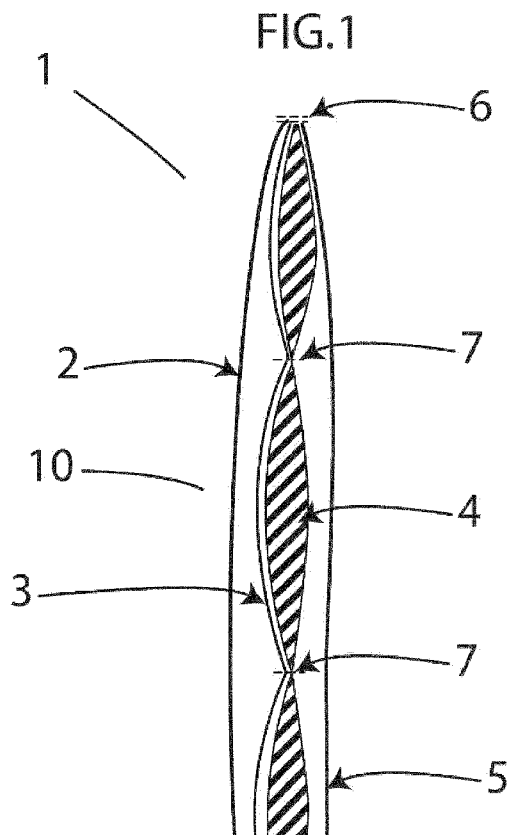




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[Continued on next page]

(54) Title: INSULATED BAG



(57) Abstract: A machine-washable insulated bag (1) is provided, which is formed from a plurality of walls (10), each wall (10) comprising an inner, food-safe layer (5), an intermediate, washable insulation layer (3, 4), and a permeable outer layer (2). The bag is constructed such that it may be machine washed without degradation.

TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, 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, KM, ML, MR, NE, SN, TD, TG).

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Insulated Bag

THE PRESENT INVENTION concerns insulated bags and receptacles which may keep items of
5 food or drink warm or cool, and more specifically bags and receptacles for keeping food or
drink warm or cool that are machine washable and have enhanced insulation capabilities.

Insulated bags are widely used to keep food and or drink warm or cool, and may also be used to
keep other objects warm or cool. For example, an insulated bag may be used to keep ice or
10 organs for transplants cool, amongst other uses.

In general, flexible insulated bags are wipe-clean only owing to their method of manufacture,
the materials used and their construction. This type of wipe-clean insulated bag is well-known,
and has been for many years. Presently, if an insulated bag becomes heavily soiled through use
15 and/or a food, drink, or other item leaks or spills onto the bag to such an extent that the
insulated bag cannot be cleaned by wiping alone, it is necessary to dispose of the insulated bag.

There are also insulated containers in existence which are rigid, and are constructed from hard
exterior and/or interior materials. These rigid containers are more easily cleaned than current
20 flexible insulated bags, but even these rigid containers are not suitable for machine washing.
Moreover, they are often cumbersome, heavy and difficult to transport.

Therefore, there is a need for a (preferably flexible) insulated bag which may be machine
washed as required, which is longer-lasting and therefore more environmentally friendly.
25

Accordingly, one aspect of the present invention provides a machine-washable insulated bag
comprising an inner, food-safe layer, an intermediate, washable insulation layer, and a
permeable outer layer.

30 Preferably, the intermediate washable insulation layer may be formed of a carrier layer and an
insulating layer.

Conveniently, the insulation layer may be formed of a flexible thermally insulating fibre.

Advantageously, the carrier layer and insulating layers may be stitched together in at least two locations.

5

Preferably, the carrier layer is quilted to the insulating layer.

Conveniently, the inner, intermediate, and outer layers may be sewn together at a seam location.

10

Advantageously, the seam location may further include a cover portion which is placed over the ends of the inner, intermediate and outer layers.

Preferably, the inner, intermediate, and outer layers are rolled together.

15

Advantageously, the inner layer may be formed of thermoplastic polyurethane.

Conveniently, the cover portion may be formed of thermoplastic polyurethane.

20

Conveniently, the piping may also be included at the seam location.

Advantageously, the insulating layer may be formed of Thinsulate (RTM).

Preferably, the outer layer is formed of cotton or polyester.

25

Conveniently, the outer layer may be coated or treated with polytetrafluoroethylene.

Advantageously, piping may be also included at the seam location.

30

Preferably, the bag further incorporates a closure mechanism.

Conveniently, the inner layer may further include one or more pockets.

Advantageously, the or each pocket may be configured to accommodate a cooling or heating pack.

Another aspect of the present invention provides a method of manufacturing a machine-washable insulated bag, the method comprising the steps of providing an inner, food-safe layer, an intermediate, washable insulation layer, and a permeable outer layer, the intermediate insulation formed of a carrier layer and an insulating layer, fixing the carrier layer and insulating layers together in at least two locations, and attaching the inner, intermediate, and outer layers together in at least one seam location.

10

The embodiments of the present invention will now be described, by way of example only, with reference to the figures, in which:

FIGURE 1 shows a schematic diagram of a wall of an insulated bag according to the present invention;

15

FIGURE 2 shows a close-up schematic diagram of an end seam of an insulated bag according to the present invention;

FIGURE 3 shows a close-up schematic diagram of an alternative end seam of an insulated bag according to the present invention;

20

FIGURE 4 shows a close-up schematic diagram of an end seam of an insulated bag according to the present invention at which two walls of the bag are attached together;

25

FIGURE 5 shows a close-up schematic diagram of an end seam at an opening of an insulated bag according to the present invention at the open side of a bag where a zip fastening is provided; and

FIGURE 6 shows an insulated bag according to the present invention.

30

Turning firstly to Figure 1, the wall 10 of an insulated bag 1 according to the present invention is shown.

The wall 10 of the insulated bag 1 includes an outer layer 2, a scrim layer 3, a flexible insulating layer 4, and an inner layer 5. As can be seen, the outer layer 2 and the inner layer 5 are attached together at end seams 6, and the scrim layer 3 and the flexible insulating layer 4 are attached together at a number of fixing locations 7. In some embodiments, the flexible insulating layer 4 may be sandwiched between two scrim layers 3, the two scrim layers and the flexible insulating layer 4 being attached at a number of fixing locations. Various embodiments may use one, two or more scrim layers.

The fixing locations 7 may take the form of quilting, which is a number of lines of fixing which may take a diamond-like pattern, or any other suitable pattern, to attach the scrim layer 3 and the flexible insulating layer 4 to form a thicker and more stable padded material. The lines of fixing forming the fixing locations 7 are generally stitched, but they may be affixed using any other suitable fixing method, for instance adhesive or RF welding.

At the end seams 6 (shown in greater detail in Figures 2 and 3), a multi-layer construction is formed, which includes the outer and inner layers 2, 5, and the scrim layer 3. A cover part 8 is placed over the end seam 6. The end seams 6 are generally stitched together, but they may be affixed by any other suitable fixing method, for instance adhesive or RF welding.

In one embodiment, shown in Figure 2, the multi-layer construction of the end seam 6 also includes the flexible insulating layer 4, and the cover part 8, the outer and inner layers 2, 5, the scrim layer 3, and the flexible insulating layer 4 are all affixed together. The end seams 6 of Figure 2 include two fixings, 11a and 11b. As can be seen, the fixing 11a passes through all of the layers except for the cover layer 8, and the fixing 11b passes through all layers.

The end seams 6 may be formed such that the inner layer 5, the scrim layer 3, the flexible insulating layer 4, and the outer layer 2 are all rolled and/or sewn together to hold the scrim

layer 3 and the flexible insulating layer 4 in place. This ensures that the durability of the insulated bag 1 is maximised.

In an alternative embodiment, shown in Figure 3, the multi-layer construction does not include the flexible insulating layer 4, and only the cover part 8, the outer and inner layers 2, 5, and the scrim layer 3 are affixed together. The end seams 6 of Figure 3 include two fixings, 12a and 12b. As can be seen, the fixing 12a passes through all of the layers except for the cover layer 8 and the flexible insulating layer 4, and the fixing 12b passes through all layers except the flexible insulating layer 4. Again, a rolled and/or sewn construction but excluding the flexible insulating layer 4 may be used.

Dependent upon the thickness of the flexible insulating layer 4, and the intended use of the bag 1, either one of the multi-layer constructions shown in Figures 2 and 3 may be employed. In situations where the flexible insulating layer 4 is relatively thick, it may not be possible to use fixings 11a and 11b, and the flexible insulating layer 4 may therefore be left out of the end seams 6, with fixings 12a and 12b used.

The combination of the scrim layer 3 and the flexible insulating 4 layer being attached at fixing points 7 within the wall 10 of the bag 1, and at least the scrim layer 3 being affixed to the inner and outer layers 2, 5 at the end seams 6 of the wall 10, ensures that the flexible insulating layer 4 is substantially fixed with respect to the outer and inner layers 2, 5.

Some intended applications of the bag 1, or the material selected for the flexible insulating layer 4 may reduce, or indeed remove, the requirement for the scrim layer 3. In such instances, the flexible insulating layer 4 may be quilted or otherwise sewn or fixed into the outer and/or inner layers 2, 5 and or the end seams 6.

Additionally, in certain circumstances, the scrim layer 3 may not be sewn into the end seams 6, but instead quilted or otherwise sewn to outer and/or inner layers 2, 5.

In this specification, washable, machine-washable and like terms mean washable by the automated mechanical washing of objects in clothes washing machines, kitchen dishwashers and any other mechanical cleaning devices and thoroughly washable by hand to the extent that the washable item will be sodden and will not be significantly degraded by washing. In a conventional insulated bag, a foam insulation layer is provided between inner and outer non-permeable shells, resulting in a bag which cannot be washed because it is not able to dry. Further, conventional insulated bags are, in general, semi-rigid in construction and only intended to be wiped clean, without the need or ability to withstand the more physical demands of machine washing (including thorough hand washing). Here, semi-rigid means that the shape of the bag does not substantially change without an additional force being applied to it. For example, a cuboid bag will retain a cuboid form until its shape is changed by pressing one or more of the sides.

A conventional foam insulating layer would degrade were a conventional insulated bag to be machine washed (including thoroughly washed by hand). Moreover in conventional insulated bags, the foam insulating layer is generally not fixed within the wall of the bag. Therefore, were the bag to be machine washed or thoroughly washed by hand, the insulating foam would become displaced within the wall of the bag, significantly reducing the insulating properties of the bag. Moreover, even if the foam insulating layer were to be fixed within the wall, washing would ensure that the fixing would also rapidly degrade, again reducing the insulating properties of the bag.

Further, in a conventional insulated bag, the inner and outer layers are normally non-permeable. However, the holes formed by sewing the seams are likely to allow the passage of water during machine or other washing. Thus, the inner and outer layers would prevent the conventional foam insulation from drying sufficiently and would allow mould and odours to develop. In addition, both the inner and outer layers would likely degrade if exposed to machine washing or thorough hand washing.

The fixed nature of the flexible insulating layer 4 of the present invention ensures that when the bag 1 is washed, the flexible insulating layer 4 is not able to move significantly with respect

to the outer and inner layers 2, 5 of the wall 10, thereby preserving the insulating properties of the bag.

5 The inner layer 5 and the cover part 8 may both be formed of food-safe material, if the insulated bag 1 is to be used for transporting food items. Of course, in other applications, the inner layer 5 and the cover part 8 may be formed of other suitable materials. The food-safe material of the inner layer 5 and the cover part 8 may also be heat safe and leak-proof.

10 The scrim layer 3 may be formed of any flexible material, and may be formed of, for instance, cotton or polyester. Preferably, the scrim layer 3 is a cheap, thin material which is easily handled and sewn and quilted to the thicker insulation.

15 The flexible insulating layer 4 may be formed of any suitable flexible machine washable insulation material, preferably a thermally insulating fibre material, and more preferably a thermally insulating hollow fibre material such as Thinsulate (RTM) or similar. The use of a thermally insulating fibre material such as Thinsulate (RTM) ensures greater flexibility than traditional foam insulation.

20 If the scrim layer 3 and/or the flexible insulating layer 4 is not formed of a water-resistant or washable material, the scrim layer 3 and/or the flexible insulating layer 4 may be sealed in a water-tight manner between the outer layer 2 and/or the inner layer 5 of the wall 10 of the bag, to prevent degradation of the scrim and/or flexible insulating layers 3, 4. For example, the scrim and/or flexible insulating layers 3, 4 may be sealed or enclosed within another material and/or waterproof construction. The construction may then be stitched or otherwise attached
25 for example to the scrim 3 where only the flexible insulating layer 4 is enclosed, or else to the outer and/or inner layers 2, 5 or an end seam 6 of the wall 10.

30 The outer layer 2 may be formed of a permeable and/or breathable material, such as polyester, cotton, or any other suitable material. Preferably, the outer layer 2 is permeable to water and other liquids. The material of the outer layer 2 may be selected based upon the intended use of the insulated bag 1. Further, the outer layer 2 may also be treated and/or coated with a

material which may increase the durability of the outer layer 2, reducing the likelihood of the outer layer 2 becoming damaged from general day-to-day wear and tear.

The treatment or coating may be formed of a polytetrafluoroethylene ('PTFE'), such as Teflon (RTM), and may also serve to ensure that, when the bag 1 is machine washed, the washing process may be more effective at lower temperatures.

Any one or more of the inner layer 5, the scrim layer 3 and the outer layer 2 may be constructed with the use of GoreTex (RTM) or a like material to provide a degree of waterproofing or leak proofing, whilst still allowing the flexible insulating layer to breathe and be machine washed. The treatment or coating, and the use of GoreTex (RTM) and like materials, may also have the advantage that they reduce airflow through the bag, thereby further helping to insulate the bag.

The use of a thermally insulating material for the flexible insulating layer 4, especially a thermally insulating fibre layer, held in place by the scrim layer 3 together with a permeable and/or or breathable outer layer ensures that the flexible bag is not only flexible and foldable, but enables the insulated bag 1 to be machine washed without deterioration in the insulating properties, and for the interior parts of the bag 1 to dry after being machine washed.

20

It is to be understood that other suitable materials may be employed to form the scrim and insulating layers 3, 4 dependent upon the intended use of the insulated bag 1.

The food-safe material of which the inner layer 2 and the cover part 8 are formed of a material which is preferably heat safe and does not degrade upon machine washing.

Particularly, the inner layer 5 and the cover part 8 may be formed of thermoplastic polyurethane ('TPU'), or any other suitable heat-resistant and machine-washable material, as neither the inner layer 5 nor the cover part 8 need be permeable and/or breathable. If these layers allowed the passage of moisture, food and/or drink items may leak into the flexible insulating layer 4 and potentially also out of the insulated bag 1. TPU is not used in

30

conventional insulated bags. It is also to be understood that other suitable materials may be used for the inner layer 5 and the cover part 8.

5 The cover part 8, in combination with the inner layer 5, ensures that the end seam 6 is encapsulated, and that when items are placed in the bag 1, they cannot come into contact with the other, potentially non food-safe layers 2, 3, 4. This ensures that any food or drink items placed within the insulated bag 1 do not become contaminated. The end seam 6 may, in some circumstances, also be sealed, if the bag is to be used for transporting organs or blood, or similar.

10 In some embodiments, the bag 1 is flexible, rather than being rigid or semi-rigid (although some degree of rigidity is permissible in other embodiments). Such a flexible bag may substantially collapse under its own weight, in a manner akin to an item of clothing. Naturally, the thickness and the materials used for the flexible insulating layer 4, the inner layer 5, the outer layer 2 and the scrim 3 will affect the degree to which the bag 1 is flexible. Alternatively, as with an item
15 clothing, the structure of the seams and piping (where provided) may provide the structure of the bag as a whole with some degree of rigidity, but the walls 10 themselves are flexible. Increased flexibility of at least the walls compared to a conventional semi-rigid bag improves washability, and makes the bag easier to store when not in use.

20 As can be seen in Figure 4, two walls 10 are attached together to form an edge 20, which may be at the corner of the insulated bag 1. At the end seam 16, the cover part 8, the two outer layers 2, the two inner layers 5, and the two scrim layers 3 are attached together.

25 Figure 5 shows an end seam 26 at an opening 30 of the insulated bag 1. At the opening 30, a closure mechanism 32 is provided. The closure mechanism 32 shown in Figure 5 is a zipper, but any suitable closure mechanism 32 may be used, for instance a hook-and-loop fastener or Velcro (RTM) or the like.

30 At the end seam 26 shown in Figure 5, piping 31 is also included, for decorative purposes. The piping 31 may also be employed to make it easier for a user to open and close the closure

mechanism 32, by giving the user something to grasp. The end seams 26 of Figure 5 include two fixings, 13a and 13b. As can be seen, the fixing 13a passes through all of the layers except for the cover layer 8 and the flexible insulating layer 4, and the fixing 13b passes through all layers except the flexible insulating layer 4.

5

It is to be understood that the end seams 16, 26 shown in Figures 4 and 5 may employ the same principles as those for end seams 6 discussed in detail above and shown in Figure 2.

Figure 6 shows an insulated bag 1 in accordance with the present invention. The walls 10 are joined together for example using seams 6, 16, 26 as previously discussed such that the bag 1 has a top, a front, a back, a left, a right, and a bottom panel. Each of the walls 10 is constructed in accordance with the present invention, and the bag 1 further includes a closure mechanism 32, in this case a zipper. In Figure 6, the bag 1 takes a traditional cuboid shape, but the bag 1 may take any suitable shape, for instance that of a rucksack, or of a bottle holder.

15

The inventor has made the surprising discovery that a bag constructed in accordance with the present invention, with Thinsulate (RTM) as the flexible insulating layer 4, offers significantly improved thermal insulation per unit (mg) weight and unit (mm) thickness compared with insulated bags using conventional semi-rigid insulation. Consequently, not only are bags constructed in accordance with the present invention machine-washable, they are also able to keep items hot or cold considerably longer than conventional insulated bags. In addition, they have the further significant benefits that they are lighter to carry and can be easily folded away, therefore requiring significantly less storage space.

25 It is noted that there are number of different grades of Thinsulate (RTM) material. The skilled addressee will be able to select the appropriate grade depending on the desired insulating properties, wall thickness and flexibility. The skilled addressee will also appreciate that the advantages discussed above can also be obtained using other flexible, washable thermally insulating materials, which are preferably fibre materials and more preferably hollow fibre materials.

30

The inner layer 5 of some or all walls 10 of the insulated bag 1 may further include pockets or receptacles configured to accommodate cool or frozen packs. These cool or frozen packs may be solid or gel packs, and may be shaped such that they provide a large surface area for cooling contents of the bag 1.

5

It is to be understood that if the insulated bag 1 is to be used to keep items warm, the cool or frozen packs may be substituted for heat packs.

In use, the insulated bag 1 may be used to transport refrigerated or heated items. A user would place items within the bag 1 and then close the bag 1 using the closure mechanism 32.

10

The items may then be transported to the desired location, the closure mechanism 32 opened, and the items removed from the bag 1.

If the refrigerated or heated items leak or spill onto the outer or inner layers 2, 5 of the bag 1 or if the outer or inner layers 2, 5 of the bag become dirty or soiled for other reasons due to frequent use, the user may place the insulated bag 1 into a conventional clothes washing machine or other washing device such as a dishwasher, and wash the bag without causing the insulating properties of the bag 1 to be diminished. The flexible materials, along with the method of manufacture, used to form the bag improve its machine-washability.

20

When used in this specification and claims, the terms "comprises" and "comprising" and variations thereof mean that the specified features, steps or integers are included. The terms are not to be interpreted to exclude the presence of other features, steps or components.

25

The features disclosed in the foregoing description, or the following claims, or the accompanying drawings, expressed in their specific forms or in terms of a means for performing the disclosed function, or a method or process for attaining the disclosed result, as appropriate, may, separately, or in any combination of such features, be utilised for realising the invention in diverse forms thereof.

30

Thus, the foregoing embodiments of the invention have been described by way of example only. It will be appreciated by a person skilled in the art that various modifications can be made without departing from the scope of the invention as defined by the claims. For example, the figures show the scrim layer 3 on the inside of the bag 1 relative to the flexible insulating layer 4. However, this order can be swapped. In addition, the person skilled in the art will appreciate that where the expression “machine wash” and like expressions have been used, similar considerations apply to other types of thorough washing using a liquid, for example thorough hand-washing.

CLAIMS

1. A machine-washable insulated bag, comprising:
 - an inner layer;
 - 5 an intermediate, washable insulation layer; and
 - a permeable outer layer.

2. The machine-washable insulated bag of claim 1, wherein the intermediate washable insulation layer comprises a carrier layer and an insulating layer.
- 10 3. The machine-washable insulated bag of claim 2, wherein the carrier layer is formed of a flexible material.

4. The machine-washable insulated bag of claim 2, wherein the carrier layer and insulating layer are stitched together in at least two locations.
- 15 5. The machine-washable insulated bag of claim 3 or claim 4, wherein the carrier layer is quilted to the insulating layer.

- 20 6. The machine-washable insulated bag of any one of the preceding claims, wherein the inner, intermediate, and outer layers are sewn together at a seam location.

7. The machine-washable insulated bag of claim 5, wherein the inner, intermediate, and outer layers are rolled together at the seam location.
- 25 8. The machine-washable insulated bag of claim 5 or claim 6, wherein the seam location further includes a cover portion which is placed over the ends of the inner, intermediate and outer layers.

- 30 9. The machine-washable insulated bag of claim 8, wherein the cover portion is formed of thermoplastic polyurethane.

10. The machine-washable insulated bag of any one of claims 5 to 8, wherein piping is also included at the seam location.
11. The machine washable bag insulated bag of any one of the preceding claims, wherein the inner layer comprises thermoplastic polyurethane.
12. The machine-washable insulated bag of any of the preceding claim, wherein the insulating layer comprises a flexible thermally insulating fibre such as Thinsulate (RTM).
13. The machine-washable insulated bag of any preceding claim wherein the outer layer comprises cotton or polyester.
14. The machine-washable insulated bag of any preceding claim, wherein the outer layer is coated or treated with polytetrafluoroethylene.
15. A method of manufacturing a machine-washable insulated bag, the method comprising the steps of:
- providing an inner, food-safe layer, an intermediate, washable insulation layer, and a permeable outer layer, the intermediate insulation formed of a carrier layer and an insulating layer;
 - fixing the carrier layer and insulating layers together in at least two locations; and
 - attaching the inner, intermediate, and outer layers together in at least one seam location.

FIG.1

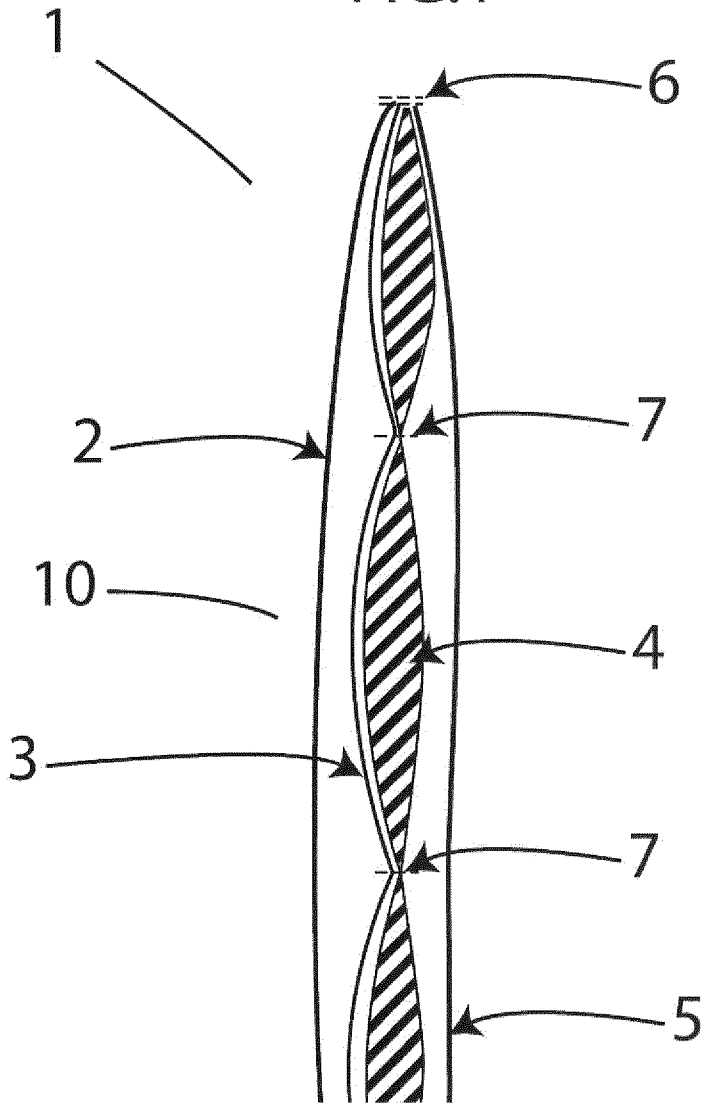


FIG.2

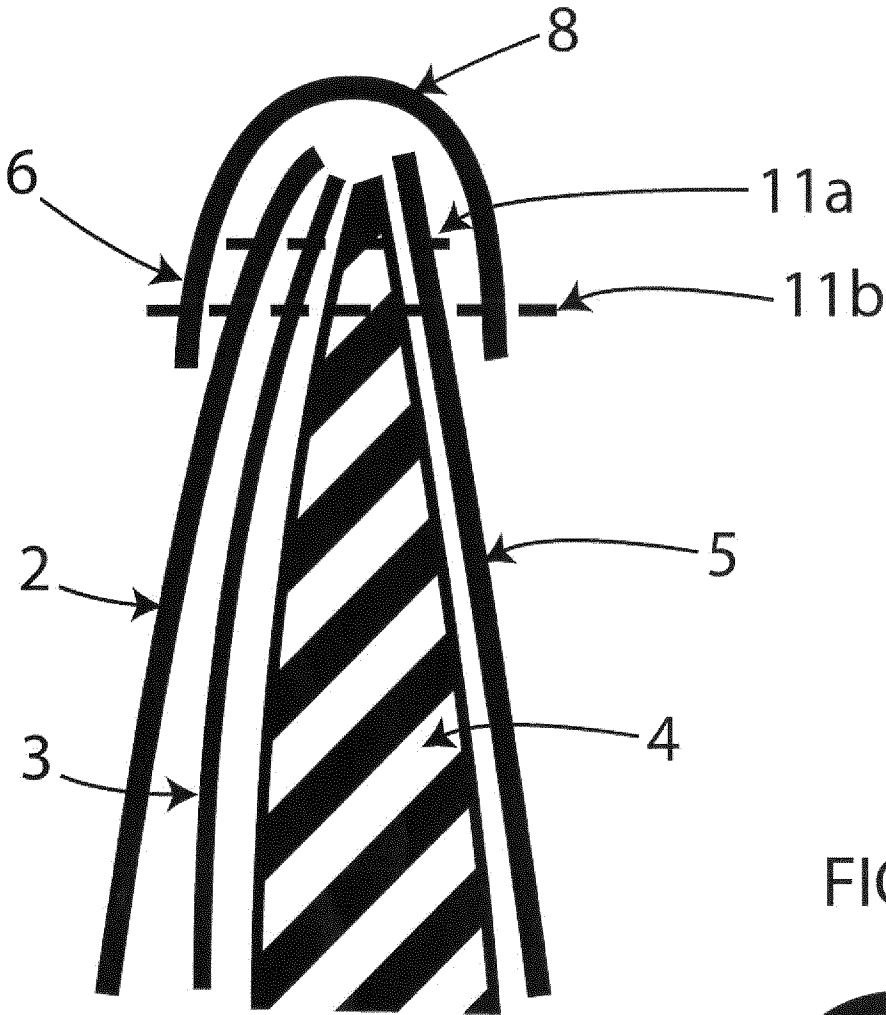


FIG.3

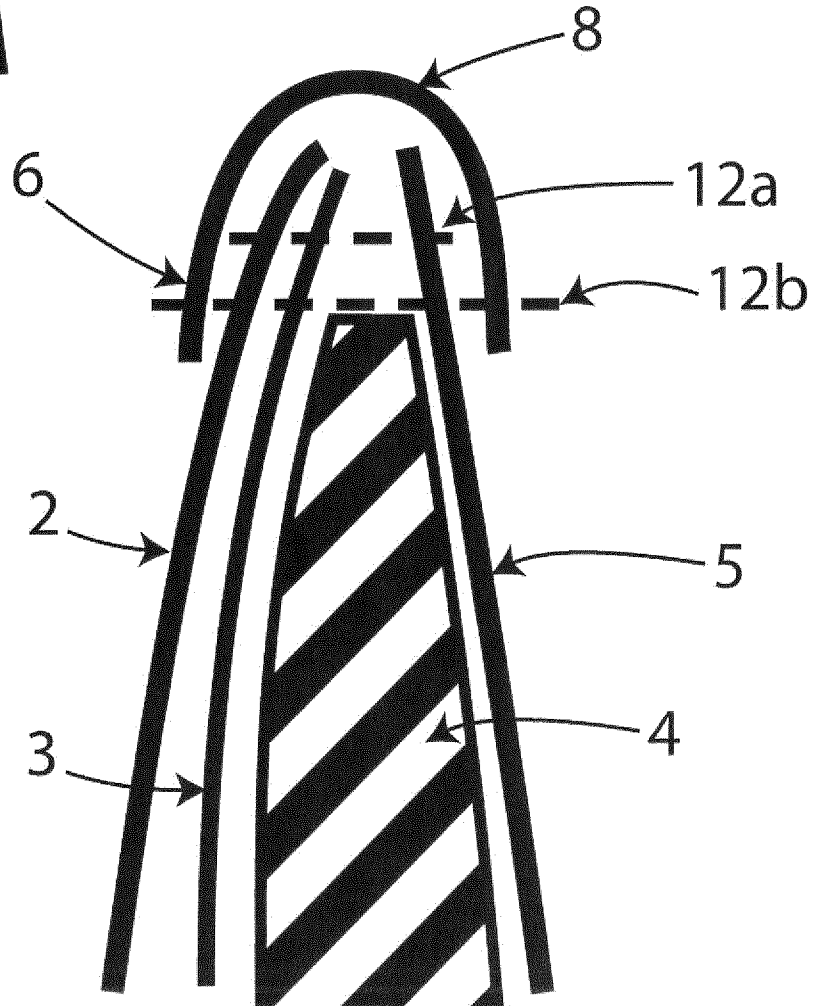


FIG.4

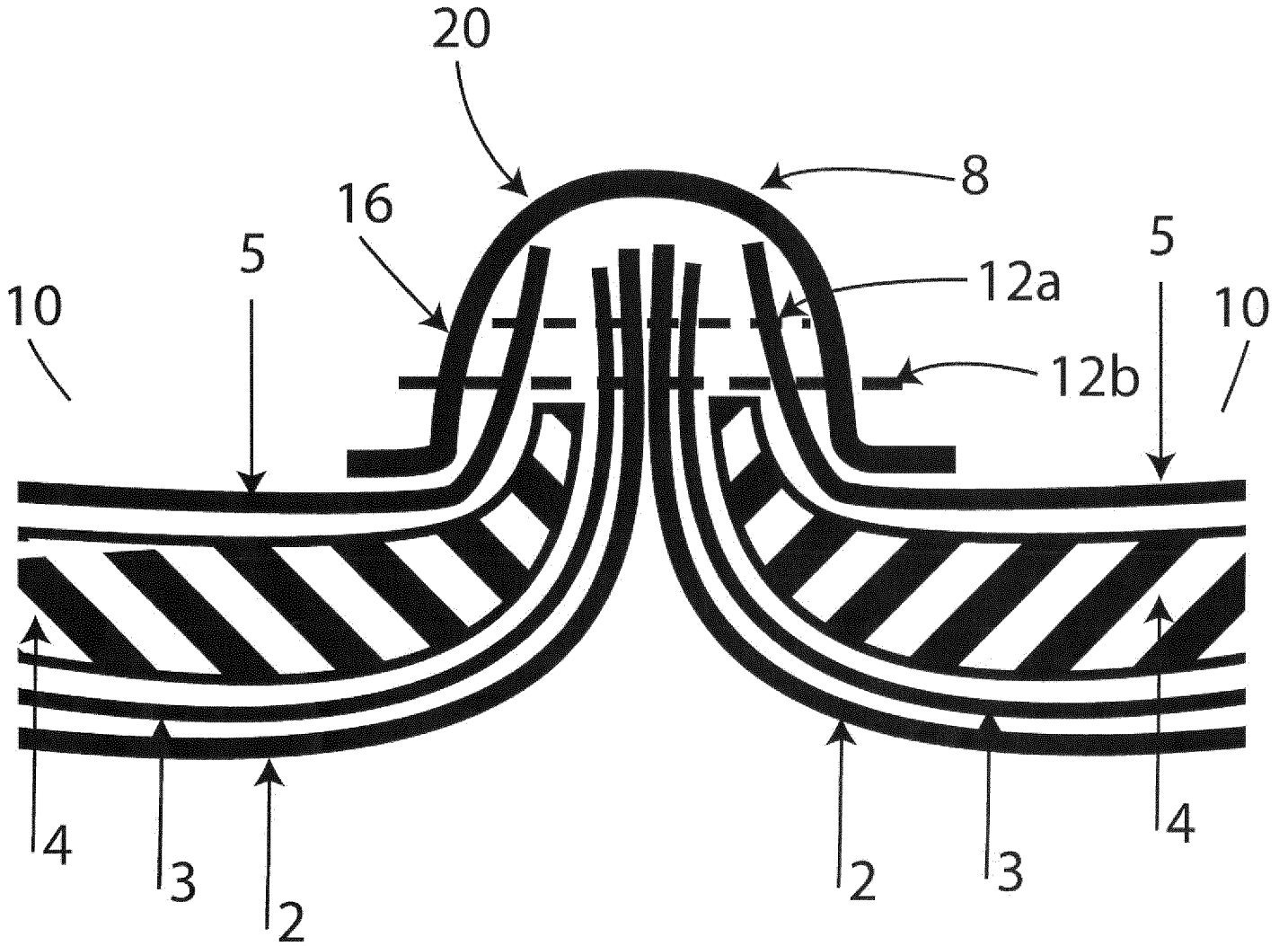


FIG.5

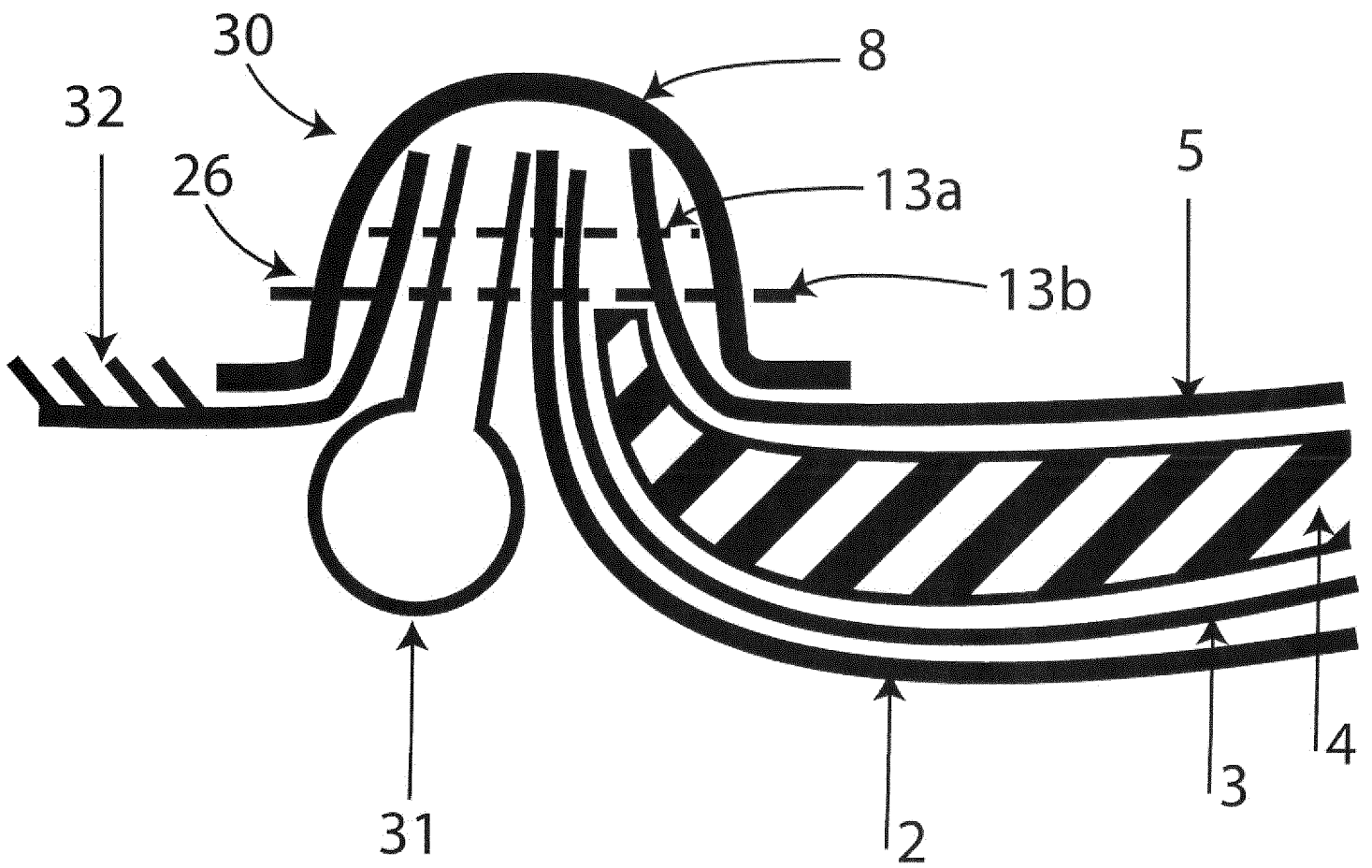
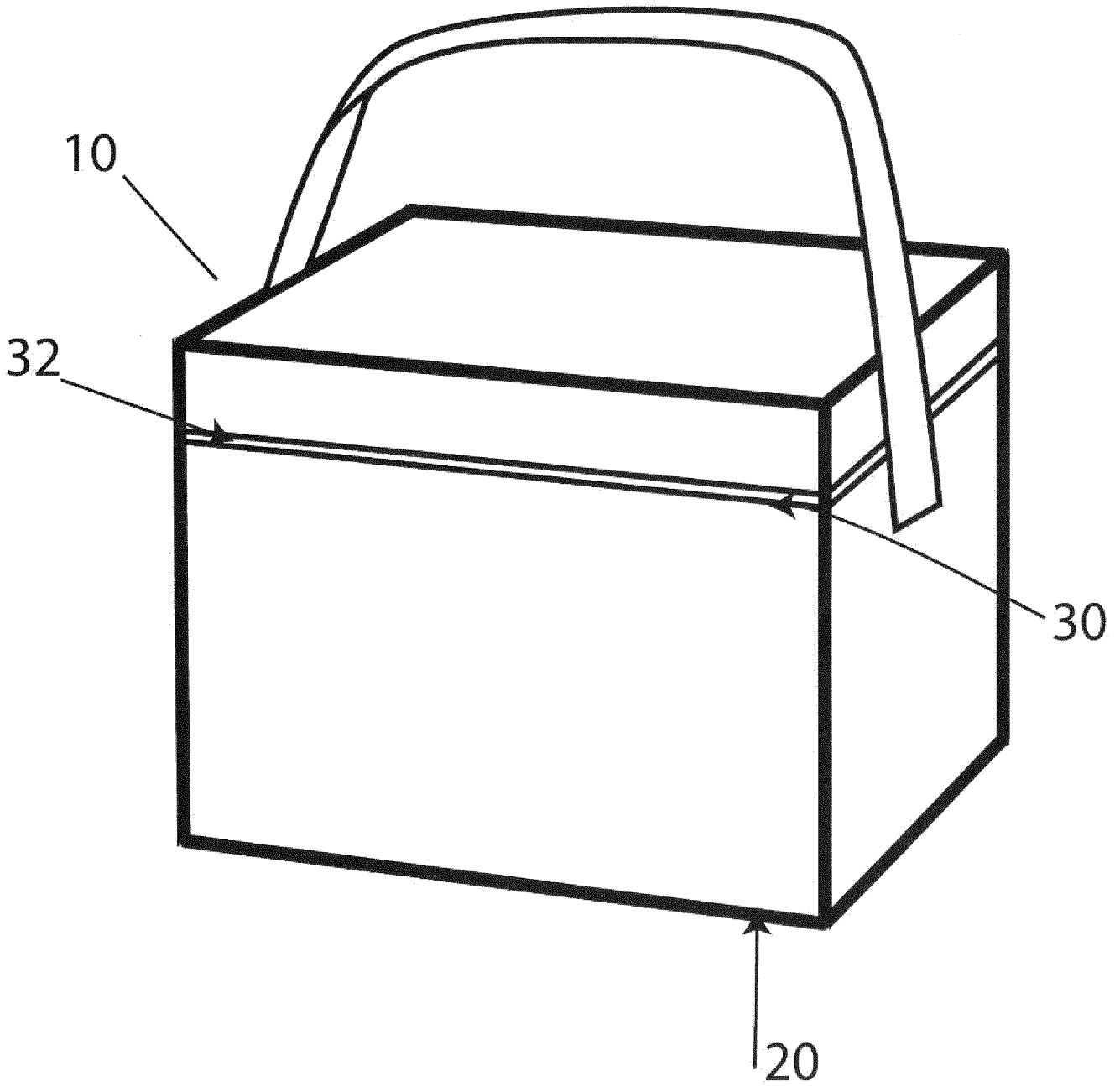


FIG.6



INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2015/075291

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-3, 5, 7-9, 12, 13

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2015/075291

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D30/00 B65D81/38
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)
B65D
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 practicable, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 188 229 A (JONES PAULINE FREDA MOLLY) 30 September 1987 (1987-09-30) page 1, line 25 - line 103; figure 1 -----	1-3,5, 7-9,12, 13
X	US 4 802 233 A (SKAMSER INGRID [US]) 31 January 1989 (1989-01-31) column 2, line 44 - line 59; figures 1,2 -----	1-3,12

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 application or patent 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 11 December 2015	Date of mailing of the international search report 09/03/2016
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2015/075291

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2188229	A	30-09-1987	NONE

US 4802233	A	31-01-1989	NONE

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-3, 5, 7-9, 12, 13

How to provide an insulated bag

1.1. claims: 1, 2, 12, 13

How to provide insulation

1.2. claims: 3, 5

How to provide a flexible bag

1.3. claims: 7-9

How to strengthen the edges of a material

2. claims: 4, 6, 15

How to join materials

3. claim: 10

How to provide rigidity to the package

4. claim: 11

How to prevent moisture from entering to the insulation

5. claim: 14

How to strengthen the outer surface
