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Remarks:
Amended claims in accordance with Rule 86 (2) EPC.

(54) Sitting cushion with improved comfort

(57) A sitting cushion with improved comfort, of the type comprising, enclosed in a cover (11), at least one airtight hermetic container (17) made of flexible material, which contains at least one layer (13) made of open-cell polymeric foam, and at least one element (14) made of an expanded polymer, such as sponge rubber or the like. The expanded-polymer element (14) forms a sitting portion (15) which has, at the ischiopubic and sacral region of a user, a compartment (16) for at least one, selectively, among an additional hermetic container (112, 212) which contains a layer of polymeric foam (113), an expanded polymer padding (19), or a combination thereof.

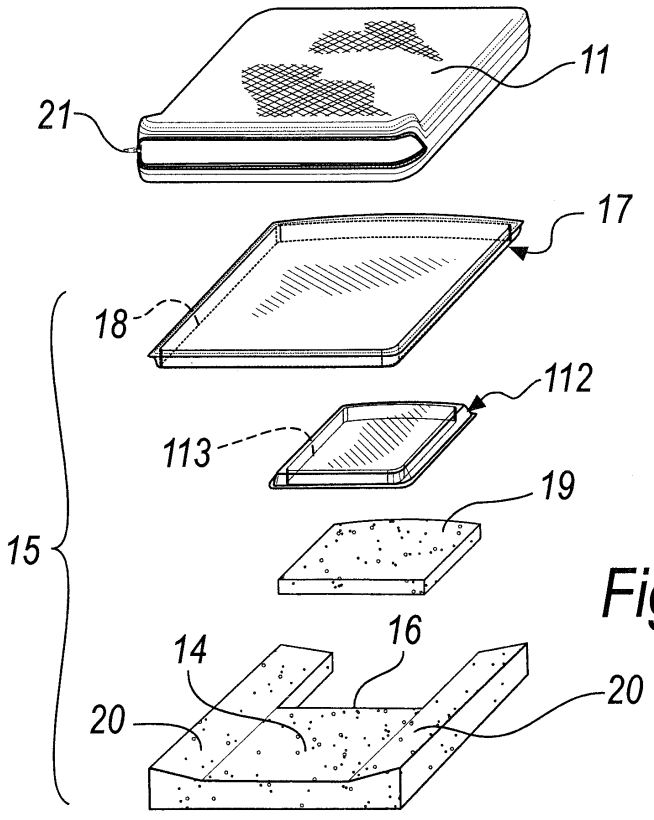

Fig. 2

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Description

[0001] The present invention relates to a sitting cushion with improved comfort.

[0002] Cushions with improved comfort are currently known which are adapted particularly but not exclusively for use in the medical field for invalids, ill people, etc, who remain lying down or sitting down for a long time.

[0003] Inpatients, and even more so long-term inpatients, easily and frequently suffer from bedsores.

[0004] Bedsores are dystrophic lesions of the skin determined by prolonged mechanical compression of the skin between a contact surface and a substantially subcutaneous bone surface.

[0005] Immobilization of the inpatient is the basic causative factor of these sores, since it facilitates general and local morphofunctional modifications: the ill person cannot change position on his own and no longer perceives the awkward position.

[0006] Prevention therefore becomes a constant burden for nursing staff and is effective only if systematic and continuous monitoring is performed twenty-four hours a day.

[0007] The traditional method for preventing bedsores consists in changing position approximately every two or three hours, monitoring the trophic condition of the skin and of the contact points.

[0008] However, this method inconveniences the patient considerably, interrupting his sleep and reawakening the pain if present.

[0009] Methods for preventing bedsores become of course even more indispensable in the case of sores that have already developed and in the case of lesions that are already at an advanced stage.

[0010] An important means for preventing bedsores are indeed cushions with improved comfort.

[0011] Cushions with improved comfort of the known type comprise, enclosed within a cover, at least one airtight hermetic container made of flexible material, which contains at least one layer of open-cell polymeric foam and at least one layer of expanded polymer, such as sponge rubber or the like.

[0012] The layer of open-cell polymeric foam can be for example made of expanded polyurethane treated with unsaturated acrylic resin.

[0013] This material is particularly suitable, because it has a certain slow shape memory which makes it self-modeling, i.e., easy to shape without particular rebound forces, therefore having more a supporting function than a load-bearing function.

[0014] A cushion as described above is disclosed in Utility Model Application No. PD2001U25 of 23 March 2001 in the name of this same Applicant.

[0015] Although these known cushions are highly appreciated in the medical field, they have aspects which can be improved.

[0016] Known cushions in fact have an equal resiliency in all of their parts, and therefore there are no cushion portions which support the anatomical parts that surround the regions most subject to sores (such as for example the ischiopubic region and the sacral region), since the weight of the user and his posture determine the anatomical shape of the cushion by means of the displacement of the air inside the container which contains a layer of open-cell polymeric foam.

[0017] The aim of the present invention is to provide a sitting cushion with improved comfort which is capable of reducing the load on the regions that are most subject to bedsores, maintaining the advantages of softness and self-shaping of known types of cushion.

[0018] Within this aim, an object of the invention is to provide a cushion which has an improved bedsore prevention action and can also modify the anteroposterior posture and the balancing suitable for the patient.

[0019] Another object is to provide a cushion in which the comfort requirements can be changed easily both during production and at the user's premises, depending on the needs of the inpatient or the like.

[0020] Another object of the present invention is to provide a sitting cushion with improved comfort which can also be used every day and can be associated with pieces of furniture such as armchairs, office chairs, sofas and the like.

[0021] Another object is to provide a cushion composed of elements which are easily available and can be manufactured at low cost with conventional facilities and equipment.

[0022] This aim and these and other objects, which will become better apparent hereinafter, are achieved by a sitting cushion with improved comfort, of the type which comprises, enclosed in a cover,

- at least one airtight hermetic container made of flexible material, which contains at least one layer made of open-cell polymeric foam,
- and at least one element made of an expanded polymer, such as sponge rubber or the like,

characterized in that said expanded polymer element forms a sitting portion which has, at the ischiopubic region and sacral region of a user, a compartment for at least one, selectively, among an additional hermetic container which contains a layer of polymeric foam, an expanded polymer padding, or a combination thereof.

[0023] Further characteristics and advantages of the invention will become better apparent from the following detailed description of three preferred but not exclusive embodiments thereof, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is a perspective view of a cushion according to the invention in the assembled condition;

Figure 2 is an exploded view of a cushion according to the invention;

Figure 3 is a sectional side view of a cushion according to the invention in a first embodiment;

Figure 4 is a sectional side view of a cushion according to the invention in a second embodiment thereof;
Figure 5 is a sectional side view of a cushion according to the invention in a third embodiment.

[0024] With reference to the figures, a sitting cushion with improved comfort according to the invention, in a first embodiment, is generally designated by the reference numeral 10 and is shown in cross-section in Figure 3.

[0025] The cushion 10 comprises, within a cover 11, a first anatomically contoured element 14 made of expanded polymer, which forms a sitting portion 15.

[0026] The first element 14 made of expanded polymer has, at the ischiopubic and sacral region of a user, a compartment 16, which is open upward and downward.

[0027] At least one, selectively, among a hermetic container, shown in Figure 2, designated by the reference numeral 112, described in greater detail hereinafter and containing a layer 113 of polymeric foam, an expanded polymer padding 19, or a combination thereof, is arranged inside the compartment 16.

[0028] In the first embodiment of the cushion 10, the compartment 16 accommodates the padding 19 made of expanded polymer.

[0029] A hermetic container 17, which contains a layer 18 of open-cell polymeric foam, is arranged above the first element 14 made of expanded polymer and above the padding 19, which is shaped substantially complementary with respect to the compartment 16, again inside the case 11.

[0030] The hermetic container 17 is made of a polymer in electrically heat-bonded film form.

[0031] Said polymer is preferably thermoplastic polyurethane.

[0032] The first expanded polymer element 14 is generally made of sponge rubber or the like or of polyurethane.

[0033] The layer 18 of polymeric foam, in the example of embodiment described here, is made of expanded polyurethane treated with unsaturated acrylic resin.

[0034] It is convenient to use this material, as it has a certain slow shape memory which allows it to be shaped without particular forces in the points of highest loading.

[0035] The anatomically contoured shape of the cushion 10, the first expanded polymer element 14 whereof is anatomically standardized, is then personalized by a self-modeling system formed by the container 17 and, when present, by the additional container 112, without having to exaggerate the amount of air inside the containers 17 and 112, which would cause instability in the posture of the user.

[0036] The container 17, which as mentioned contains a layer 18 of open-cell slow-memory polymeric foam, provides the cushion 10 with even greater surface resiliency and shaping ability, mitigating the immediate elastic response that the first element 14 made of expanded polymer applies under the weight force of the inpatient.

[0037] In the example of embodiment described here, the first expanded polymer element 14, which forms the sitting portion 15, is provided with ergonomic lateral side walls 20 for guiding toward a correct posture for the user.

[0038] A second embodiment of the invention is shown in Figure 4 and designated by the reference numeral 110 therein.

[0039] In this second embodiment, the cushion 110 has, in a compartment 116, a hermetic container 112, which is airtight and made of a flexible material which contains a layer 113 of open-cell polymeric foam.

[0040] The hermetic container 112 and the first element 114 are arranged below a container 117 which contains a layer of polymeric foam 118 made of expanded polyurethane treated with unsaturated acrylic resin.

[0041] The cushion 110 therefore offers, by means of the first expanded polymer element 114, greater support for the inpatient in the areas surrounding the ischiopubic and sacral regions, so that said ischiopubic and sacral region rests without being compressed by the weight of the body on the additional container 112.

[0042] A third embodiment of the cushion is designated by the reference numeral 210 in Figure 5.

[0043] In this third embodiment; a hermetic container 212 and, together with it, a padding 219 made of expanded polymer are provided within a compartment 216 of the first element 214 made of expanded polymer.

[0044] The expanded-polymer padding 219 is selectively made of expanded polyurethane, polyurethane agglomerate or other similar and equivalent materials, which are adapted to lift and support the ischiopubic and sacral region in order to modify the posture without however reducing comfort.

[0045] The weight shifted forward is matched by a reduced need for cushioning air at the back.

[0046] In another embodiment of the cushion according to the invention, a valve is coupled to at least one of the containers 17, 117, 112 and 212 in order to adjust the amount of air that is present inside the container.

[0047] By means of said valve, not shown for the sake of simplicity, it is possible to adjust the amount of the air inside the containers, i.e., the amount of air that is present in the cells of the layers 18 and 113 of polymeric foam, and thereby reduce the amount of self-modeling capacity of the respective containers 17 and 112.

[0048] The cover 11, 111 and 211 is a cover made of cellular mesh in order to facilitate breathability and is provided with a zip fastener 21, 121 and 221, or with a Velcro® closure, in order to allow quick extraction of the various elements contained therein.

[0049] Advantageously, the hermetic enclosure 112 and 212, with a layer 113 and 213 of polymeric foam, is interchangeable with a similar complementary-shaped container having a different thickness, depending on requirements and needs of the inpatient.

[0050] Likewise, the expanded-polymer padding 19 and 219 is interchangeable with one or more additional expanded-polymer paddings having a different thickness

and/or different density.

[0051] In practice it has been found that the invention thus described solves the problems noted in known types of sitting cushion with improved comfort.

[0052] In particular, the present invention provides a sitting cushion with improved comfort which can spread evenly the load on the entire surface, privileging the regions that are most subject to bedsores and maintaining the advantages of softness and self-modeling of known types of cushion.

[0053] Moreover, the present invention provides a cushion which has an improved bedsore prevention action.

[0054] Further, the present invention provides a cushion in which the comfort requirements can be changed easily both during manufacture and at the user's premises, according to requirements of the inpatient or the like.

[0055] Moreover, the present invention provides a sitting cushion with improved comfort which is intended for everyday use and can be associated with pieces of furniture such as armchairs, office armchairs, sofas and the like.

[0056] The sitting portion described in the invention can in fact be given any size and accordingly can also be incorporated in per se known types of furniture, or a cushion according to the invention can simply be kept separate but on hand for easy and straightforward use whenever the sitting position entails a certain discomfort of the anatomical parts in contact.

[0057] Not least, the present invention provides a cushion composed of elements which are easily available and can be manufactured at low cost with conventional facilities and equipment.

[0058] The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

[0059] All the details may further be replaced with other technically equivalent elements.

[0060] In practice, the materials employed, so long as they are compatible with the specific use, as well as the dimensions, may be any according to requirements and to the state of the art.

[0061] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A sitting cushion with improved comfort, of the type comprising, enclosed in a cover (11),

- at least one airtight hermetic container (17) made of flexible material, which contains at least one layer (13) made of open-cell polymeric foam,
- and at least one element (14) made of an expanded polymer, such as sponge rubber or the like,

characterized in that said expanded polymer element (14) forms a sitting portion (15) which has, at the ischiopubic region and sacral region of a user, a compartment (16, 116, 216) for at least one among an additional hermetic container (112) which contains a layer (113) of polymeric foam, an expanded polymer padding (19, 219), or a combination thereof.

2. The cushion according to claim 1, **characterized in that** said at least one hermetic container (17) is arranged above said expanded-polymer element (14).

3. The cushion according to one or more of the preceding claims, **characterized in that** said compartment (16) is open at least upward.

4. The cushion according to one or more of the preceding claims, **characterized in that** in said compartment (16) there is an expanded-polymer padding (19).

5. The cushion according to one or more of claims 1 to 3, **characterized in that** in said compartment (116) there is an additional hermetic container (112), which contains a layer (113) of polymeric foam.

6. The cushion according to one or more of claims 1 to 3, **characterized in that** at least one padding (219) made of expanded polymer is arranged inside said compartment (216) together with said additional hermetic container (212) with a layer of polymeric foam.

7. The cushion according to claim 6, **characterized in that** said expanded-polymer padding (219) is made of expanded polyurethane or polyurethane agglomerate or other similar and equivalent materials.

8. The cushion according to one or more of the preceding claims, **characterized in that** a valve is coupled to at least one of said containers (17, 112, 212) in order to adjust the amount of air that is present inside the container, so as to avoid instability.

9. The cushion according to one or more of the preceding claims, **characterized in that** said additional hermetic container (112, 212) with a layer of polymeric foam is interchangeable with a similar complementary shaped container having a different thickness.

10. The cushion according to one or more of the preceding claims, **characterized in that** said hermetic con-

tainers (17, 112, 212) are made of a polymer in electrically heat-bonded film form.

11. The cushion according to claim 10, **characterized in that** said polymer is polyurethane.

12. The cushion according to one or more of the preceding claims, **characterized in that** said at least one layer (18, 113) of polymeric foam is enclosed within the respective container (17, 112, 212).

13. The cushion according to one or more of the preceding claims, **characterized in that** the open-cell polymeric foam of the layer (18, 113) is expanded polyurethane treated with unsaturated acrylic resin.

14. The cushion according to one or more of the preceding claims, **characterized in that** said expanded-polymer anatomically-contoured element (14) is made of expanded polyurethane, polyurethane agglomerate, and the like.

15. The cushion according to one or more of the preceding claims, **characterized in that** said cover (11) is a cover made of net or other material which is breathable at least at its surface.

16. The cushion according to one or more of the preceding claims, **characterized in that** the expanded-polymer element (14) which forms the sitting portion (15) is provided with ergonomic lateral side walls (20) for guiding toward a correct posture for a user.

Amended claims in accordance with Rule 86(2) EPC.

1. A sitting cushion with improved comfort, of the type comprising, enclosed in a cover (11),

- at least one airtight hermetic container (17) made of flexible material, which contains at least one layer (18) made of open-cell polymeric foam,
- and at least one element (14) made of an expanded polymer, such as sponge rubber or the like,

characterized in that said expanded polymer element (14) forms a sitting portion (15) which has, at the ischiopubic region and sacral region of a user, a compartment (16, 116, 216), at least one among an additional hermetic container (112) which contains a layer (113) of polymeric foam, an expanded polymer padding (19, 219), or a combination thereof being arranged inside said compartment, said at least one hermetic container (17) being arranged above said expanded-polymer element (14) and above said additional hermetic container (112), said padding (19,119) or said combination thereof.

2. The cushion according to one or more of the preceding claims, **characterized in that** said compartment (16) is open at least upward.

3. The cushion according to one or more of the preceding claims, **characterized in that** in said compartment (16) there is an expanded-polymer padding (19).

4. The cushion according to one or more of claims 1 to 3, **characterized in that** in said compartment (116) there is an additional hermetic container (112), which contains a layer (113) of polymeric foam.

5. The cushion according to one or more of claims 1 to 3, **characterized in that** at least one padding (219) made of expanded polymer is arranged inside said compartment (216) together with said additional hermetic container (212) with a layer of polymeric foam.

6. The cushion according to claim 6, **characterized in that** said expanded-polymer padding (219) is made of expanded polyurethane or polyurethane agglomerate or other similar and equivalent materials.

7. The cushion according to one or more of the preceding claims, **characterized in that** a valve is coupled to at least one of said containers (17, 112, 212) in order to adjust the amount of air that is present inside the container, so as to avoid instability.

8. The cushion according to one or more of the preceding claims, **characterized in that** said additional hermetic container (112, 212) with a layer of polymeric foam is interchangeable with a similar complementary shaped container having a different thickness.

9. The cushion according to one or more of the preceding claims, **characterized in that** said hermetic containers (17, 112, 212) are made of a polymer in electrically heat-bonded film form.

10. The cushion according to claim 10, **characterized in that** said polymer is polyurethane.

11. The cushion according to one or more of the preceding claims, **characterized in that** said at least one layer (18, 113) of polymeric foam is enclosed within the respective container (17, 112, 212).

12. The cushion according to one or more of the preceding claims, **characterized in that** the open-cell polymeric foam of the layer (18, 113) is expanded polyurethane treated with unsaturated acrylic resin.

13. The cushion according to one or more of the preceding claims, **characterized in that** said expanded-polymer anatomically-contoured element (14) is made of expanded polyurethane, polyurethane agglomerate, and the like.

14. The cushion according to one or more of the preceding claims, **characterized in that** said cover (11) is a cover made of net or other material which is breathable at least at its surface.

15. The cushion according to one or more of the preceding claims, **characterized in that** the expanded-polymer element (14) which forms the sitting portion (15) is provided with ergonomic lateral side walls (20) for guiding toward a correct posture for a user.

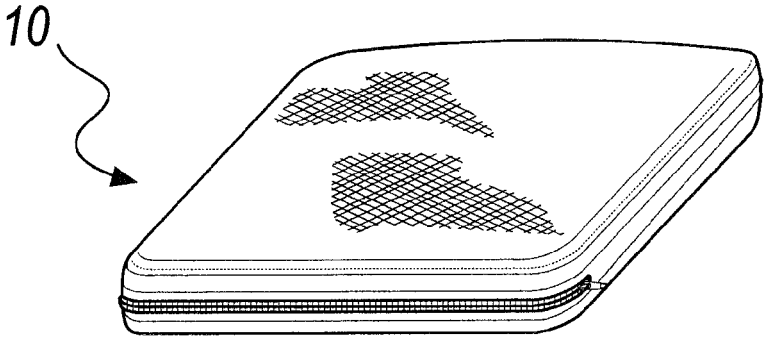

Fig. 1

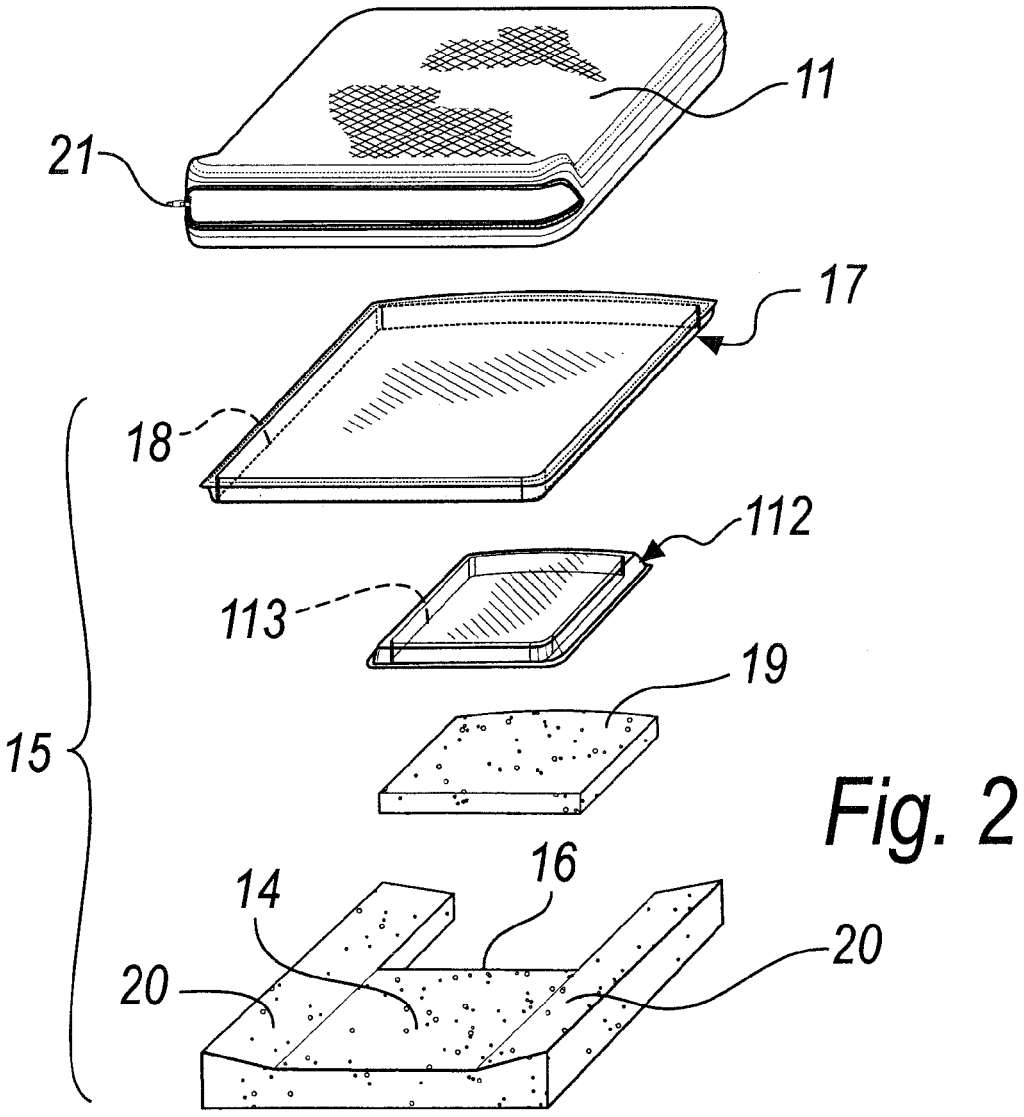

Fig. 2

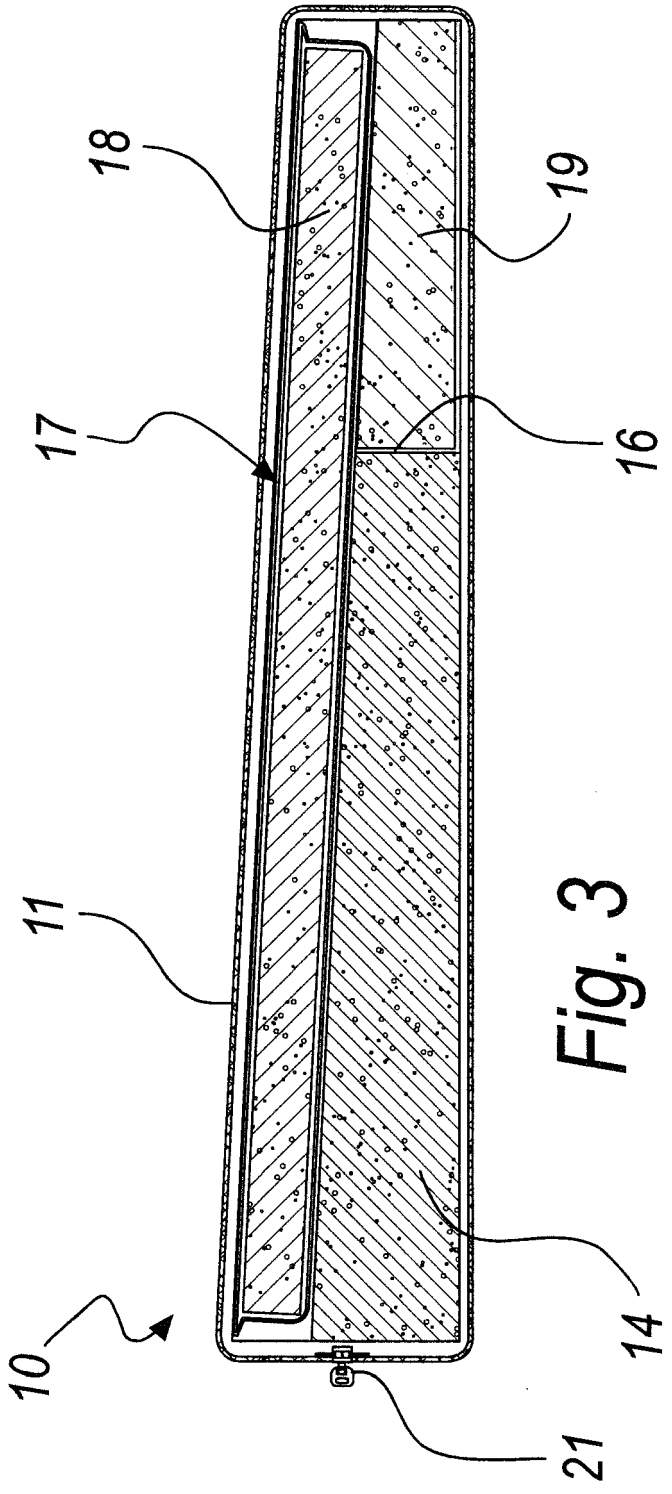

Fig. 3

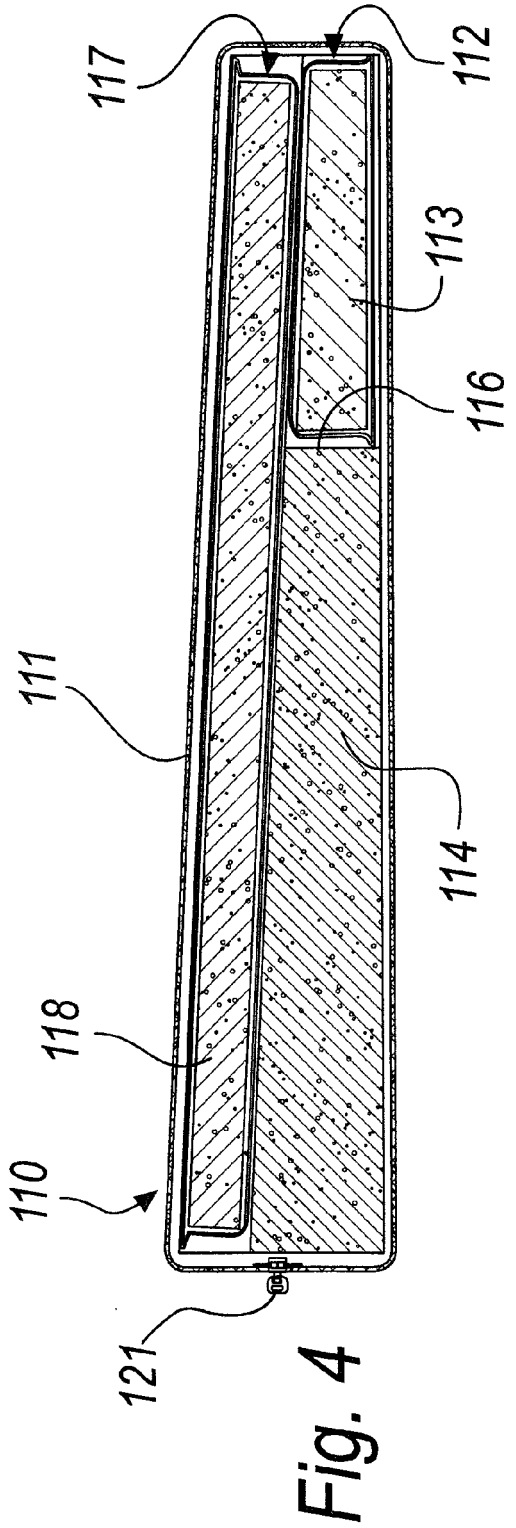
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Fig. 4

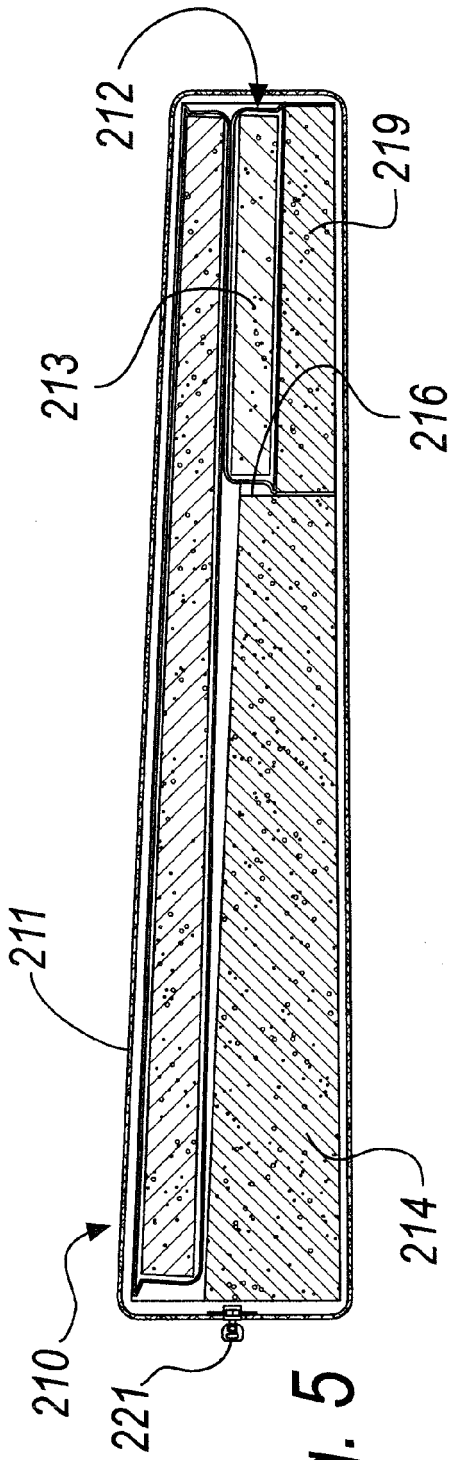
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Fig. 5

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EUROPEAN SEARCH REPORT

Application Number
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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X Y	US 5 390 384 A (DINSMOOR, III ET AL) 21 February 1995 (1995-02-21) * column 4, line 31 - column 5, line 18 * * column 10, lines 8-18 - column 11, lines 8-26; figures 1-23 *	1-7,9-16 8	INV. A47C7/18 A47C4/54
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TECHNICAL FIELDS SEARCHED (IPC)

A47C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	26 April 2006	Vollering, J

CATEGORY OF CITED DOCUMENTS

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