



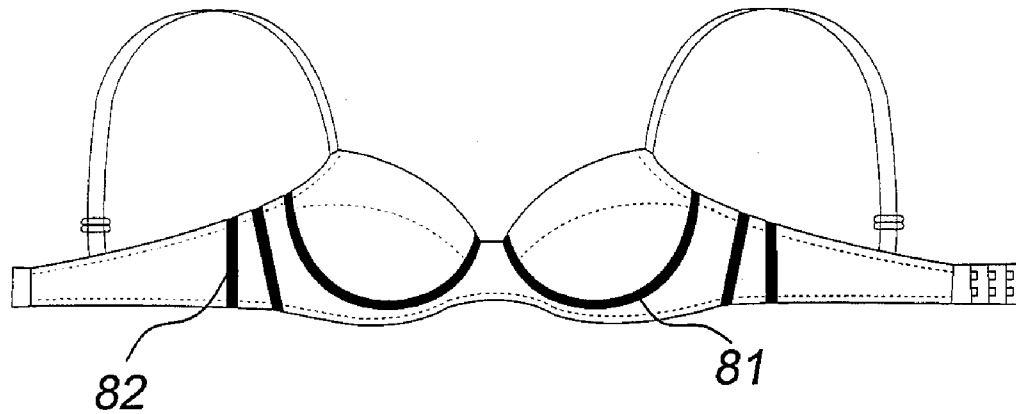
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(19) **United States**(12) **Patent Application Publication**
LIN(10) **Pub. No.: US 2014/0051330 A1**(43) **Pub. Date: Feb. 20, 2014**(54) **COMFORTABLE BONE-AFFIXING
STRUCTURE FOR UNDERWEAR****Publication Classification**(71) Applicants: **McFashion International Ltd.**, Taipei
City (TW); **Taiwan Utax Co., Ltd.**,
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CPC **A41C 3/0007** (2013.01)
USPC **450/86; 2/256**(72) Inventor: **Mei Huei LIN**, Huatan Township (TW)(57) **ABSTRACT**(73) Assignees: **McFashion International Ltd.**, Taipei
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A comfortable bone-affixing structure for underwear is provided to reduce pressure and discomfort imposed to wearers by the underwear's boning members such as metal wires and plastic bones. The comfortable bone-affixing structure includes a continuous flexible tube made of fabric and a cushion fixedly attached to a channel portion of the flexible tube when the flexible tube is a single layer tube or to one of layers of the flexible tube when the flexible tube has a multi-layer scroll-like vertical section. In the bone-affixing structure, the boning member is received in a space that is within the flexible tube and adjacent to or separated from the cushion. With the cushion that separates the boning member from the wearer's skin, the pressure and discomfort imposed to the wearer by the boning member can be reduced.

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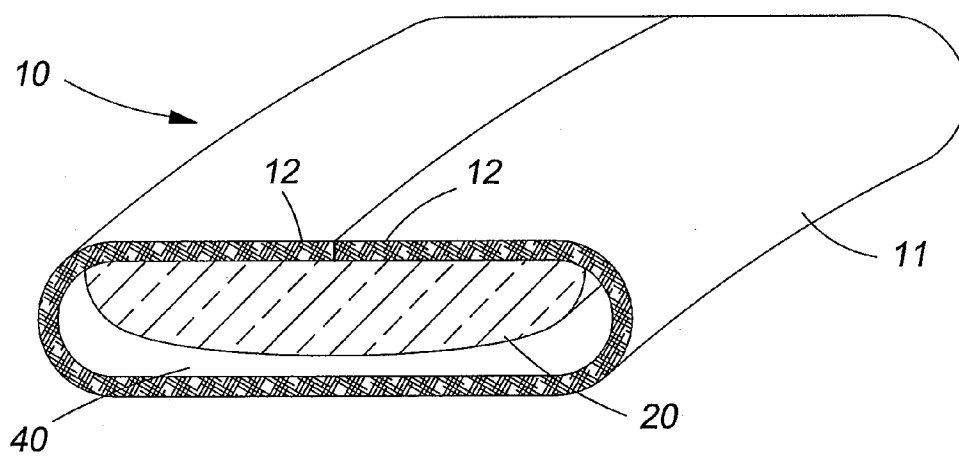


FIG.1

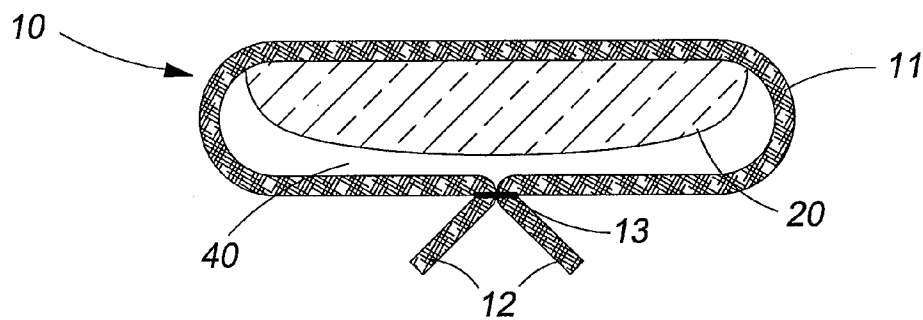


FIG.2

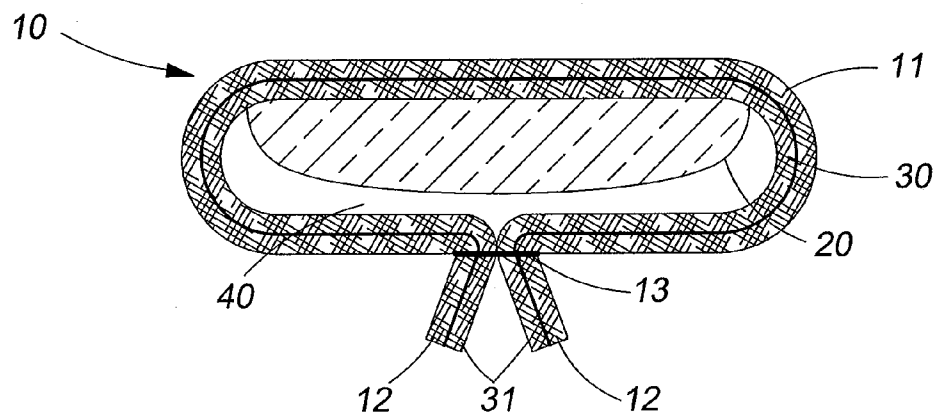


FIG.3

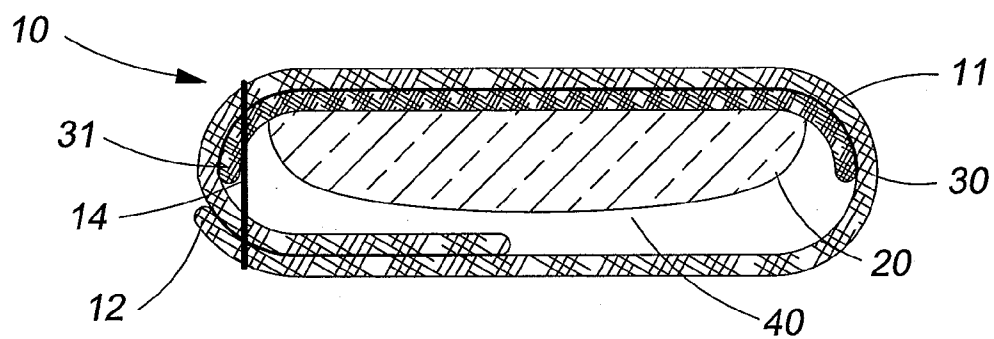


FIG. 4

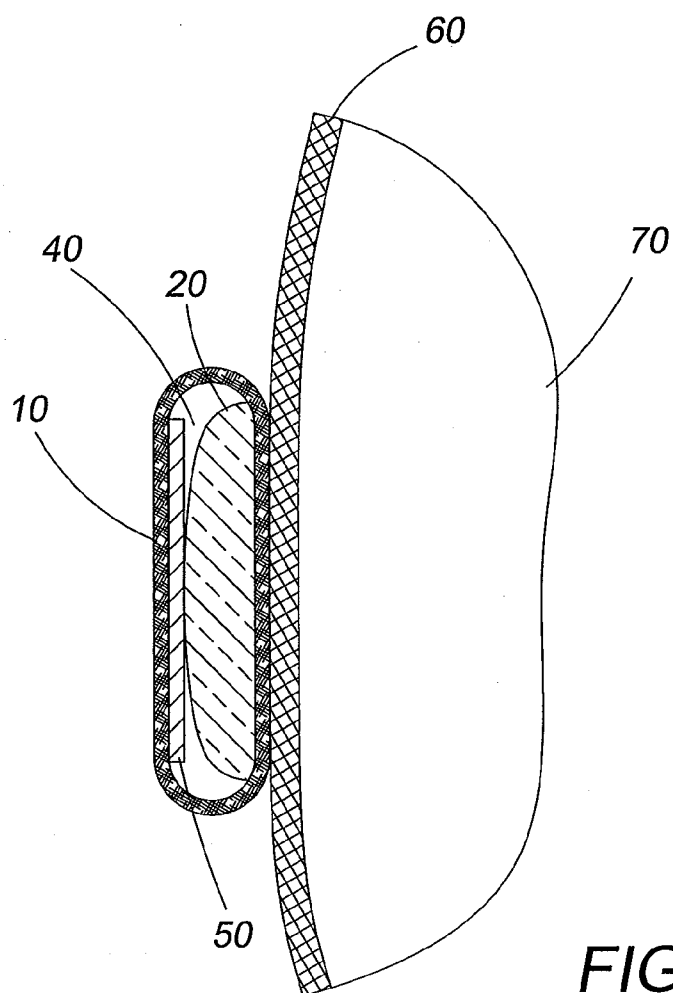


FIG. 5

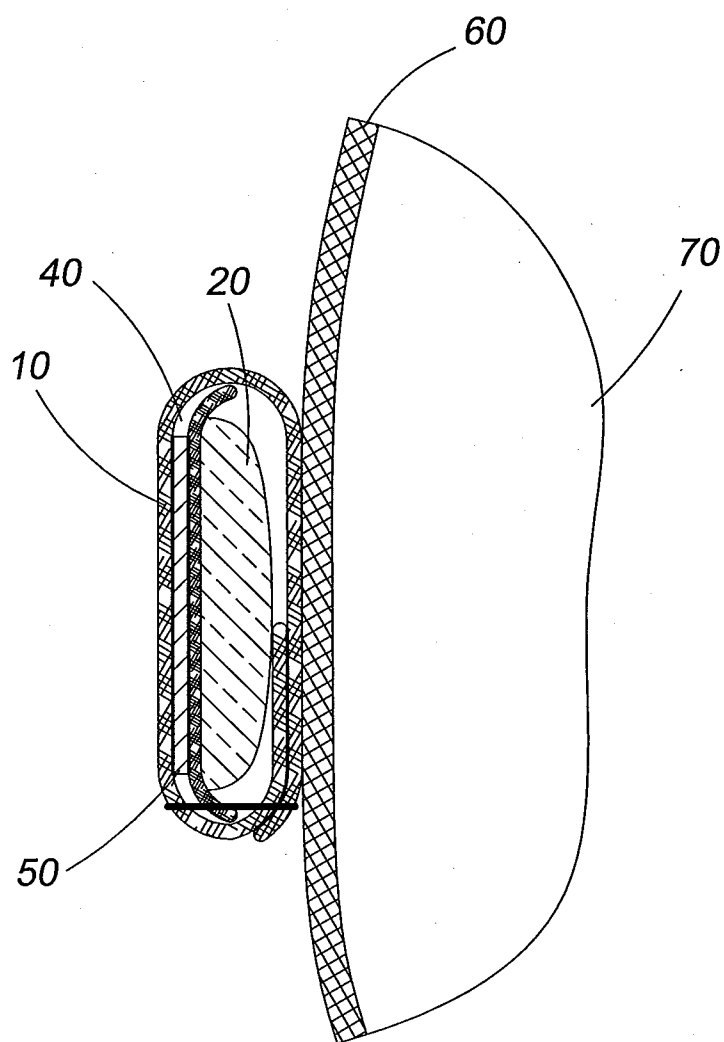


FIG. 6

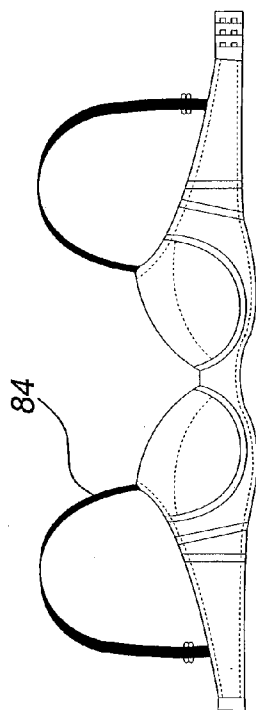


FIG. 8A

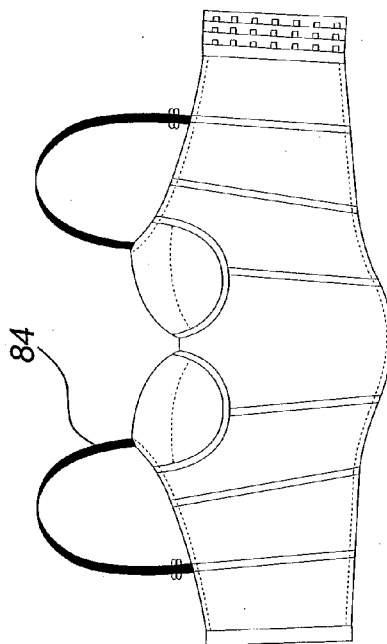


FIG. 8B

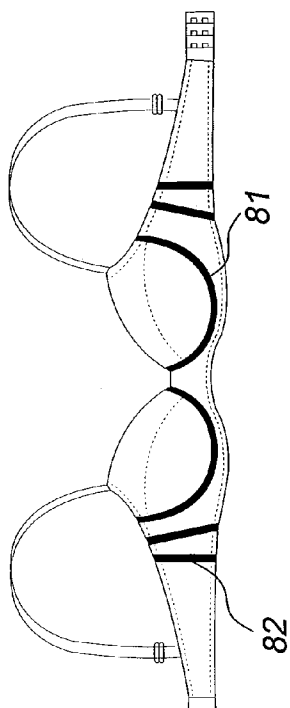


FIG. 7A

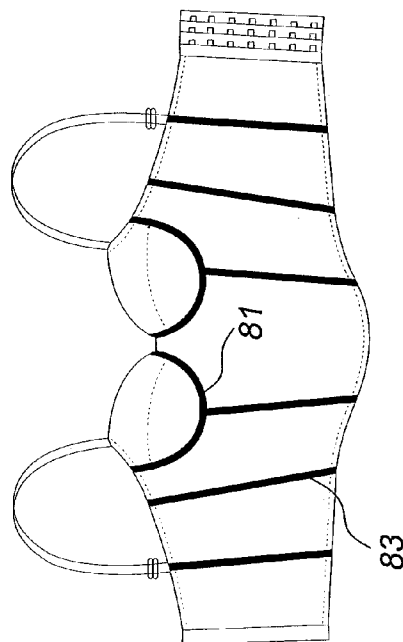


FIG. 7B

COMFORTABLE BONE-AFFIXING STRUCTURE FOR UNDERWEAR

BACKGROUND OF THE INVENTION

[0001] 1. Technical Field

[0002] The present invention relates to structures for affixing supportive bones to underwear, and more particularly, to a comfortable bone-affixing structure containing therein a cushion for mitigating discomfort caused by boning members to underwear wearers.

[0003] 2. Description of Related Art

[0004] Underwear and brassieres are designed to provide the wearers with physiological support and aesthetic enhancement. The modern underwear and brassieres typically include plural boning members, such as underwires under bra cups, plastic side bones beside bra cups and supportive shaping bones defining a corset. These boning members serve to shape the wearers curves at their breasts and torso portions.

[0005] The foregoing boning member is typically made of a non-fabric material that is relatively rigid and then externally attached to the underwear. Thus, it is difficult to directly sew the boning member onto the underwear. Instead, the boning member has to be first covered by fabric and then affixed to the underwear by sewing the fabric onto the underwear, causing the manufacturing process complicated. For facilitating attachment of boning members, there has been developed a bone-affixing structure, which is mainly a tube made of fabric. In use, the fabric-made bone-affixing structure can be easily sewn on to underwear and then a boning member can be fitted into the bone-affixing structure.

[0006] While the conventional bone-affixing structure does being helpful to the combination between boning members and underwear, it leaves the problem that the rigid boning member can press and discomfort the wearer's skin unsolved. Hence, the relevant improvement is needed.

SUMMARY OF THE INVENTION

[0007] In view of the shortcomings of the conventional bone-affixing structure for underwear as described above, the present invention herein provides a comfortable bone-affixing structure for underwear, which serves to reduce the pressure and discomfort imposed on the wearer's skin by rigid boning members.

[0008] A preferred structure of a comfortable bone-affixing structure for underwear proposed by the present invention to address the aforementioned need comprises a flexible tube that is made of fabric and has a continuous length, wherein the flexible tube contains therein at least one space for accommodating a boning member; and a cushion fixedly deposited in an interior of the flexible tube. The comfortable bone-affixing structure for underwear as described above in virtue of the cushion can prevent the boning member from directly pressing on the wearer's skin, thereby reducing the pressure imposed to the wearer's skin by the boning member, in turn eliminating or mitigating discomfort generated on the wearer's skin.

[0009] The comfortable bone-affixing structure for underwear as described above preferably has the flexible tube including two joint edges, and has one side of the cushion attached to the two joint edges.

[0010] The comfortable bone-affixing structure for underwear as described above preferably has the flexible tube

including two joint edges that are sewn together to form the flexible tube having a sewing seam, and has the cushion fixedly attached to the interior wall of the flexible tube at a position opposite to the sewing seam.

[0011] The comfortable bone-affixing structure for underwear as described above preferably has the cushion fixedly attached to a piece of fabric, and then fixedly deposited in an interior of the flexible tube through the fabric; and preferably has the flexible tube having two joint edges combined with two edges of the fabric on which the cushion is attached by sewing.

[0012] The comfortable bone-affixing structure for underwear as described above preferably has the cushion fixedly attached to a piece of fabric, and then fixedly deposited in an interior of the flexible tube through the fabric; and preferably has the flexible tube having a vertical section of a scroll-like shape, and has an outer joint edge of the flexible tube, one edge of the fabric on which the cushion is attached, and a lateral of the flexible tube combined together by sewing.

[0013] The comfortable bone-affixing structure for underwear as described above preferably has the cushion fixedly attached to a piece of fabric, and then fixedly deposited in an interior of the flexible tube through the fabric; and preferably has the flexible tube having a vertical section of a scroll-like shape with plural layers, and having the cushion deposited on one of the layers that is different from a said layer containing the space receiving the boning member.

[0014] The comfortable bone-affixing structure for underwear as described above preferably has the cushion made of silicone resin, rubber, plastic foam material, polyurethane (PU), thermoplastic elastomer (TPE) or thermoplastic rubber (TPR).

[0015] The comfortable bone-affixing structure for underwear as described above preferably has the boning member installed into the bone-affixing structure including an underwire under a bra cup of the underwear, a plastic side bone adjacent to the bra cup of the underwear and a supportive shaping bone of a torso portion of the underwear.

[0016] The comfortable bone-affixing structure for underwear as described above can be used as a shoulder strap of underwear.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] The invention as well as a preferred mode of use, further objectives and advantages thereof will be best understood by reference to the following detailed description of illustrative embodiments when read in conjunction with the accompanying drawings, wherein:

[0018] FIG. 1 is a perspective view of a section of comfortable bone-affixing structure for underwear according to a first preferred embodiment of the present invention;

[0019] FIG. 2 is a cross-sectional view of a comfortable bone-affixing structure for underwear according to a second preferred embodiment of the present invention;

[0020] FIG. 3 is a cross-sectional view of a comfortable bone-affixing structure for underwear according to a third preferred embodiment of the present invention;

[0021] FIG. 4 is a cross-sectional view of a comfortable bone-affixing structure for underwear according to a fourth preferred embodiment of the present invention;

[0022] FIG. 5 and FIG. 6 are applied views showing the disclosed comfortable bone-affixing structure for underwear combined with boning members and attached to brassieres; and

[0023] FIGS. 7A, 7B, 8A and 8B are applied views showing the disclosed comfortable bone-affixing structure used on different portions of underwear.

DETAILED DESCRIPTION OF THE INVENTION

[0024] As shown in FIG. 1, according to a first preferred embodiment of the present invention, a comfortable bone-affixing structure for underwear comprises a flexible tube 10 made of fabric. The flexible tube defines therein a space 40 for accommodating a boning member (such as an underwire under a bra cup, a plastic side bone adjacent to a bra cup and a supportive shaping bone of a corset), similar to that of the conventional bone-affixing structure for underwear. The innovative feature of the present invention is having a cushion 20 that is fixedly deposited in an interior of the flexible tube 10.

[0025] The comfortable bone-affixing structure for underwear as described in the first preferred embodiment has the flexible tube 10 being a tubular structure formed by rolling up a piece of fabric 11. Therefore, the flexible tube 10 has two joint edges 12. In the present embodiment, the two joint edges 12 are combined with the cushion 20 by adherence, respectively, so that the cushion 20 is fixedly attached to the channel portion of the flexible tube 10 and the tubular structure of the flexible tube 10 is formed at the same time.

[0026] As shown in FIG. 2, in a second preferred embodiment of the present invention, the comfortable bone-affixing structure for underwear, different from its counterpart in the first preferred embodiment, has the cushion 20 directly attached to the fabric 11 at a position opposite to the sewing seam 13 between the two joint edges 12 of the flexible tube 10.

[0027] Please refer to FIG. 3 and FIG. 4. In the comfortable bone-affixing structure for underwear as described in the first and second preferred embodiments, the cushion 20 is directly attached to the fabric 11 of the flexible tube 10. However, in the third and fourth preferred embodiments of the present invention, the cushion 20 of the comfortable bone-affixing structure is first fixedly attached to another piece of fabric 30 that is not the one forming the flexible tube 10, and then the fabric 30 is combined with the channel portion of the flexible tube 10. The combination may be achieved by sewing the two edges 31 of the fabric 30 and the two joint edges 12 of the flexible tube 10 together (the third preferred embodiment, as shown in FIG. 3), or by rolling up the fabric 11 to form the flexible tube 10 of a multi-layer scroll-like shape and sewing the outer joint edge 12, one lateral of the flexible tube 10 and an edge 31 of the fabric 30 carrying the cushion 20 together by forming a sewing seam 14, as shown in FIG. 4.

[0028] Referring to FIG. 5 and FIG. 6, for using the bone-affixing structure of the first through fourth preferred embodiments, a suitable length of the flexible tube is attached to the body of the underwear 60 by sewing or heat sealing, and then a boning member 50 is installed in to the space 40 inside the flexible tube 10 and adjacent to the cushion 20 (FIG. 5). Alternatively, the cushion 20 and the boning member 50 are separated and deposited at different layers (FIG. 6), and the disclosed bone-affixing structure is such used that the side having the cushion 20 faces the wearer's skin 70, so that when the underwear 60 is worn, the boning member 50 is separated from directly contacting the wearer's skin 70 by the cushion 20, thereby leaving the wearer's skin free from pressure and discomfort.

[0029] Please refer to FIGS. 7A and 7B. In addition to being used with underwire under a bra cup 81, the comfortable bone-affixing structure for underwear as described above can work with a plastic side bone adjacent to a bra cup 82 or supportive shaping bone 83 of a corset. In addition, in the comfortable bone-affixing structure for underwear as described above, when the accommodating space is not installed with the boning member, the comfortable bone-affixing structure can be used as a shoulder strap 84 for underwear (as shown in FIGS. 8A and 8B), so that the cushion in the comfortable bone-affixing structure can reduce the pressure imposed on the wearer by the shoulder strap.

[0030] The present invention has been described with reference to the preferred embodiments and it is understood that the embodiments are not intended to limit the scope of the present invention. Moreover, as the contents disclosed herein should be readily understood and can be implemented by a person skilled in the art, all equivalent changes or modifications which do not depart from the concept of the present invention should be encompassed by the appended claims.

What is claimed is:

1. A comfortable bone-affixing structure for underwear, the bone-affixing structure comprising a flexible tube that is made of fabric and has a continuous length, wherein the flexible tube contains therein at least one space for accommodating a boning member, and being characterized in:

a cushion, fixedly deposited in an interior of the flexible tube.

2. The comfortable bone-affixing structure for underwear of claim 1, wherein the flexible tube has two joint edges, and one side of the cushion is attached to the two joint edges.

3. The comfortable bone-affixing structure for underwear of claim 1, wherein the flexible tube has two joint edges that are sewn together to form the flexible tube having a sewing seam, and the cushion is fixedly attached to the interior wall of the flexible tube at a position opposite to the sewing seam.

4. The comfortable bone-affixing structure for underwear of claim 1, wherein the cushion is fixedly attached to a piece of fabric, and then fixedly deposited in the interior of the flexible tube through the fabric.

5. The comfortable bone-affixing structure for underwear of claim 4, wherein the flexible tube has two joint edges, and the two joint edges are combined with two edges of the fabric on which the cushion is attached by sewing.

6. The comfortable bone-affixing structure for underwear of claim 4, wherein the flexible tube has a vertical section of a scroll-like shape, while an outer joint edge of the flexible tube, one edge of the fabric on which the cushion is attached, and a lateral of the flexible tube are combined together by sewing.

7. The comfortable bone-affixing structure for underwear of claim 1, wherein the flexible tube has a vertical section of a scroll-like shape with plural layers, and the cushion is deposited on one of the layers.

8. The comfortable bone-affixing structure for underwear of claim 7, wherein the cushion and the space for accommodating the boning member are deposited on different said layers.

9. The comfortable bone-affixing structure for underwear of claim 1, wherein the cushion is made of silicone resin, rubber, plastic foam material, polyurethane (PU), thermoplastic elastomer (TPE) or thermoplastic rubber (TPR).

10. The comfortable bone-affixing structure for underwear of claim 1, wherein the boning member is an underwire under

a bra cup of the underwear, a plastic side bone adjacent to the bra cup of the underwear or a supportive shaping bone of a torso portion of the underwear.

11. A shoulder strap for underwear, wherein the shoulder strap comprises the comfortable bone-affixing structure of claim 1.

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