



- (51) **International Patent Classification:**
A41C 3/00 (2006.01) A41C 3/14 (2006.01)
- (21) **International Application Number:**
PCT/IB2011/052689
- (22) **International Filing Date:**
20 June 2011 (20.06.2011)
- (25) **Filing Language:** Italian
- (26) **Publication Language:** English
- (30) **Priority Data:**
RM2010U000149 17 August 2010 (17.08.2010) IT
- (71) **Applicant (for all designated States except US):** UNIVERSITÀ DEGLI STUDI DI ROMA "LA SAPIENZA" [IT/IT]; Piazzale Aldo Moro 5, I-00185 Roma (IT).
- (72) **Inventor; and**
- (75) **Inventor/Applicant (for US only):** GRIPPAUDO, Romana, Francesca [IT/IT]; Via Stazzo Quadro 20/B, I-00060 Riano RM (IT).
- (74) **Agents:** PAPA, Elisabetta et al.; Società Italiana Brevetti S.p.A. Piazza, di Pietra 39, I-00186 Roma (IT).
- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

- (84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

Published:

— with international search report (Art. 21(3))

(54) **Title:** BRASSIERE FOR CONTAINING DRESSINGS AND/OR FOR CORRECTING ASYMMETRIES

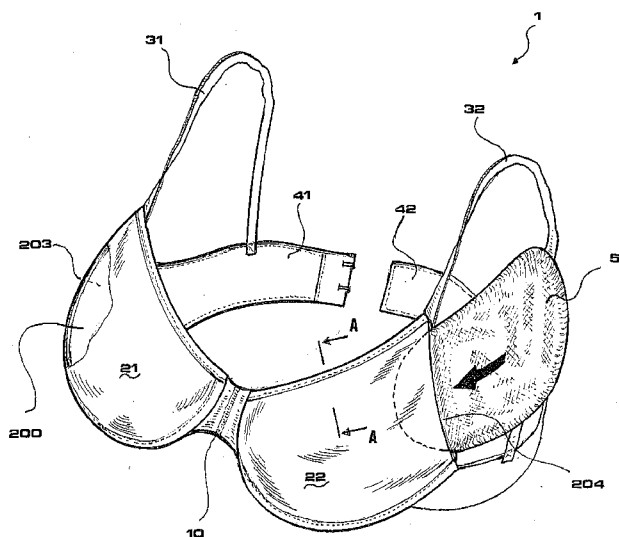


Fig.1

(57) **Abstract:** Brassiere (1) comprising two cups (21, 22), each one shaped like a shell containing inside a detachable padding (5). The outer shell (201) is pre-shaped, that is without seams, made of natural or synthetic tissue and it has no inserts made of metallic material in order not to exert any compression onto the mammary region. The inner shell (202) is made of breathable and extensible elastic fibres, to allow supporting the healthy breast and keeping in seat the dressing without constricting. The cup shape is so as to be similar to that of a usual brassiere wholly containing the mamma, so as not to reveal the presence of dressing or shape or volume asymmetries even below light dresses. (Fig. 1).

WO 2012/023059 A1

BRASSIERE FOR CONTAINING DRESSINGS AND/OR FOR CORRECTING ASYMMETRIES

DESCRIPTION

5 The present invention relates to a brassiere containing dressings and/or correcting temporary dysmorphae.

Several operations of mammary surgery or breast medical treatments generally determine a permanent or temporary asymmetry, between volume, shape and/or
10 general sizes of the two mammas, in some cases even linked to the presence of bulky dressings.

These asymmetries in particular occur in case of:

- tissue deficits consequent to ablative surgery operations of the mammary region during the breast reconstruction (post-quadrantectomy, reconstruction with
15 tissue expansion procedure, reconstructive procedures with lipofilling), or
- encumbrances due to the post-quadrantectomy dressings or those needed to keep and consolidate the result obtained after the nipple surgery (nipple reconstruction after mastectomy, procedures for correcting the introflexed
nipple).

20 Due to such asymmetries, the patient experiments huge inconveniences, of psychological and social nature, above all linked to the impossibility of adopting an underwear allowing to dissimulate the asymmetries themselves, however without interfering with possible ongoing treatments. In fact, it is to be noted that inappropriate underwear articles not only may not result however satisfying from an
25 aesthetical point of view, but above all they may have a negative impact on the above-mentioned treatments, thus compromising for example the dressings' efficiency and/or implying the application of unsuitable stresses on mamma(s).

An additional difficulty takes place then in case the asymmetries can vary with time.

The underwear articles of known art do not allow to meet to the above mentioned
30 needs adequately.

Therefore, the technical problem placed and solved by the present invention is to provide a female underwear apt to cover the mammary region, in particular a brassiere, corset or the like, allowing to meet to the above-mentioned needs and to

obviate the above illustrated drawbacks of the known art.

Such problem is solved by an underwear according to claim 1.

Preferred features of the present invention are present in the claims depending from the same.

5 The present invention provides some important advantages. The main advantage consists in the fact that it allows dissimulating asymmetries, which can even vary with time, of the mammary region, allowing to act in a simple way onto the volume of the underwear cups so as to modify it as a consequence of the volumetric defect (asymmetry) to be corrected, at the same time allowing, if necessary, the correct
10 positioning and keeping in place of the dressing of the operated mamma or nipple so as not to exert compressions onto the tissues.

Furthermore, the invention allows sustaining the counter-side healthy mamma in an efficient way, so as to guarantee a normal wearability to allow keeping privacy with respect to the subjected operation.

15 The invention even results to be extremely versatile with respect to the type of asymmetry to be corrected.

Other advantages, features and application modes of the present invention will result evident from the following detailed description of some embodiments, shown
20 by way of example and not for limitative purpose. The figures of the enclosed drawings will be referred to, wherein:

- Figure 1 shows a perspective view of an embodiment of a brassiere according to the present invention; and
- Figure 1A shows a view in longitudinal section of the brassiere of Figure 1,
25 performed according to the line A-A of this last figure.

With reference to Figures 1 and 1A, a brassiere according to a preferred embodiment of the invention is designated as a whole with 1.

The brassiere 1 has a conventional structure as a whole, in the sense that it
30 includes a first and a second cup-like member, respectively 21 and 22, each one apt to contain a respective mamma and towered above by a respective shoulder band, or shoulder strap, 31, 32. Furthermore, laterally to the cup-like members 21 and 22 two chest bands depart, respectively 41 and 42.

Preferably, the shoulder straps 31 and 32 can be adjusted and moved so as to be
35 worn in traditional way onto the shoulders or laced to the neck or even crossed

behind the back in order to allow wearability even with dresses with necklines of American type.

The just described members 31, 32 and 41, 42 are however well known and then they will not be further described.

5 Preferably, the brassiere 1 has front opening means 10 arranged between the two cup-like members 21 and 22, in order to ease the opening/closing procedures which could result to be difficult due to post-surgical pain.

The invention mainly relates to the manufacturing of the above-mentioned cup-like members 21 and 22.

10 In particular, each cup-like member 21, 22 has a substantially multi-layered shell-like structure, in particular formed by:

- a first outer layer 201, pre-shaped according to an outwardly convex shape so as to define a seat or recess 203 for receiving the respective mamma; and
 - a second elastically deformable inner layer 202, apt to arrange adjacent to the
- 15 subject body and to conform to the local morphology thereof.

Preferably, the inner layer 202 is made of breathable and extensible elastic fibres, for example one or more of the materials known with the trade names of spandex, lycra®, lycra soft®, elastan, Tactel®, Weftlock or other, in order to allow supporting the healthy breast and keeping the possible dressing in the seat without

20 constricting.

Preferably, the outer layer 201 does not have seams and it is made of natural or synthetic tissue, for example cotton, elastan, polyamide, nylon, tactel, microfibres, spandex, polyester or other, and it has no inserts made of metallic material in order not to exert any compression onto the mammary region.

25 The shape of each cup-like member 21, 22 is so as to be similar to the one of a usual brassiere wholly containing the mamma, so as not to reveal the presence of dressings or shape and volume asymmetries even below light dresses.

The two layers 201 and 202 are made integral at a prevailing portion of its own periphery or perimeter, however an access opening 204 of a pocket-like seat 200, defined between the two layers 201 and 202, remains at such peripheries or

30 perimeters. Such opening 204 is preferably placed at an outer side portion of the respective cup-like member 21, 22 and it can even result to be able to be selectively closed, for example by means of velcro or equivalent reversible closing means.

35 The brassiere 1 of the present embodiment then, for each cup-like member 21, 22,

comprises a respective removable filling members, or padding 5, and in particular apt to be removably received in a respective pocket-like seat 200. In the present configuration, which is symmetrical, the two filling members 5 are interchangeable, in the sense that each one thereof can be received indifferently in one of the two
5 pocket-like seats 200.

Preferably, each filling member 5 is made of a light, breathable, smooth synthetic material, which does not favour the heat stagnation and which does not compress, for example one or more of the known materials such as Vlies, polyurethane, latex, foam rubber or other. In such way, the member 5 does not exert pressure onto the
10 tissues, it does not weigh and it does not favour the occurrence of cutaneous irritations.

Preferably, the filling member 5 has a thickness within a range of about 0.5-1.0 cm. However, the number of filling members 5 provided with the brassiere 1 can vary from one to a plurality, and not necessarily all filling members of such plurality
15 result to have an equal shape and/or volume.

In fact, the function of each filling member is to allow a volume modulation of a cup-like member to allow compensating possible reductions or increases in the counter-lateral mamma volume or dissimulating shape anomalies of the mamma housed in the cup-like member associated to the filling member itself. For example,
20 a filling member 5 can be arranged at the cup-like member 21 or 22 covering the mamma with minor volume. This can be the operated mamma in case of total or partial mastectomy or the healthy mamma in case of presence of cumbersome dressings on the counter-lateral mamma.

As mentioned above, the whole construction is so that each filling member 5 can
25 be easily inserted/taken off through the opening 204, so as to make the brassiere 1 useful for the surgery of the right, left or bilateral breast.

Furthermore, preferably each filling member 5 results to be easy to be shaped for example through cut with scissors or the like, so as to be able to shaped according to the specific needs of the subject wearing the brassiere. For example, a filling
30 member 5 can be shaped so as to compensate the tissue defect result of the mamma demolishing surgery. In such case, in fact, the mamma has a temporary deficit of shape and/or volume which is variable during the whole reconstructive procedure and which often requests some months to be completed. The brassiere 1 allows the patient to dissimulate the asymmetry variable with time in shape and
35 volume of the ill side, in order to obtain the same objective of natural aspect of the mammary region. Such result, indeed, can be obtained by shaping, if necessary,

- 5 -

the filling member 5 so as to reduce with time the volume thereof proportionally to the mamma volume increase due to the reconstruction.

Then, at this point it will be better appreciated that the brassiere 1 is an effective post-operative medical device at all effects.

5 Based upon an embodiment variant, it can be provided under the form of a kit incorporating a main brassier body and a plurality of filling members associated thereto, in case having different shapes and/or volumes to adapt to the needs of different patients and/or of a same patient in different treatment phases.

10 Furthermore, based upon an additional variant each filling member can have means for connecting in a reversible way to the corresponding pocket-like seat, this latter in turn being able to have corresponding complementary connection means. Such reversible connection means, for example, can be implemented under the shape of complementary strips made of velcro, in case provided shielded by an adhesive band which can be selectively removed upon use.

15

Some additional specific application example of the brassiere 1 will be now shown.

20 The brassiere 1 finds a first application after the nipple corrective and reconstructive surgery. After the surgical procedure, in order to sustain the neo-nipple reconstructed after a mastectomy, or after the operation for correcting the introflexed nipple, in order to allow to keep in seat the acquired projection, it is necessary to sustain the nipple with voluminous dressings, for about three weeks. The brassiere 1 allows shaping the filling member 5 related to the healthy mamma in a way adequate to the encumbrance shown by the dressing. This, together with the pre-shaped structure of the outer layer 201, allows keeping the dressing in
25 seat, supporting the healthy mamma and obtaining a normal wearability, even if with a temporary increased mammary aspect.

30 The same brassiere 1 finds a second application after demolishing surgery of the mammas with programmed immediate or deferred reconstruction, by using the tissue expansion procedure. With this procedure an empty tissue expander is inserted into the seat subjected to mastectomy, which expander is progressively filled-up with a physiological solution in outpatient sessions, thus extending the tissues standing above too. Once reached a volume similar to that of the counter-lateral mamma, or a satisfying volume in case of bilateral reconstructions, the tissue expander full of physiological solution is replaced by a definitive mammary
35 prostheses. Therefore, the mastectomized side is initially flattened and then it can vary upon increasing the expander volume: consequently a continuous volume

variation between the two mammas takes place, which can be easily compensated by taking out the brassiere padding from the not-operated breast side and by varying the padding volume from the side subjected to the volume increase.

5 A third application is used after quadrantectomy operations, that is after the segmental removal of one single quadrant of the mammary cone, with consequent shape and volume asymmetry. With the brassiere 1 in a first moment it is possible facilitating to position and keep correctly the dressings of the operated side by guaranteeing at the same time to sustain the healthy breast, thus allowing the patient to keep a wearability so as to dissimulate the subjected operation. In a
10 a second time, during the reconstructive procedure with lipofilling, that is reintegration of the mammary tissue removed by pathology with autologous adipic tissue, it is possible to shape and re-model the padding from the operated side, by making it lighter gradually as the reconstruction proceeds until obtaining a shape and volume symmetry between the two sides so as to allow the wearability of a common
15 brassiere.

The present invention has been so far described with reference to preferred
embodiments. It is to be meant that other embodiments belonging to the same
20 inventive core can exist, as defined by the protective scope of the herebelow reported claims.

- 7 -

CLAIMS

1. A female underwear (1) apt to cover the mammary region, in particular a brassiere or a corset, comprising:
- 5 - a pair of cup-like members (21, 22), each one apt to contain a respective mamma and, in turn, having a first outer layer (201) pre-shaped so as to define a recess (203) for receiving one mamma and a second elastically deformable inner layer (202), the whole arrangement being so that between said two layers (201, 202) a pocket-like seat remains (200); and
 - 10 - at least a filling member (5), apt to be removably received in said pocket-like seat (200).
2. The underwear (1) according to claim 1, wherein said second inner layer (202) is made of a breathable material.
3. The underwear (1) according to claim 1 or 2, wherein said pocket-like seat (200) has an access opening (204) arranged at a side portion of the respective cup-like
- 15 member (21, 22).
4. The underwear (1) according to the preceding claim, wherein said opening (204) results to be reclosable in a reversible way.
5. The underwear (1) according to anyone of the preceding claims, wherein said filling member (5) is made of a breathable material.
- 20 6. The underwear (1) according to anyone of the preceding claims, wherein said filling member (5) is made of a material which can be shaped easily.
7. The underwear (1) according to anyone of the preceding claims, comprising a plurality of filling members (5) each one apt to be removably received in said pocket-like seat (200).

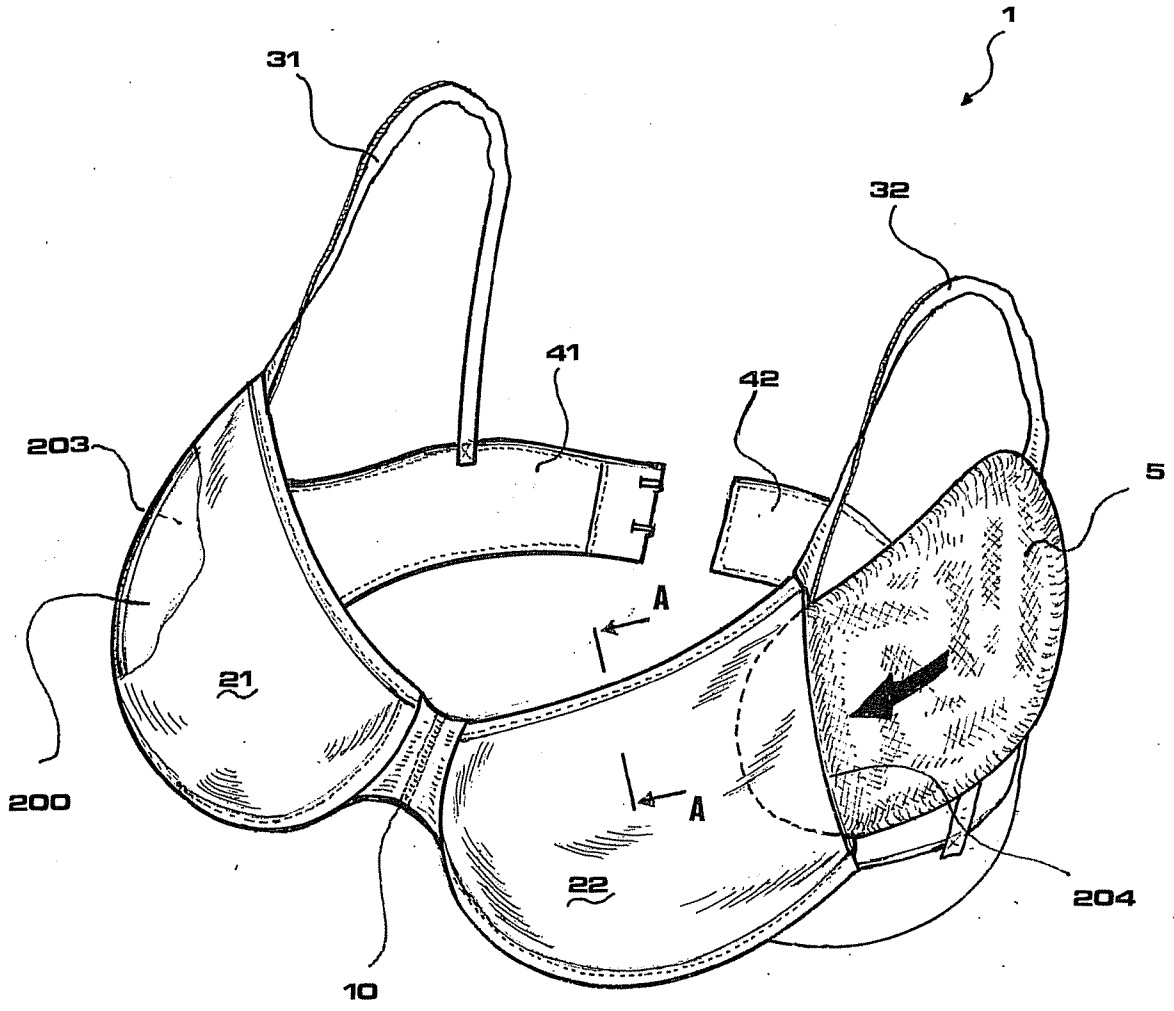


Fig.1

A-A

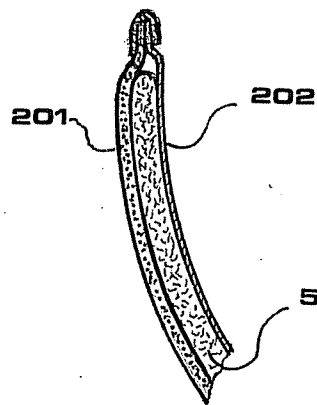


Fig.1a

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2011/052689

A. CLASSIFICATION OF SUBJECT MATTER
 INV. A41C3/00 A41C3/14
 ADD.
 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

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

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
 EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 443 805 B1 (KIRKWOOD KATHLEEN [US]) 3 September 2002 (2002-09-03) column 4, lines 50-67; figures 1,8,11 page 6, lines 16-59	1-7
X	US 2005/037687 A1 (NEWMAN JOANNA M [US]) 17 February 2005 (2005-02-17) paragraphs [0020], [0021]; figures 4,5	1
X	US 2010/035514 A1 (WONG LYNDA [HK] ET AL) 11 February 2010 (2010-02-11) paragraphs [0041], [0048], [0053]; figures 1,5	1
X	US 3 398 749 A (BARG DORA A) 27 August 1968 (1968-08-27) column 2, lines 10-46; figure 2	1

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "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 6 September 2011	Date of mailing of the international search report 15/09/2011
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer D'Souza, Jennifer

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2011/052689

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6443805	B1	03-09-2002	NONE
US 2005037687	A1	17-02-2005	WO 2005018352 A2 03-03-2005
US 2010035514	A1	11-02-2010	CA 2675171 A1 07-02-2010
US 3398749	A	27-08-1968	NONE