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(54) Title: LIGHTWEIGHT ENHANCED MODESTY SPORTS BRA CUP

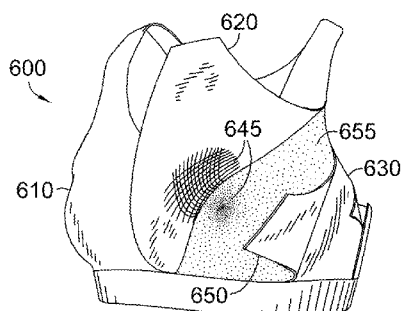


FIG. 6.

(57) Abstract: A lightweight enhanced modesty sports bra is provided. The sports bra comprises an interior liner layer having two faces and an exterior shell layer having two faces and a printed obscuration pattern in between the interior liner layer and the exterior shell layer. The interior liner layer and the exterior shell layer with the printed obscuration pattern are assembled in a way that provides modesty and the printed pattern is not visible from the outside. An optional layer called the intermediate liner layer may be placed in between the exterior shell layer and the interior liner layer.

LIGHTWEIGHT ENHANCED MODESTY SPORTS BRA CUP

FIELD OF THE INVENTION

The present invention relates to bras. More particularly, the present invention relates to the enhancement of modesty for sports bra cups and improving the material stability
5 of a sports bra.

BACKGROUND OF THE INVENTION

For professional or serious athletes lightweight athletic attire is very important for optimal performance, particularly for sports such as track and field, running intermediate and long distances, soccer and basketball. Even less serious athletes may desire lightweight
10 attire to improve performance and/or physical comfort. However, lightweight materials might not provide an optimum level of modesty that a user desires. This may be particularly true for sports bras and similar tops worn by female athletes, which may be more revealing than desired during athletic endeavors. Further, as sports bras and similar tops have become lighter in weight, they have not necessarily provided the support desired by some female
15 athletes.

SUMMARY OF THE INVENTION

This summary is provided to introduce a selection of concepts in a simplified form that are further described below in the Detailed Description. This summary is not intended to identify key features or essential features of the claimed subject matter, not is it
20 intended to be used as an aid in determining the scope of the claimed subject matter.

Embodiments of the present invention relate to the enhancement of sports bra cups with a printed obscuration pattern. In particular, the lightweight enhanced modesty sports bra cup comprises an interior liner layer of the sports bra cup having a skin face and a liner interior face and an exterior shell layer of the sports bra cup having a shell interior face
25 and an exterior face. At least one obscuration pattern is printed between the exterior shell layer and the interior liner layer. The exterior shell layer and the interior liner layer may be connected so that the liner interior face of the interior liner layer and the shell interior face of the exterior shell layer face each other and the printed obscuration pattern is not visible from

the outside. The exterior shell layer and the interior liner layer may be connected in a variety of different ways, such as by sewing a seam, using adhesive(s), using physical joiners, such as rivets, etc.

BRIEF DESCRIPTION OF THE DRAWING

5 The present invention is described in detail below with reference to the attached drawing figures, wherein:

FIG. 1 illustrates a lightweight enhanced modesty sports bra being worn;

FIG. 2 illustrates a cut away view of an exemplary embodiment of a lightweight enhanced modesty sports bra with layers;

10 FIG. 3 illustrates a cut away view of another exemplary embodiment of a lightweight enhanced modesty sports bra;

FIG. 4 illustrates a cut away view of an exemplary embodiment of a lightweight enhanced modesty sports bra with an intermediate liner layer;

15 FIG. 5 illustrates a cut away view of another exemplary embodiment of a lightweight enhanced modesty sports bra with an intermediate liner layer;

FIG. 6 illustrates a cut away view of another exemplary embodiment of a lightweight enhanced modesty sports bra with an intermediate liner layer;

FIG. 7 illustrates an exemplary printed obscuration pattern for use with a lightweight enhanced modesty sports bra;

20 FIG. 8 illustrates another exemplary printed obscuration pattern for use with a lightweight enhanced modesty sports bra;

FIG. 9 illustrates another exemplary printed obscuration pattern for use with a lightweight enhanced modesty sports bra;

25 FIG. 10 illustrates another exemplary printed obscuration pattern for use with a lightweight enhanced modesty sports bra; and

FIG. 11 is a flow diagram that illustrates an overall process for creating a lightweight enhanced modesty sports bra.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to FIG. 1, a woman 100 wearing a lightweight enhanced modesty sports bra 200 is shown. Sports bra 200 is illustrated in more detail in subsequent figures.

5 Now referring to FIG. 2, a lightweight enhanced modesty sports bra 200 is shown that includes an exterior shell layer 210 and an interior liner layer 230. The interior liner layer 230 has a liner interior face 235 and a skin face 240. The exterior shell layer 210 has an exterior face 215 and a shell interior face 220. As assembled, both liner interior face 235 and shell interior face 220 are inside sports bra 200 such that when sports bra 200 is
10 worn neither liner interior face 235 nor shell interior face 220 contacts the skin of wearer 100 or is visible to others.

 Now referring to FIG. 2, sports bra 200 includes a printed obscuration pattern 245 printed on the liner interior face 235 of the interior liner layer 230. An obscuration pattern is a pattern that provides modesty for the bra cup apex and/or provides stability in the
15 bra cup. Printed obscuration pattern 245 may be printed on any interior face discussed or illustrated within the specification. Printed obscuration pattern 245 is illustrated in more detail in FIG. 9. For brevity only a few examples are discussed, but the claimed invention is not limited to only these examples.

 The obscuration pattern may provide modesty for the bra cup apex by
20 obscuring the view of a woman's nipple. For providing modesty for the bra cup apex, only the area of the bra cup apex needs to have a printed obscuration pattern. Once the sports bra 200 is worn by a user, the printed obscuration pattern is not seen through the outside of the sports bra 200. For providing material stability in the bra cup, the printed obscuration pattern 245 may extend beyond the apex of the bra cup, potentially over the entirety of the bra cup
25 area. The printed obscuration pattern 245 printed one of the interior face has less elasticity than the exterior shell layer and the interior liner layer without the printed obscuration pattern and therefore, provides material stability to the bra cup. The configuration of the printed obscuration pattern and/or the type of material printed may be varied to provide varying amounts of support.

30 Referring to FIG. 3, a lightweight enhanced modesty sports bra 300 is illustrated having a printed obscuration pattern 345 on the shell interior face 320 of the exterior shell layer 310. Similar to the lightweight enhanced modesty sports bra 200

illustrated in FIG. 2, obscuration pattern 345 now printed on shell interior face 320 of the exterior shell layer 310 provides enhanced modesty at the bra cup apex.

FIG. 4 illustrates an example of a lightweight enhanced modesty sports bra 400 with two printed obscuration patterns 445, a first obscuration pattern printed on the liner interior face 435 of the interior liner layer 430 and a second obscuration pattern printed on the shell interior face 420 of the exterior shell layer 410. The use of both a first obscuration pattern and a second obscuration pattern may provide a yet further enhancement of the modesty of the sports bra 400 without needlessly increasing the weight of the bra 400. The printed obscuration pattern 445 printed on the liner interior face 435 extends over the entirety of the interior liner face 435. The use of two printed obscuration patterns may also be utilized to provide an extra stability for the bra cup. Extending the printed obscuration pattern 445 over a substantial portion of the bra cup may also provide additional material stability for the sports bra 400 over the bra cup.

Any of a variety of techniques may be used to print an obscuration pattern onto one of the interior faces, maybe including but not limited to screen printing techniques or silicone printing techniques or a combination of the two. An obscuration pattern may also be printed in layers on the same interior face or on different interior faces. Two different patterns may function in conjunction with each other to further provide modesty and stability. The type of printer that may be used to print the obscuration pattern onto one of the interior faces are enabled to print onto various types of fabric and material, such as the materials described herein.

Now referring to FIG. 5, the lightweight enhanced modesty sports bra 500 further including an optional intermediate liner layer 550 is shown. Intermediate liner layer 550 has a first interior face 555 and a second interior face 560. The first interior face 555 faces the shell interior face 520 of the exterior shell layer 510 and the second interior face 560 faces the liner interior face 535 of the interior liner layer 530. The intermediate liner layer 550 is an optional piece of material that may provide extra material stability and extra modesty coverage.

Sports bra 500 includes a printed obscuration pattern 545 on the first interior face 555 of the intermediate liner layer 550. Printed obscuration pattern 545 is illustrated in more detail in FIG. 10. The printed obscuration pattern 545 may only cover the bra apex area as shown to provide modesty. The printed obscuration pattern 545 may also be extended

over the entirety of the first interior face 555 of the intermediate liner layer 550 to provide additional material stability of the bra cup.

Now referring to FIG. 6, the lightweight enhanced modesty sports bra 600 including a printed obscuration pattern 645 on the shell interior face 620 of the exterior shell layer 610 and a printed obscuration pattern 645 on the first interior face 655 of the intermediate liner layer 650 is shown. The printed obscuration patterns shown in FIG. 6 illustrate examples of different obscuration patterns that may be used to provide additional modesty coverage and additional material stability. Any combination of obscuration patterns may be used, and the claimed invention is not limited to only these examples. An obscuration pattern may be printed on any combination of the interior faces within the sports bra.

FIG. 7 and FIG. 8 illustrate two examples of types of obscuration patterns that may be used to provide modesty to the bra cup apex area. FIG. 7 shows a configuration of differently spaced dots to provide an overall obscuration pattern. FIG. 8 shows a configuration of irregularly shaped lines and dots differently spaced to create an overall obscuration pattern. Other types of patterns, such as those discussed herein, may also be used to provide material stability as well.

Now referring to FIG. 9, another example of a type of obscuration pattern that may be used to provide modesty to the bra cup apex area is illustrated. FIG. 9 shows a configuration of differently sized dots and different amounts of spacing between the dots to create another type of obscuration pattern.

FIG. 10 illustrates another example of a type of obscuration pattern that may be used to provide modesty to the bra cup apex area. FIG. 10 shows a configuration of a grid or matrix pattern of lines with each line possibly having different gradients of color to create an overall obscuration pattern. An obscuration pattern such as illustrated in FIG. 10 may be particularly useful for providing enhanced support as well as enhanced modesty.

Now referring to FIG. 11, a flow diagram illustrates an overall process 1100 for creating a lightweight enhanced modesty sports bra. First, an obscuration pattern is selected in step 1110. Any obscuration pattern, such as the example obscuration patterns discussed, above may be used. An interior liner layer with two faces, a skin face and a liner interior face, is prepared in step 1120. The interior liner layer may be made of a moisture management material. An exterior shell layer with two faces, an exterior face and a shell

interior face, is prepared in step 1130. The exterior shell layer may be made of a variety of materials, such as polyester, nylon, spandex, cotton or any combination of these.

Optionally, an intermediate liner layer with two faces, a first interior face and a second interior face may be prepared in step 1140. The intermediate liner layer may be made of moisture management material. The optional intermediate liner layer may provide extra modesty to the bra cup apex area and further material stability. At least one obscuration pattern is printed on at least one interior face in step 1150. The at least one interior face on which the obscuration pattern is printed on in step 1150 may be the liner interior face of the interior liner layer, the shell interior face of the exterior shell layer, and/or one or both of the interior faces of the optional intermediate liner layer. The printed obscuration pattern printed on one of the interior faces has less elasticity than the material of the exterior shell layer, intermediate liner layer and/or interior liner layer without the printed obscuration pattern and therefore, provides more material stability to the overall assembly.

Next, each layer is assembled in step 1160 so that the liner interior face of the interior liner layer faces the shell interior face of the exterior shell layer and the printed obscuration pattern is not visible from the outside. If the optional intermediate liner layer is included, then it is placed in between the exterior shell layer and the interior liner layer so that the first interior face is facing the shell interior face of the exterior shell layer and the second interior face of the intermediate liner layer is facing the liner interior face of the interior liner layer. The different layers may be connected in a variety of different methods including but not limited being to sewn together, using ultrasonic welding, using adhesive(s), or using physical joiners such as rivets, etc.

The present invention has been described in relation to particular embodiments, which are intended in all respects to be illustrative rather than restrictive. Alternative embodiments will become apparent to those of ordinary skill in the art to which the present invention pertains without departing from its scope.

From the foregoing, it will be seen that this invention is one well adapted to attain all the ends and objects set forth above, together with other advantages which are obvious and inherent to the system and method. It will be understood that certain features and subcombinations are of utility and may be employed without reference to other features and subcombinations. This is contemplated by and is within the scope of the claims.

CLAIMS

What is claimed is:

1. A lightweight enhanced modesty sports bra cup made by a process comprising the steps of: selecting at least one obscuration pattern; preparing an interior liner
5 layer of the sports bra cup having a skin face and liner interior face; preparing an exterior shell layer of the sports bra cup having a shell interior face and an exterior face; printing at least one obscuration pattern on at least one of the interior faces of the sports bra cup, wherein the obscuration pattern has less elasticity than the exterior shell layer and the interior liner layer without the printed obscuration pattern; and assembling the exterior shell layer and
10 the interior liner layer together such that the liner interior face of the interior liner layer faces the shell interior face of the exterior shell layer and the printed obscuration pattern is not visible from the outside.
2. The lightweight enhanced modesty sports bra cup of claim 1, the process of making the sports bra cup further comprising selecting at least one obscuration
15 pattern that provides modesty in a bra cup apex.
3. The lightweight enhanced modesty sports bra cup of claim 1, the process of making the sports bra cup further comprising printing the printed obscuration pattern over the entirety of an interior face of the sports bra to provide material stability of the sports bra cup.
- 20 4. The lightweight enhanced modesty sports bra cup of claim 1, wherein the interior liner layer of the sports bra cup is made of a moisture management material.
5. The lightweight enhanced modesty sports bra cup made from the process of claim 1, wherein assembling the exterior shell layer and the interior liner layer together further comprises sewing the interior liner layer and exterior shell layer together.

6. The lightweight enhanced modesty sports bra cup of claim 1, the process of making the sports bra cup further comprising printing at least one obscuration pattern on the liner interior face of the interior liner layer and at least one obscuration pattern on the shell interior face of the exterior shell layer.

5 7. The lightweight enhanced modesty sports bra cup of claim 1, wherein printing at least one obscuration pattern comprises screen printing at least one obscuration pattern.

8. The lightweight enhanced modesty sports bra cup of claim 1, wherein printing at least one obscuration pattern comprises printing at least one silicone pattern.

10 9. A lightweight enhanced modesty sports bra cup comprising: an interior liner layer having a skin face and a liner interior face; an exterior shell layer having a shell interior face and an exterior face; a printed obscuration pattern in between the exterior shell layer and the interior liner layer, wherein the obscuration pattern has less elasticity than the exterior shell layer and the interior liner layer without the printed obscuration pattern; and a
15 connection between the exterior shell layer and the interior liner layer so that the liner interior face of the interior liner layer and the shell interior face of the exterior shell layer face each other and the printed obscuration pattern is not visible from the outside.

10 10. The lightweight enhanced modesty sports bra cup of claim 9, further comprising an intermediate liner layer in between the interior liner layer and the exterior shell layer, the intermediate liner layer having a first interior face and a second interior face.

11. The lightweight enhanced modesty sports bra cup of claim 10, wherein the printed obscuration pattern further comprises at least two obscuration patterns printed on at least one or more of the interior faces of the sports bra cup.

25 12. The lightweight enhanced modesty sports bra cup of claim 9, wherein the printed obscuration pattern is printed on at least one of the interior faces of the sports bra cup.

13. The lightweight enhanced modesty sports bra cup of claim 9, wherein the connection further comprises stitching that sews the interior liner layer and exterior shell layer together.

14. The lightweight enhanced modesty sports bra cup of claim 9, wherein
5 the printed obscuration pattern comprises multiple layers of a printed obscuration pattern.

15. The lightweight enhanced modesty sports bra cup of claim 9, wherein the printed obscuration pattern comprises a matrix of dots.

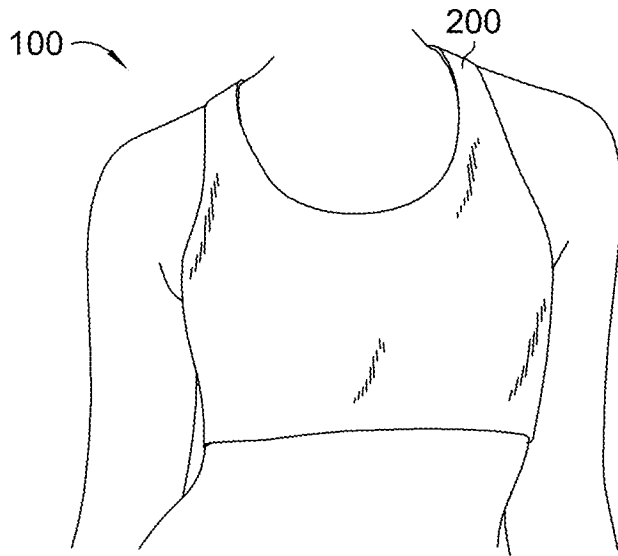
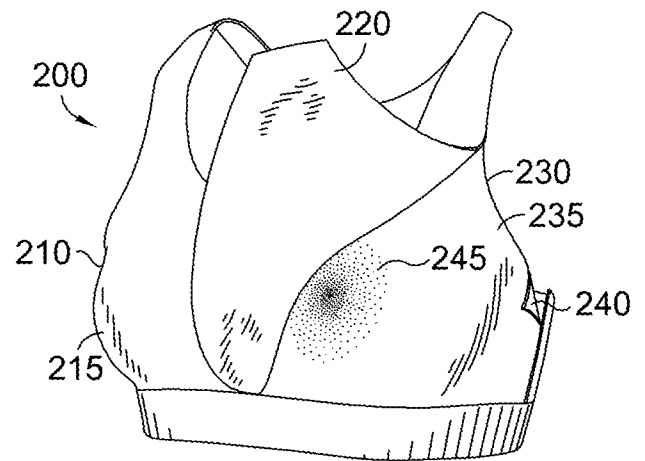
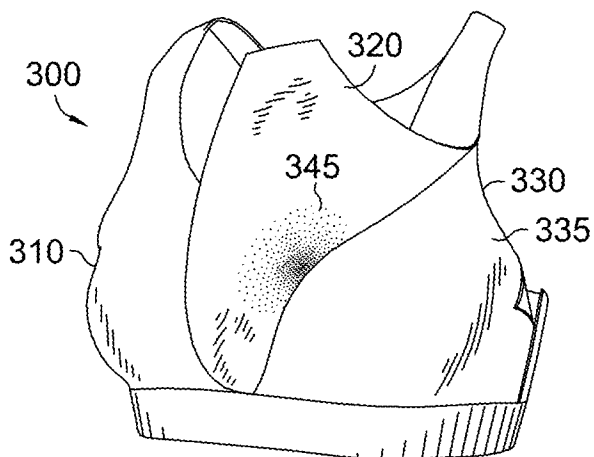
16. The lightweight enhanced modesty sports bra cup of claim 9, wherein the printed obscuration pattern comprises a series of lines.

10 17. A method for manufacturing a lightweight enhanced modesty sports bra cup, comprising the steps of: selecting an obscuration pattern that provides modesty and material stability for a bra cup apex; preparing an interior liner layer having a skin face and a liner interior face; preparing an exterior shell layer having a shell interior face and a exterior face; printing at least one obscuration pattern on at least one of the interior faces of the sports
15 bra cup, wherein the obscuration pattern has less elasticity than the exterior shell layer and the interior liner layer without the printed obscuration pattern; and assembling the exterior shell layer and the interior liner layer together such that the liner interior face of the interior liner layer faces the shell interior face of the exterior shell layer and the printed obscuration pattern is not visible from the outside.

20 18. The method of claim 17, wherein printing at least one obscuration pattern comprises printing a printed obscuration pattern that comprises multiple layers of a printed obscuration pattern.

19. The method of claim 17, wherein printing at least one obscuration pattern further comprises screen printing at least one obscuration pattern.

20. The method of claim 17, wherein printing at least one obscuration pattern further comprises printing a silicone pattern.

*FIG. 1.**FIG. 2.**FIG. 3.*

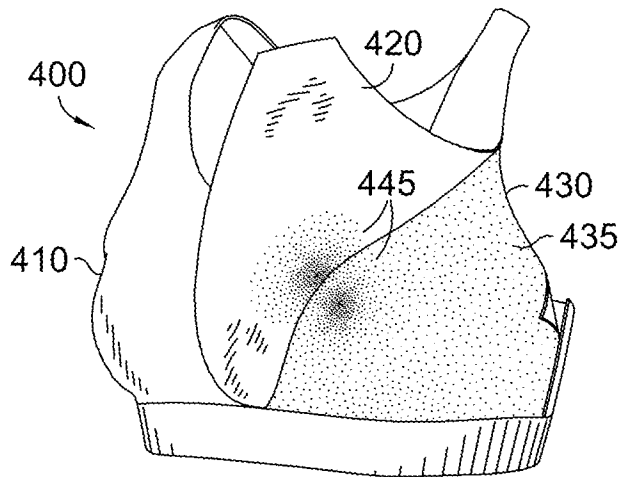


FIG. 4.

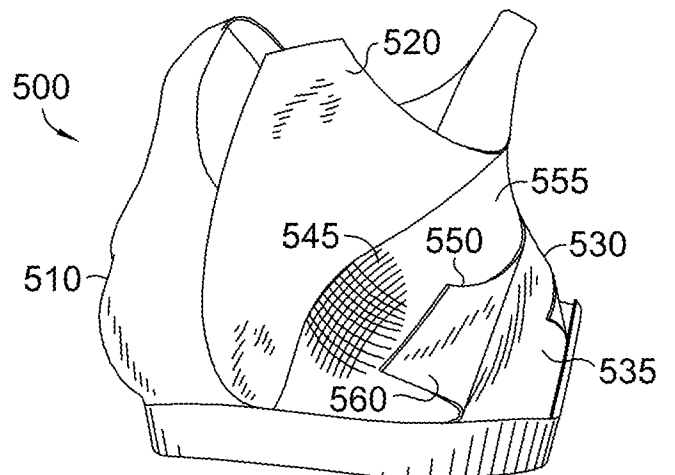


FIG. 5.

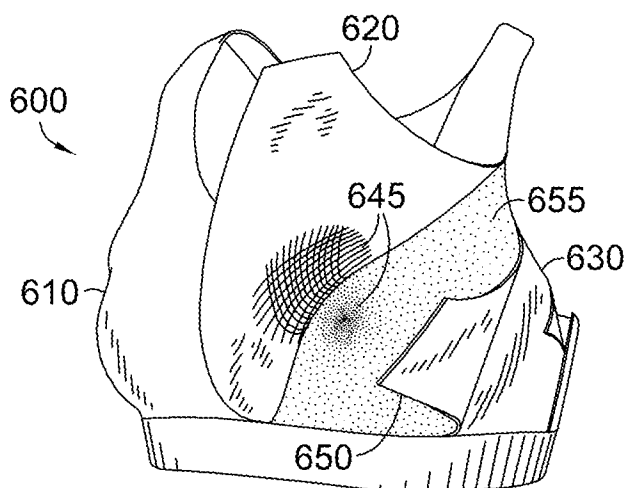


FIG. 6.

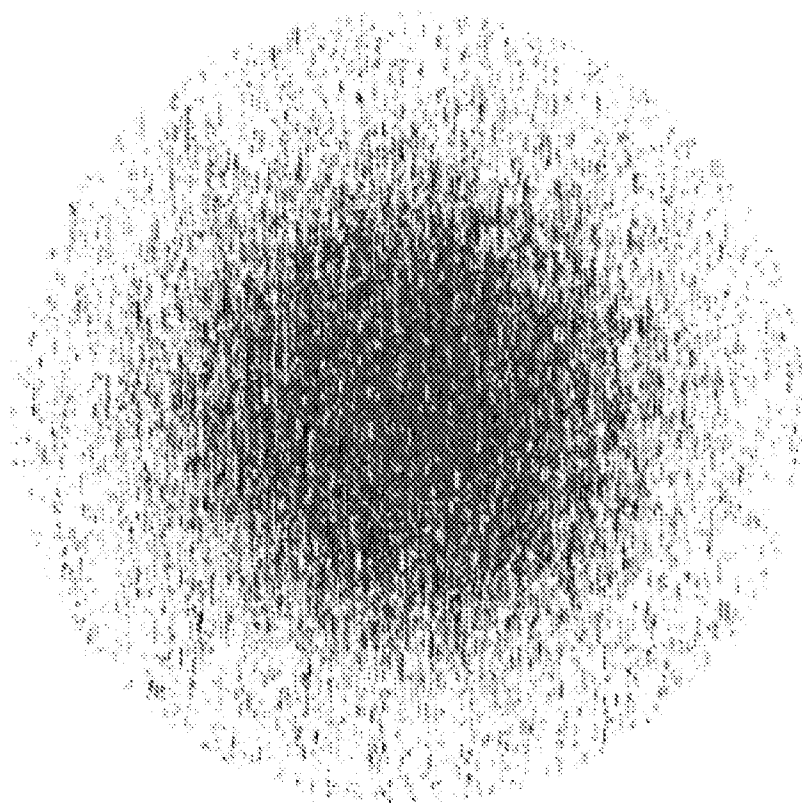


FIG. 8.

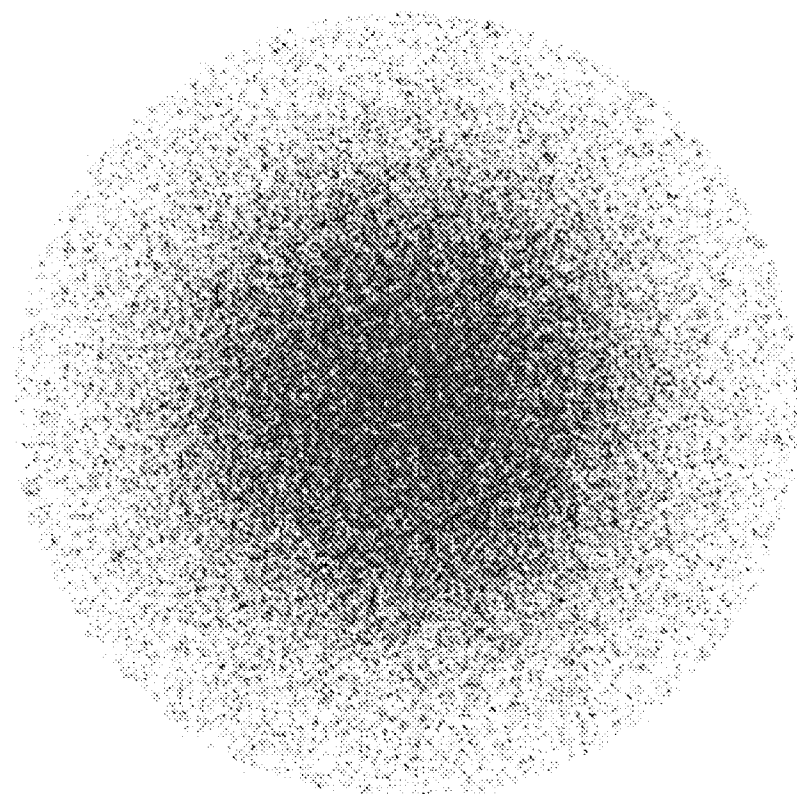


FIG. 7.

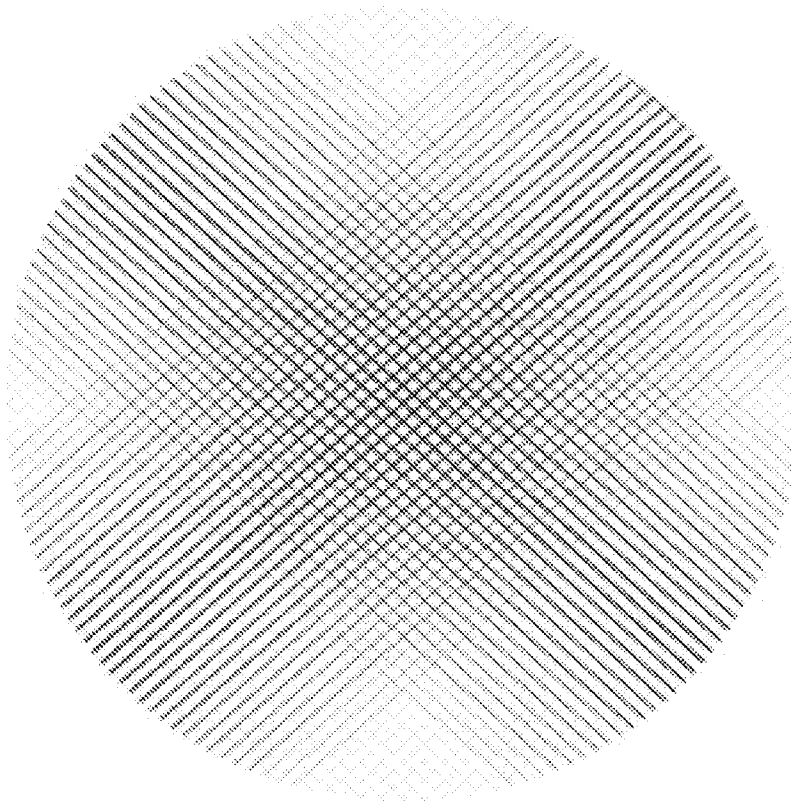


FIG. 10.

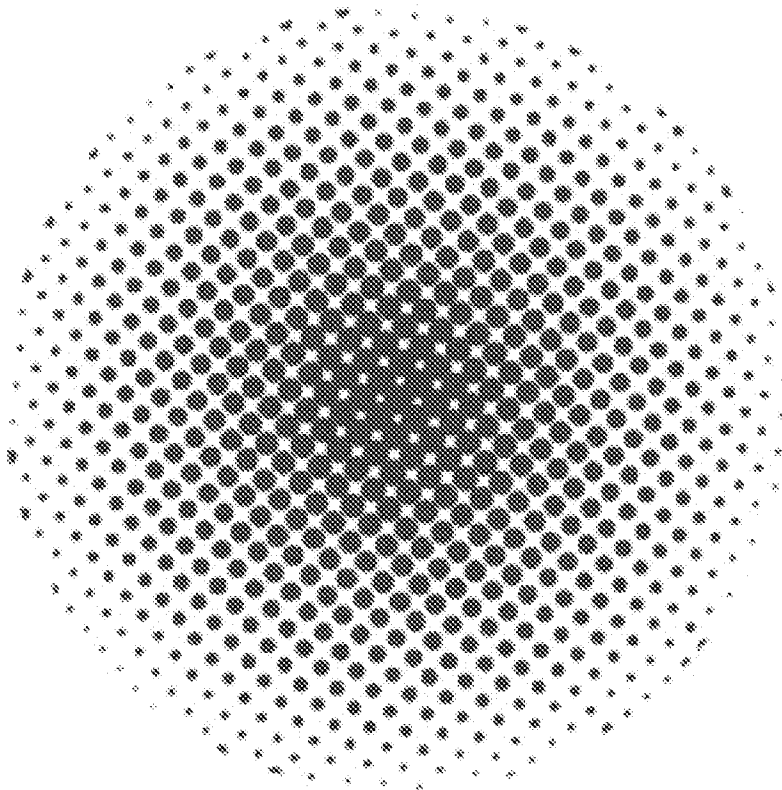


FIG. 9.

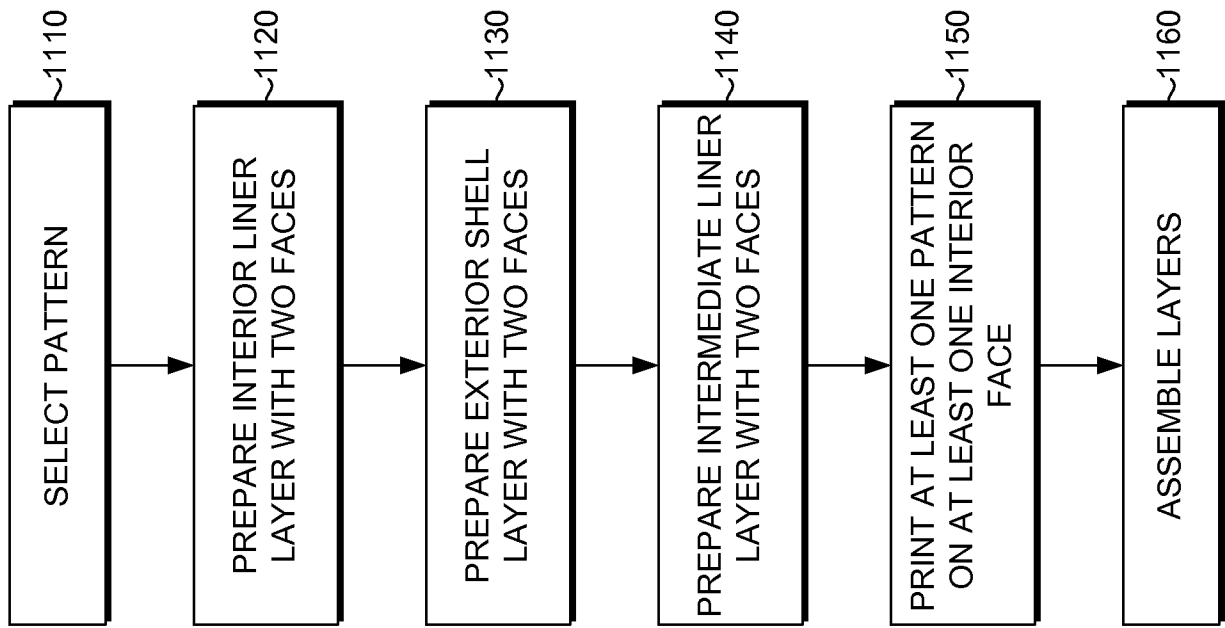


FIG. 11.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 10/59101

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A41C 3/00 (2011.01)

USPC - 450/39

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)

USPC: 450/39

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

USPC: 450/92, 93, 39, 1

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

PubWest (PGPB, USPT, USOC, EPAB, JPAB), Google Scholar, USPTO

Search Terms: Bra, undergarment, clothes, modest, opaque, obscure, pattern, fabric, print, stretch, elastic, nipple

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2008/0194180 A1 (Warren) 14 August 2008 (14.08.2008) entire document especially para [0031], para [0022], para [0030], para [0028], and para [0025].	1-20
Y	US 4,562,107 A (Daniels) 31 December 1985 (31.12.1985) entire document especially col 3, ln 35-45, col 7, ln 28-34, col 6, ln 16-19, and col 5, ln 41-61.	1-20
A	US 2005/0255789 A1 (Gaudet et al.) 17 November 2005 (17.11.2005) entire document.	1-20

☐ Further documents are listed in the continuation of Box C.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

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

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"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

20 January 2011 (20.01.2011)

Date of mailing of the international search report

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