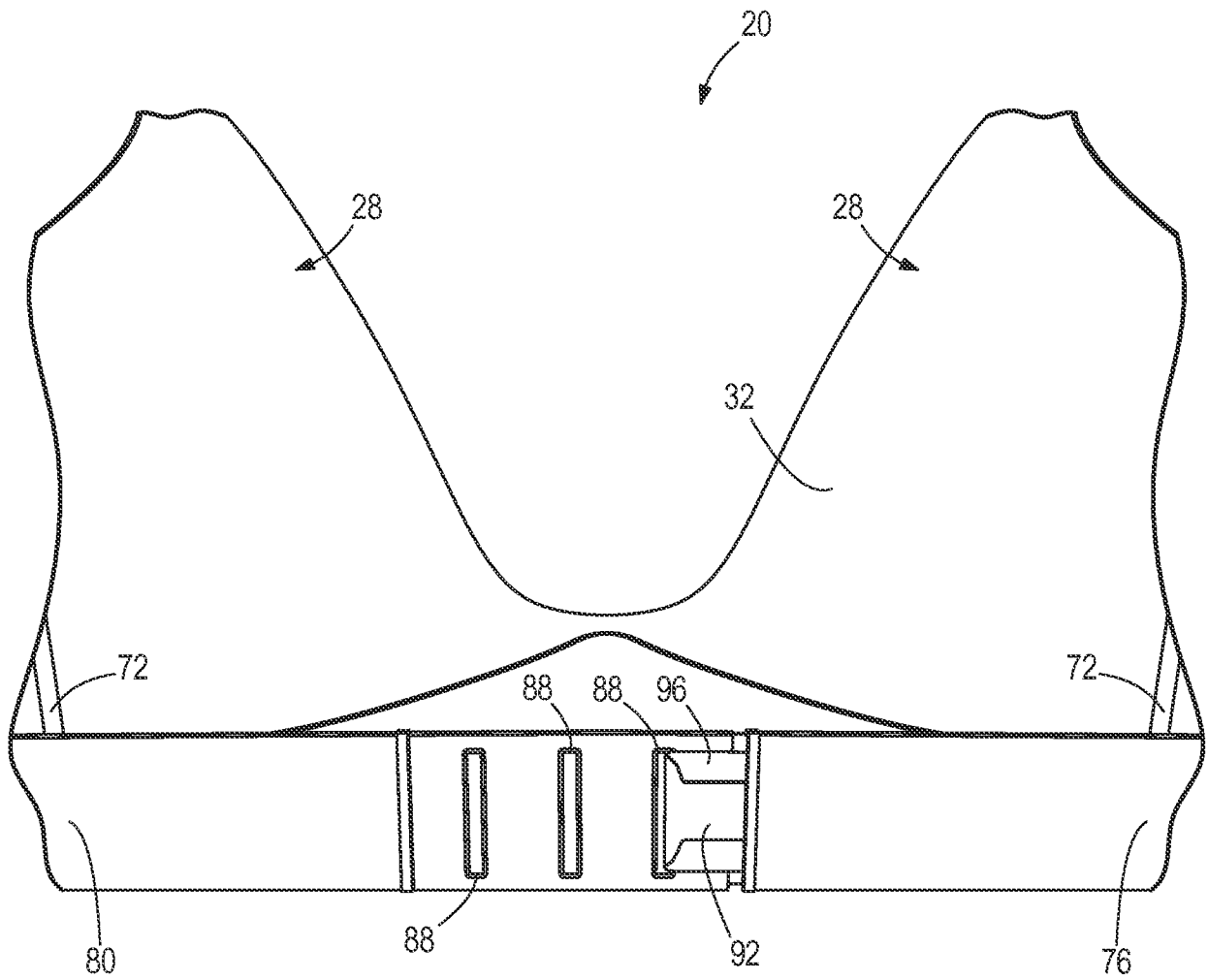


FIG. 3

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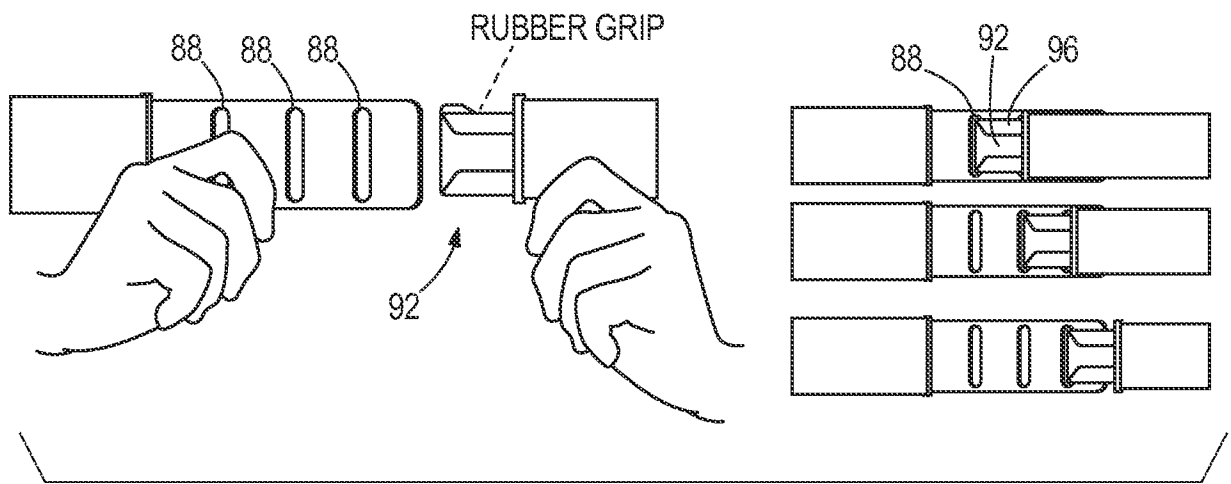


FIG. 4

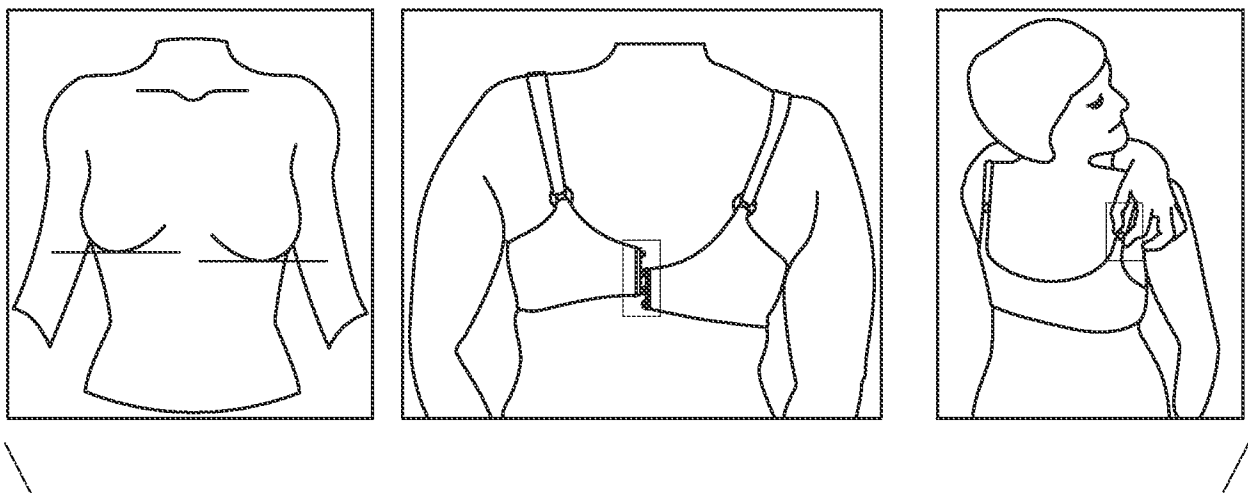


FIG. 5

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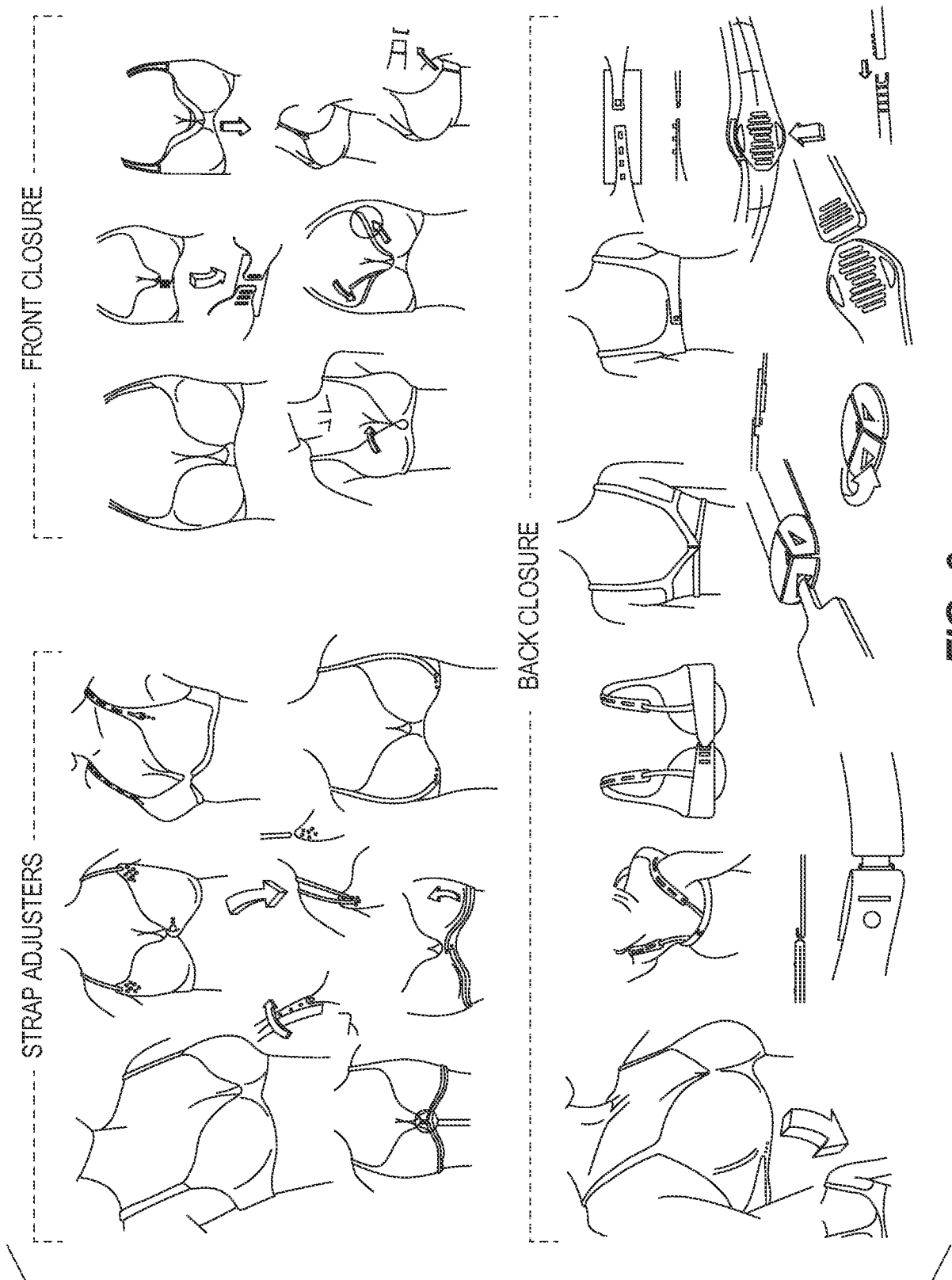
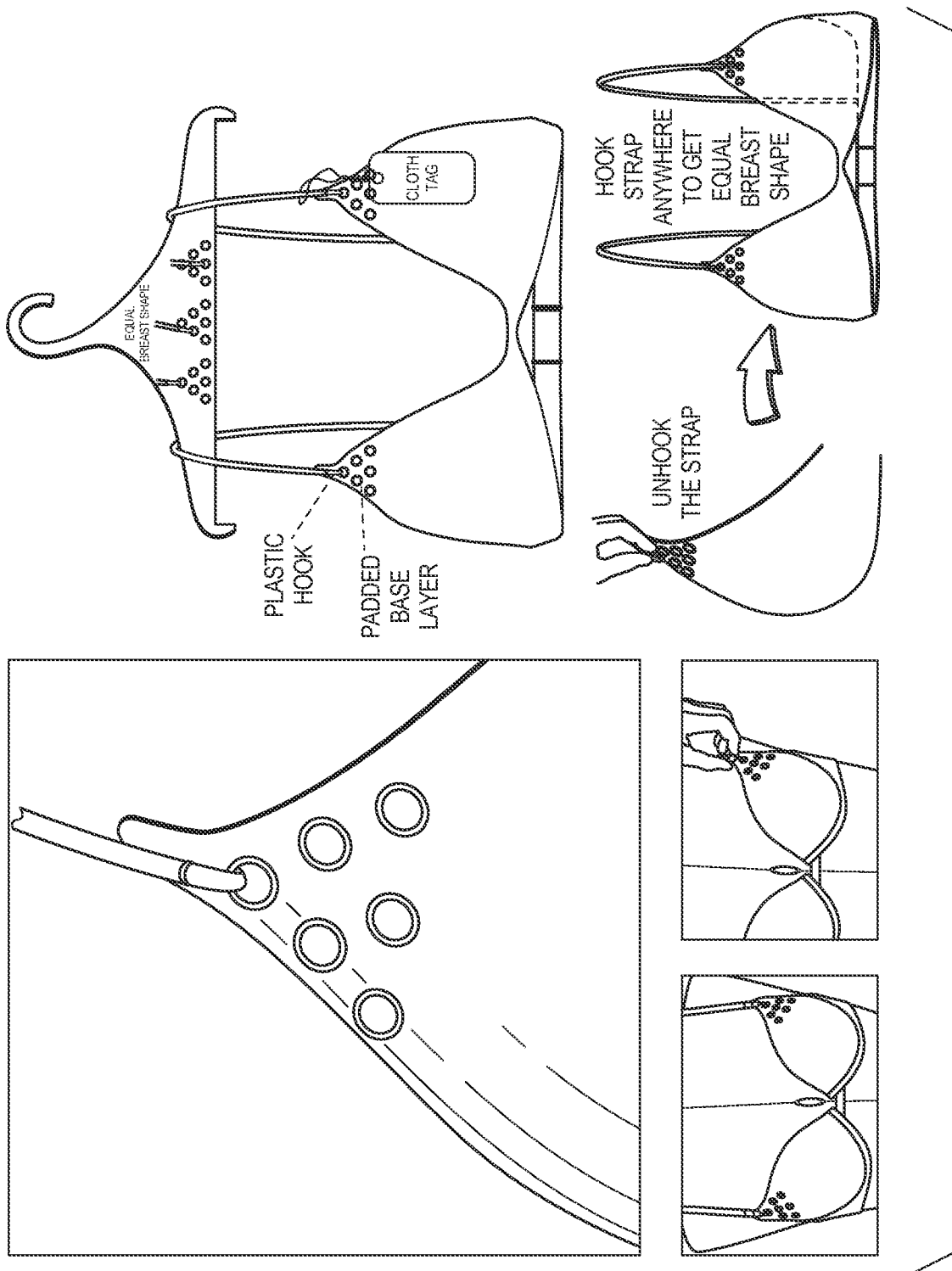
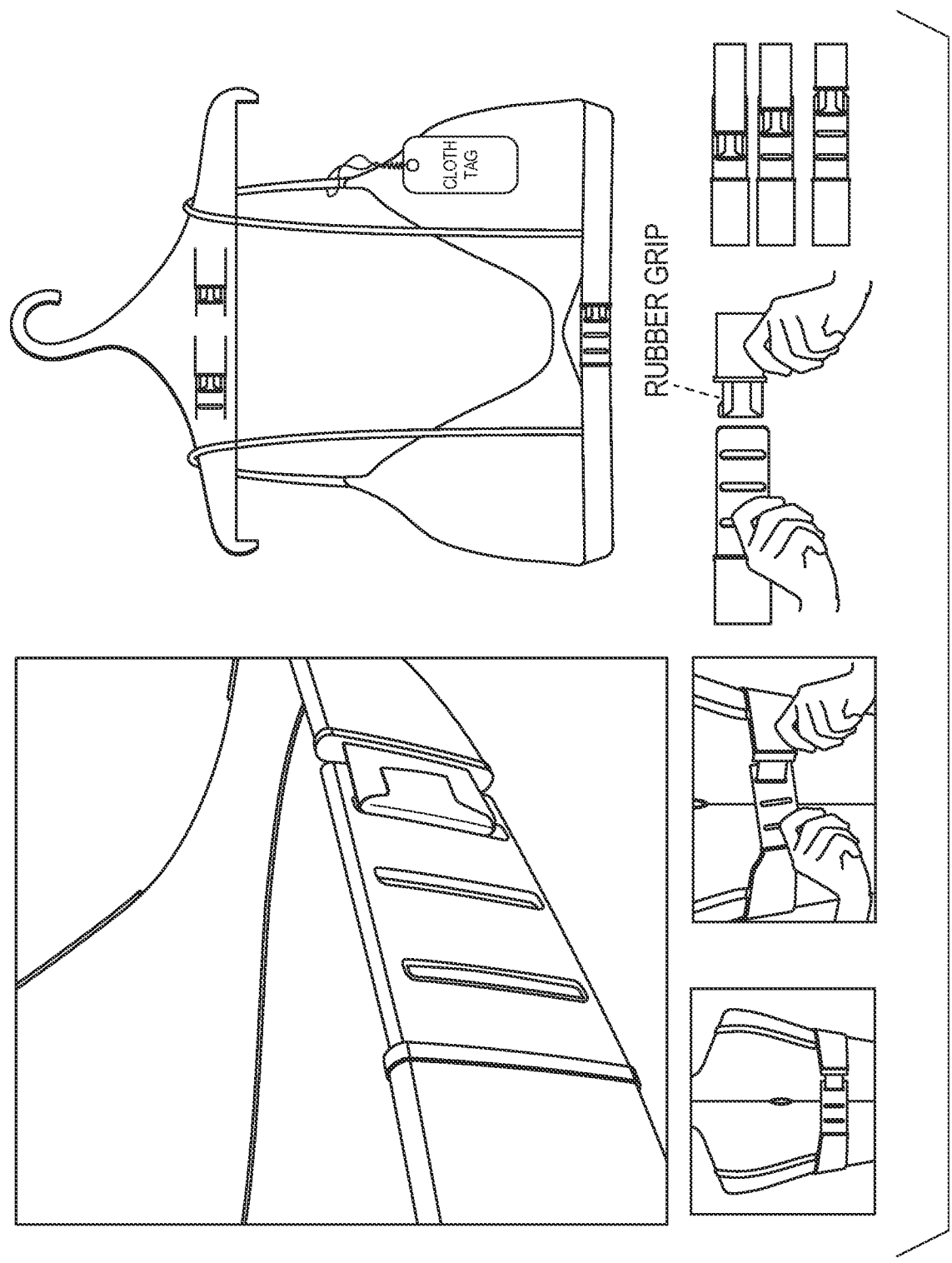


FIG. 6

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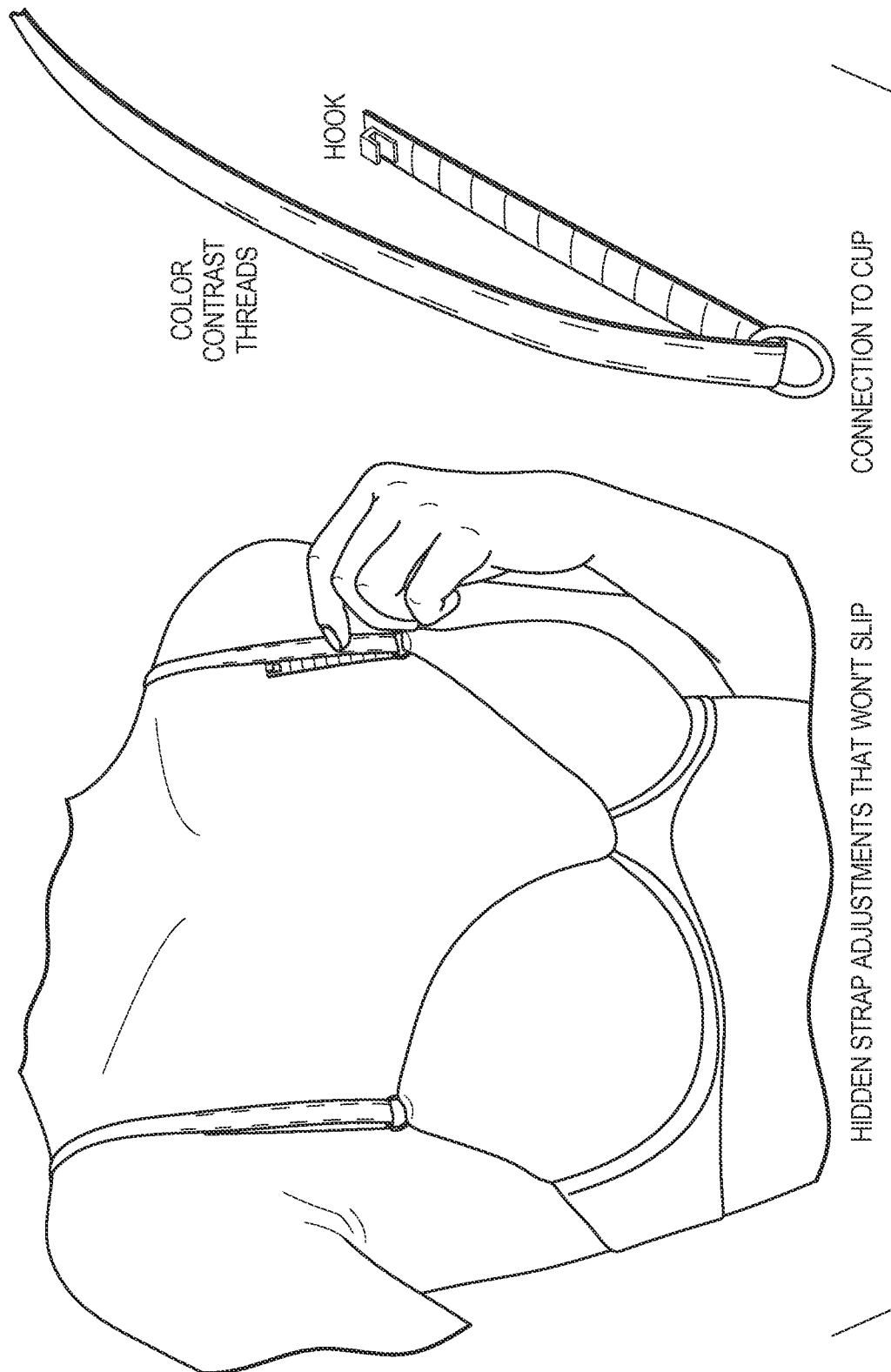


FIG. 9

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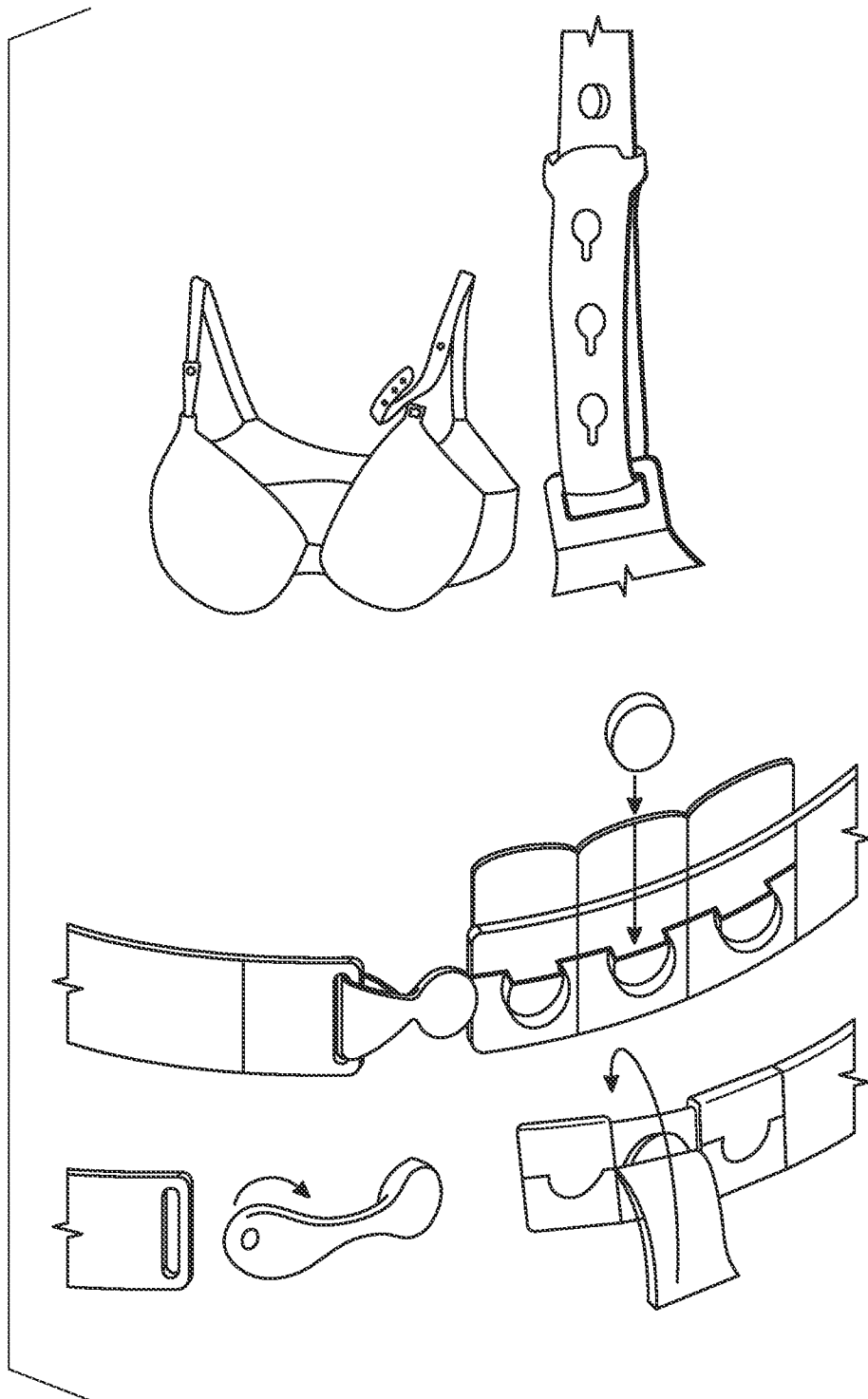


FIG. 10

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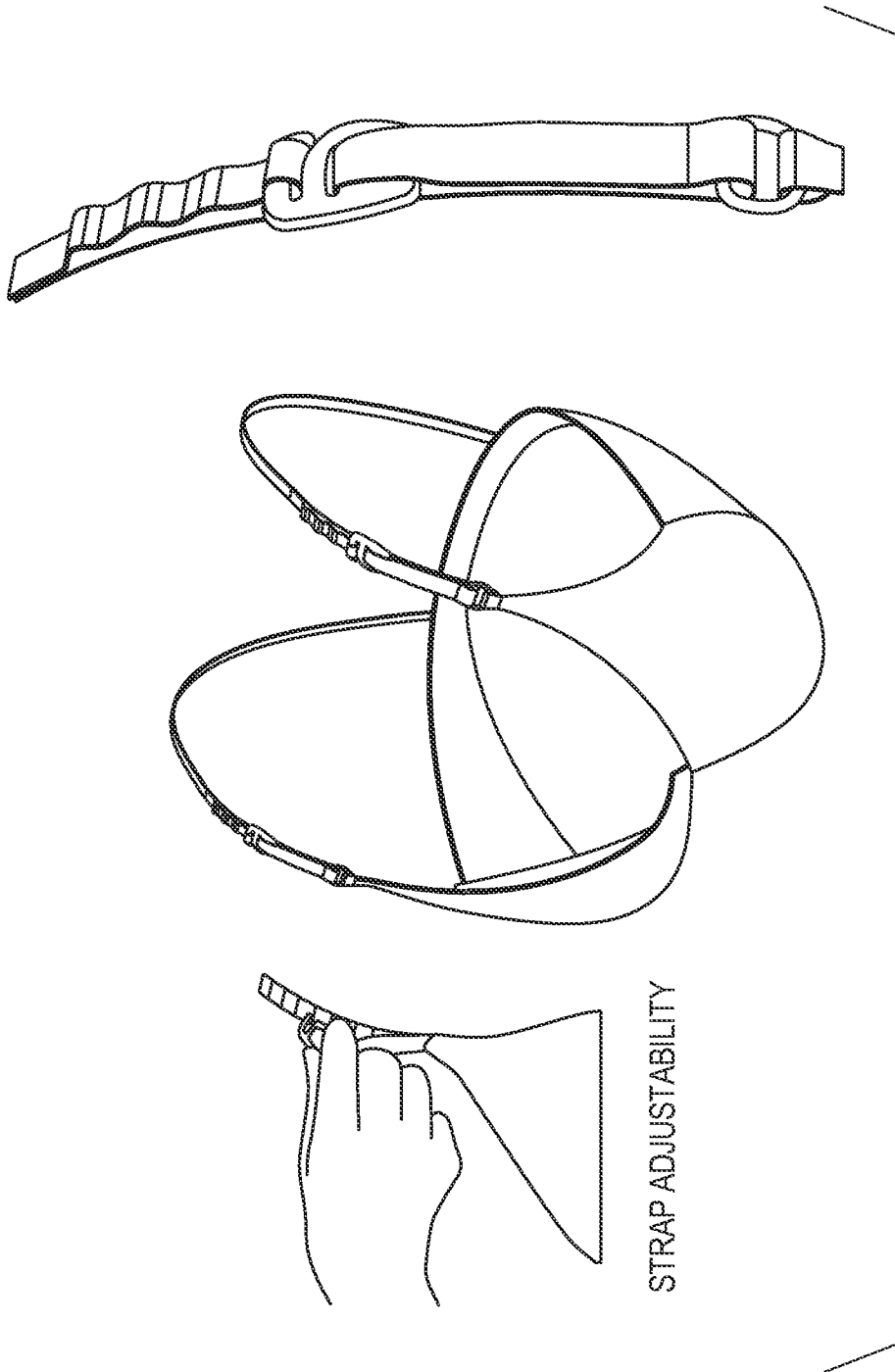


FIG. 11

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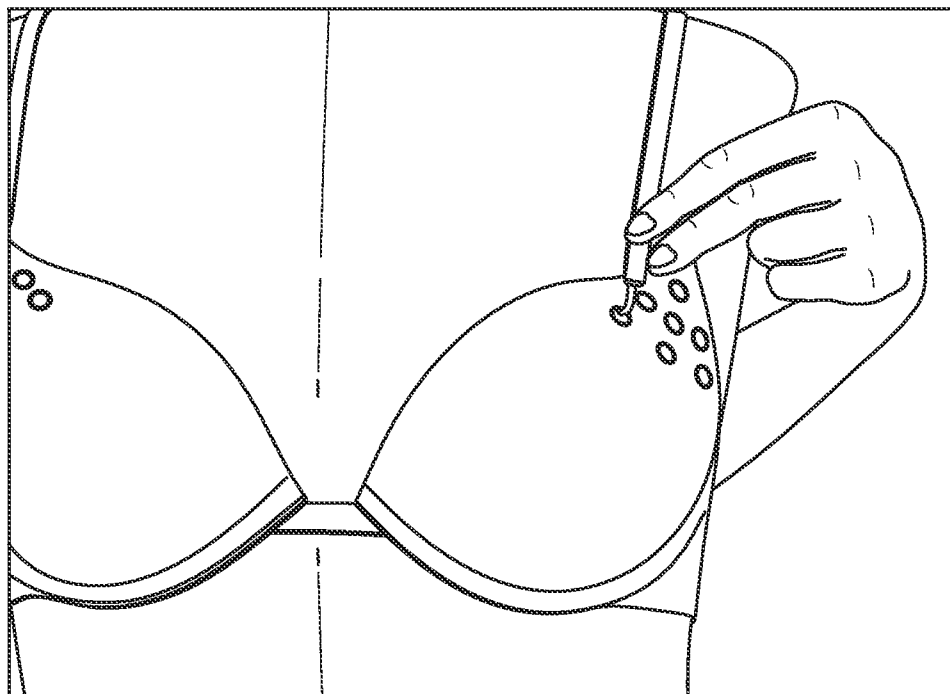


FIG. 12

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2015/028376**A. CLASSIFICATION OF SUBJECT MATTER****A41C 3/00(2006.01)i, A41C 3/12(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)

A41C 3/00; A41C 3/12; A41C 3/08; A41C 3/02; A41F 1/00; A41C 3/10

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords:adjustable bra, bra cup, apertures, straps, hook, length

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 3037877 U (WANG, SAITORI) 27 May 1997 See abstract; claims 1, 6; paragraphs [0005], [0008], [0009], [0020]-[0023]; and figures 2, 6-8, 14.	14, 15
Y		1-13
Y	JP 07-207503 A (KAMO, SANAE) 08 August 1995 See claim 1; paragraphs [0006], [0009], [0010]; and figure 2.	1-13
A	US 2010-0210178 A1 (CHANG, JASPER) 19 August 2010 See claims 1-10; and figure 1.	1-15
A	US 8808056 B2 (MURPHY et al.) 19 August 2014 See abstract; claim 1; and figure 1.	1-15
A	US 2009-0070969 A1 (FILDAN et al.) 19 March 2009 See abstract; claim 1; and figure 1.	1-15



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

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"P" document published prior to the international filing date but later than the priority date claimed

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

21 December 2015 (21.12.2015)

Date of mailing of the international search report

22 December 2015 (22.12.2015)

Name and mailing address of the ISA/KR

International Application Division

Korean Intellectual Property Office

189 Cheongsa-ro, Seo-gu, Daejeon, 35208, Republic of Korea

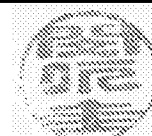


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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2015/028376

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 3037877 U	27/05/1997	None	
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