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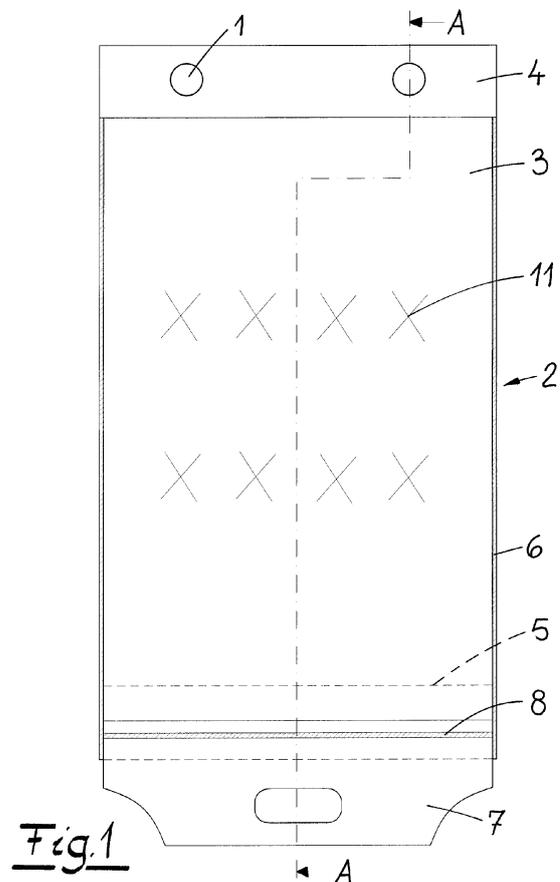
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(54) **Use of a film bag having stacking openings**

(57) The invention relates to the use of a wicketed bag (2) having stacking openings (1) for packaging a product (16). The film bag (2) is formed from a multilayer film and comprises a front wall (3), a rear wall (4) projecting beyond the front wall (3) on an open bag edge, where the stacking openings (1) are disposed in the section of the rear wall (4) projecting beyond the front wall (3). The film bag (2) is used subject to the condition that the product (16) is provided with an inner packaging or at least one spacer element (17), that the product (16) is inserted with the inner packaging or at least one spacer element (17) into the film bag (2), wherein the film bag (2) is dimensioned so that it rests tightly on the inner packaging or the at least one spacer element (17) respectively.



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Description

[0001] The present invention is concerned with the use of a film bag made of a multilayer film having stacking openings (i.e. a wicketed bag made of a multilayer film, comprising a front wall, a rear wall projecting beyond the front wall at an open bag edge, where the stacking openings are disposed in the section of the rear wall projecting beyond the front wall. As a result of the stacking openings, a plurality of such film bags can be combined to form a stack, where individual film bags can then be removed from the stack for filling thereof.

[0002] Whereas bag stacks are known from DE 1 291 280 and DE 23 12 143 C2 from which individual bags can be torn off, the present invention relates in particular to film bags having stacking openings which are filled with a product to be packaged by means of a filling apparatus. The filling is accomplished at the open bag edge on which the stacking openings are also provided in the rear wall. After filling the bag, this is sealed whereupon the section provided with the stacking openings can be separated and removed.

[0003] The film bags also designated as wicketed bags are usually used as packaging for sanitary articles such as nappies and for single loose or pourable products such as fruit, vegetables or poultry portions. Corresponding film bags and apparatus for filling are known from US 4 172 349 and US 7 024 840 B2.

[0004] When packing nappies in a generic film bag, these are compressed before insertion into the film bag so that the nappies expand in the film bag and then rest tightly against the inner side of the bag, where the film bag is largely rectangular-shaped as packaging.

[0005] A film bag having stacking openings is further known from DE 25 12 452 A1 which is provided as an envelope for printed matter.

[0006] The known film bags having stacking openings are low-cost packaging which are designed for simple products and low stresses. For example, film bags having stacking openings for nappies merely need to hold the nappies resting tightly in the interior. Simple extruded or co-extruded films are used for the film bags in question.

[0007] It is the object of the present invention to provide a new use of a film bag having stacking openings.

[0008] The subject matter of the invention and solution of the object is the use of a film bag having stacking openings made of a multilayer film comprising a front wall, a rear wall projecting beyond the front wall on an open bag edge, where the stacking openings are disposed in the section of the rear wall projecting beyond the front wall, for packaging a product, especially a small electrical device, which is provided with an inner packaging or at least one spacer element subject to the condition that the product is inserted with the inner packaging or at least one spacer element into the film bag, wherein the film bag is dimensioned so that it rests tightly on the inner packaging or the at least one spacer element respectively and subject to the condition that the multilayer film has a thickness

of at least 80 μm .

[0009] The subject matter of the invention is therefore on the one hand the use of a film bag having stacking openings for packaging a product provided with an inner packaging or a spacer element wherein the size of the bag is adjusted to the size of the product with the inner packaging or spacer element respectively and on the other hand the specific configuration of the film bag so that it can be used for this purpose at all.

[0010] According to the invention, the multilayer film has a thickness of at least 80 μm , preferably at least 100 μm so that it is not a classical low-cost packaging. A high stability is achieved by the thick configuration of the film compared to known wicketed bags. As packaging of a product like a small electrical device, however, the film bag has a low space requirement and a low weight compared to known cartons. In the unfilled state, the film bag can be handled and transported very easily where this film bag on the one hand offers very good protection as packaging for a small electrical device and on the other hand has a high-quality appearance.

[0011] After inserting the product, the film bag is preferably sealed in a moisture-tight manner. Increased protection against moisture during transport and storage is thus obtained, which is an advantage specifically in the case of sensitive electrical products. The packaged product is thus not damaged when this is stored inappropriately or even exposed to rain.

[0012] The term small electrical device as preferred product within the framework of the present invention relates to products driven by electricity from the usual range of electrical and building supplies stores which can be presented directly in the shop premises and can be taken away. In addition to electrical household appliances such as coffee machines, automatic coffee machines, vacuum cleaners, electric razors, electric toothbrushes, electric kettles, toasters, juice extractors, hand mixers, food processors, hair dryers, the term small electrical device within the framework of the present invention also includes entertainment electronics and electrical hand tools. Entertainment electronics products are in particular CD, DVD, Blu-ray players, set top boxes, loud speakers, amplifiers, televisions, monitors, games consoles, computers and computer accessories such as desktop PCs, notebooks, net books, tablets, organizers, drives, power supply units, casings or the like. Electrical hand tools include, for example, power drills, grinders, and cordless screwdrivers.

[0013] The use of the film bag having stacking openings is particularly suitable if this has a filling volume of 5 ℓ and 50 ℓ . The filling volume is particularly preferably between 10 ℓ and 20 ℓ . Products having an appropriate filling volume can be packaged and handled particularly effectively within the framework of the invention. In the case of smaller products, the provision and filling of the film bag is more complex, although in the case of a filling volume above 50 ℓ , the requirements for the film bag with regard to stability and tearing strength increase substantially. In principle, however the use according to the in-

vention is not restricted to the range between 5 ℓ and 50 ℓ.

[0014] The multilayer film can be produced by co-extrusion, where an imprint can then be provided on an exposed surface of the multilayer film on the bag inner side or on the bag outer side. It is then possible to cover the imprint by a protective lacquer in order to avoid any abrasion when handling the bag.

[0015] The multilayer film is, however, preferably laminated from several films. Particularly preferred is an embodiment in which the multilayer film is formed from an outer film and a heat-sealable inner film laminated therewith. In addition to a lamination by means of adhesive, an extrusion lamination is also suitable. Both a hot adhesive, solvent-containing adhesives or two-component adhesives come into consideration for a lamination by means of adhesive. A lamination with a two-component polyurethane-based adhesive system is particularly preferred in this case.

[0016] If the multilayer film is laminated from at least two films, this has the advantage that an imprint is applied to one of the starting films before the laminating, with the laminating then being performed so that the imprint is located on the inside. In the embodiment described with the outer film and the inner film, the outer film can have an imprint produced by reverse printing on its side facing the inner film. This imprint is then visible through the transparent outer film and is optimally protected against abrasion or chemical influences.

[0017] Within the framework of the invention, the multilayer film can also comprise a metal layer where either a metal film is laminated in or a metallised plastic film is used. The metal layer serves as a barrier against diffusion. Furthermore, the metal layer gives the film bag a particularly attractive appearance because the multilayer film is at least largely opaque through the metal layer. Optionally a metallic look can be produced through the metal layer, if the metal layer is not completely covered by an imprint. In addition to recessing the imprint in certain areas, it is for example also feasible to configure the imprint as translucent to a certain extent so that a certain metallic shine remains when observing the film bag.

[0018] Another particularly advantageous aspect of the metal layer within the framework of the invention can be seen in that this can protect the accommodated product, especially a small electrical device from electrostatic fields and electrostatic charges. Despite an inexpensive packaging per se, this not only achieves protection from mechanical loads or from adverse effects from moisture but also protection from any electrical damage. The requirements for the transport and storage of small electrical devices are reduced considerably by the use according to the invention when integrating a metal layer into the multilayer film.

[0019] In the preferred embodiment of the multilayer film comprising an inner film and an outer film laminated therewith, for example, the inner film can have a metallisation on its side facing the outer film.

[0020] The product in question are usually packaged

according to the prior art in rectangular cardboard boxes. Such a box offers only slight protection from impacts and other mechanical adverse effects. It is therefore usual to provide small pieces of electrical equipment with an inner packaging or at least one spacer element. The spacer elements can, for example, consist of a cardboard frame, a foam material or the like.

[0021] Within the framework of the use according to the invention, the product is provided with an inner packaging or at least one spacer element and then be inserted into the film bag. The film bag in this case is preferably dimensioned so that it rests tightly on the inner packaging or the at least one spacer element. For example, a flat entertainment electronics device in the form of a CD, DVD or Blu-ray player can have frame-shaped supporting elements on two opposite sides, where these frame-shaped supporting elements then tautly fill the filled film bag. Alternatively, an inner packaging can be provided which completely encases the product. Such an inner packaging can, for example, consist of an inner carton in which the product or accessories can also be stored in the long term after opening the film bag.

[0022] The film bag filled with the product and also an inner packaging or at least one spacer element expediently has an approximately rectangular shape so that it can be stored and stacked efficiently and in a space-saving manner. Connecting cables and/or accessory parts are then expediently received by the inner packaging or the at least one spacer element.

[0023] In order that the film bag can be filled uniformly, according to a preferred embodiment of the invention, it is provided that the film bag has a bottom gusset between the front wall and the rear wall on its side opposite the open bag edge. This bottom gusset can be produced either by a separate film slip or preferably by folding up the film material during manufacture by means of a folding knife.

[0024] Compared to a usual cardboard packaging, the film bag is characterised by a particularly high stability, tearing strength, improved protection and a higher-quality appearance.

[0025] Further advantages are obtained if the film bag has a carrying handle. This carrying handle can be disposed, for example, on the side opposite the initially open bag edge where the bottom gusset runs according to the previously described preferred embodiment. The carrying handle can be formed of plastic, where various possible configurations are obtained for the fastening of the carrying handle. In order to allow a simple arrangement, the carrying handle can be fastened on the outer side of the film bag. The fastening can either be accomplished by means of adhesive or by heat sealing if the multilayer film can be heat-sealed not only on the inner side and also on the outer side of the film bag.

[0026] Apart from the optionally provided metal layer, the multilayer films preferably consist of polyolefin. In particular, layers of polyethylene and polypropylene are suitable. When laminating an outer film with an inner film,

both the inner film and the outer film can be extruded merely as one layer or co-extruded as multilayer.

[0027] According to the invention, the thickness of the multilayer film is at least 80 μm , preferably at least 100 μm in order to be able to satisfy the requirements to be taken into account within the framework of the use according to the invention. A thickness between 110 μm and 200 μm is most preferred.

[0028] If the film bag is provided with a carrying handle, this preferably also consists of a polyolefin, in particular polyethylene. A sufficient stability is achieved, for example, if a polyethylene film having a thickness between 80 μm and 120 μm is used.

[0029] The invention is explained hereinafter with reference to drawings showing merely one exemplary embodiment. In the figures:

Fig. 1 shows a plan view of an unfilled film bag having stacking openings,

Fig. 2 shows a longitudinal section along the line A-A from Fig. 1,

Fig. 3 shows the layer structure of a multilayer film from which the film bag according to Fig. 1 is formed,

Fig. 4 shows a perspective view of a closed film bag, according to Fig. 1, provided with a small electrical device,

Fig. 5 shows a section through an arrangement according to Fig. 4.

[0030] Figures 1 and 2 show a film bag 2 having stacking openings 1, formed from a multilayer film. The film bag 2 has a front wall 3 and a rear wall 4 projecting beyond the front wall 3, where the stacking openings 1 are disposed in the form of round punchings in the section of the rear wall 4 projecting beyond the front wall 3.

[0031] The film bag 2 has an elongate shape with longitudinal edges and shorter transverse edges, where the stacking openings 1 are disposed on an open transverse edge of the film bag 2. On the opposite transverse edge, a bottom gusset 5 is inserted between the front wall 3 and the rear wall 4. The rear wall 4, the bottom gusset 5 and the front wall 3 can be made of a single material section, where the front wall 3 and the rear wall 4 are interconnected at lateral longitudinal sealing seams 6.

[0032] With the stacking openings 1, a plurality of film bags 2 can be combined with a corresponding retaining device to form a stack and thus held ready for filling. After filling the film bag 2, this is closed at its previously open edge whereby the section of the rear wall 4 projecting beyond the front wall 3 is folded over or preferably separated.

[0033] On the transverse side opposite the stacking openings 1, that is, where the bottom gusset 5 is dis-

posed, the film bag 2 has a carrying handle 7 which is fastened from outside by means of transverse sealing seams 8 on the front wall 3 and the rear wall 4. The arrangement of the carrying handle 7 is in particular apparent from a comparative examination of Figs. 1 and 2.

[0034] The film bag 2 shown is provided for packaging a small electrical device 16, where the thickness of the multilayer film is at least 80 μm .

[0035] Figure 3 shows a preferred embodiment of the multilayer film which comprises an outer film 9 and an inner film 10 laminated with the outer film 9. In the exemplary embodiment, the outer film 9 consists of polyethylene having a thickness of 50 μm . On the side thereof facing the inner film 10, the outer film 9 is provided with an imprint 11 which is visible through the outer film 9 and is optimally protected by the internal arrangement inside the multilayer film.

[0036] The inner film 10 has a heat-sealable layer 12 forming the inner side of the film bag 2 which is also formed from polyethylene, where the thickness is 60 μm . Whilst the outer film 9 is extruded in one layer, the inner film 10 is two-layered. In addition to the heat-sealable layer 12, an intermediate layer 13 of oriented polypropylene is provided, which in the exemplary embodiment has a thickness of 20 μm . The inner film 10 is provided with a metallisation 14 on its side facing the outer film 9. The outer film 9 and the inner film 10 are laminated to one another by means of an adhesive formed from a polyurethane-based two-component system.

[0037] For reasons of clarity, the films 9, 10 joined together by the adhesive 15 are shown with a distance from the adhesive layer 15 and from one another for the purpose of clarity.

[0038] Figure 4 shows the use of the previously described film bag 2 as packaging for a small electrical device as product 16. The filled film bag 2 with the small electrical device 16 located therein can be handled well with the carrying handle 7. The product 16 is expediently accommodated in an inner packaging or provided with spacer elements 17 where the film bag 2 is dimensioned so that it is located tightly against the inner packaging or the at least one spacer element 17.

[0039] Figure 5 shows a section through the arrangement according to Fig. 4, where the product 16 is held and protected by two lateral spacer elements 17. The spacer elements 17 can be formed from cardboard, foam or the like. For example, an expanded polystyrene foam (EPS) marketed for example under the trademark Styropor® is suitable.

[0040] The diagram according to Figure 5 is merely an example, where the form of the product 16 is not limited. Furthermore, different inner packagings or spacer elements 17 can also be used. In particular an inner packaging in the form of a shell or in the form of a half-shell can be formed from foam. As a result of the inner packaging or the spacer elements 17, it can be achieved that the film bag 2 is filled in a rectangular shape and tensioned.

[0041] In addition to the product 16, accessory parts 18 such as connecting cable, data carriers, guarantee certificates, instructions or the like can also be held inside the film bag 2. Corresponding accessory parts 18 are indicated in Fig. 5. Such accessory parts 18 can be accommodated in the inner packaging or the spacer elements 17. Figure 5 merely shows as an example an alternative embodiment in which the accessory parts 18 are arranged separately.

[0042] The filling volume of the film bag 2 is preferably between 5 ℓ and 50 ℓ, particularly preferably between 10 ℓ and 20 ℓ.

Claims

1. Use of a film bag (2) having stacking openings (1) made of a multilayer film comprising a front wall (3), a rear wall (4) projecting beyond the front wall (3) on an open bag edge, where the stacking openings (1) are disposed in the section of the rear wall (4) projecting beyond the front wall (3), for packaging a product (16) which is provided with an inner packaging or at least one spacer element (17) subject to the condition that the product (16) is inserted with the inner packaging or at least one spacer element (17) into the film bag (2), wherein the film bag (2) is dimensioned so that it rests tightly on the inner packaging or the at least one spacer element (17) respectively and subject to the condition that the multilayer film has a thickness of at least 80 μm. 5
2. The use according to claim 1, subject to the condition that the film bag (2) is sealed in a moisture-tight manner. 5
3. The use according to claim 1 or 2, subject to the condition that the multilayer film is formed from an outer film (9) and a heat-sealable inner film (10) laminated therewith. 40
4. The use according to claim 3, subject to the condition that the outer film (9) has imprint (11) on the side thereof facing the inner film (10). 45
5. The use according to any one of claims 1 to 4, subject to the condition that the multilayer film comprises a metal layer. 50
6. The use according to claim 3 and 5, subject to the condition that the inner film (10) has a metal layer in the form of a metallisation (14) on its side facing the outer film (9). 55
7. The use according to any one of the claims 1 to 6, subject to the condition that a small electrical device is provided as product (16).
8. The use according to claim 7, subject to the condition that the inner packaging or the spacer element (17) holds a connecting cable and/or accessory parts (18).
9. The use according to any one of claims 1 to 8, subject to the condition that the film bag (2) filled with the product (16) has a rectangular shape.
10. The use according to any one of claims 1 to 9, subject to the condition that the filling volume of the film bag (2) is between 5 ℓ (litres) and 50 ℓ.
11. The use according to any one of claims 1 to 10, subject to the condition that the film bag (2) has a bottom gusset (5) between the front wall (3) and the rear wall (4) on its side opposite the open bag edge.
12. The use according to any one of claims 1 to 11, subject to the condition that the film bag (2) has a carrying handle (7).
13. The use according to any one of claims 1 to 12, subject to the condition that the multilayer film can be heat-sealed on its inner side and on its outer side.

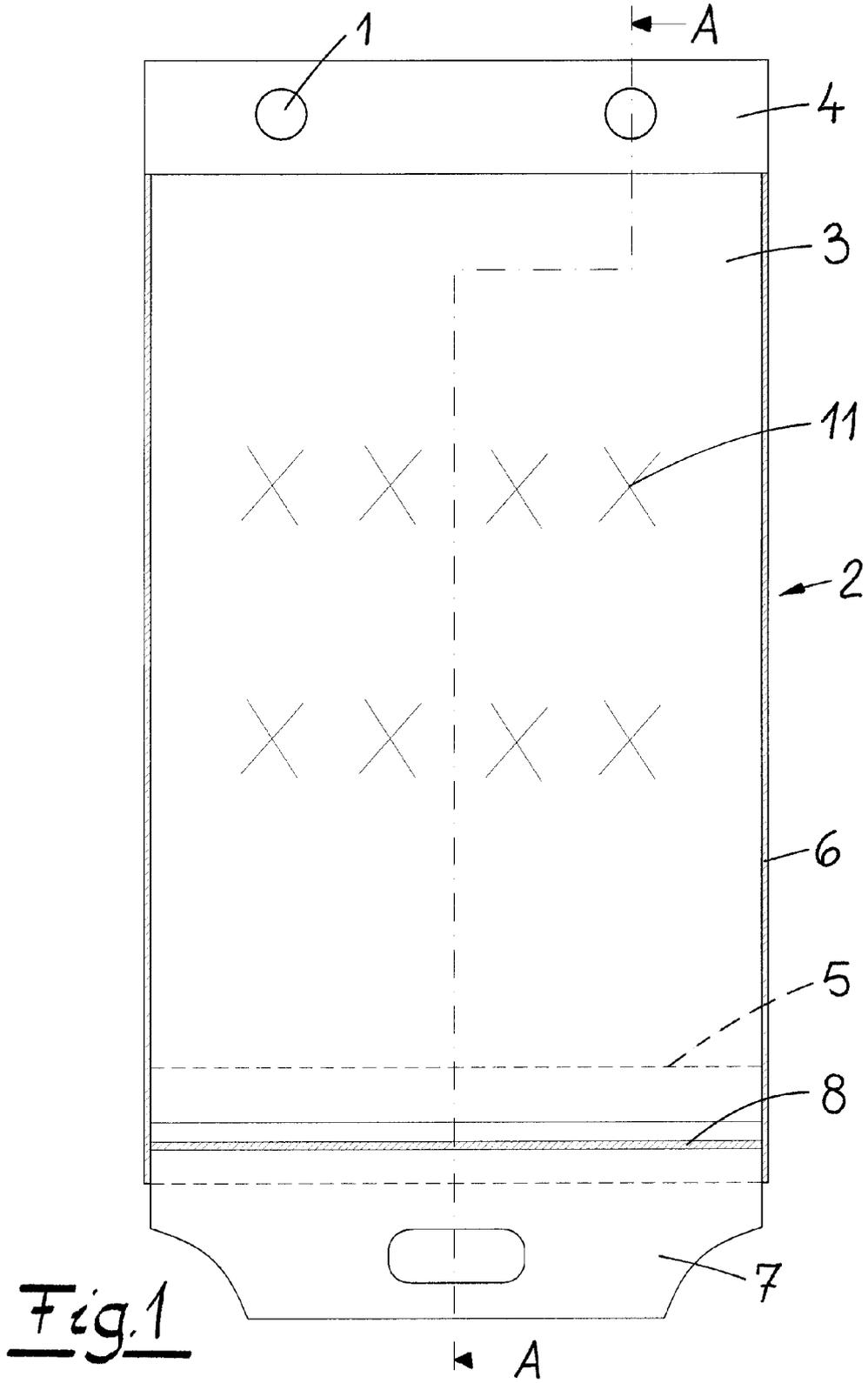


Fig. 5

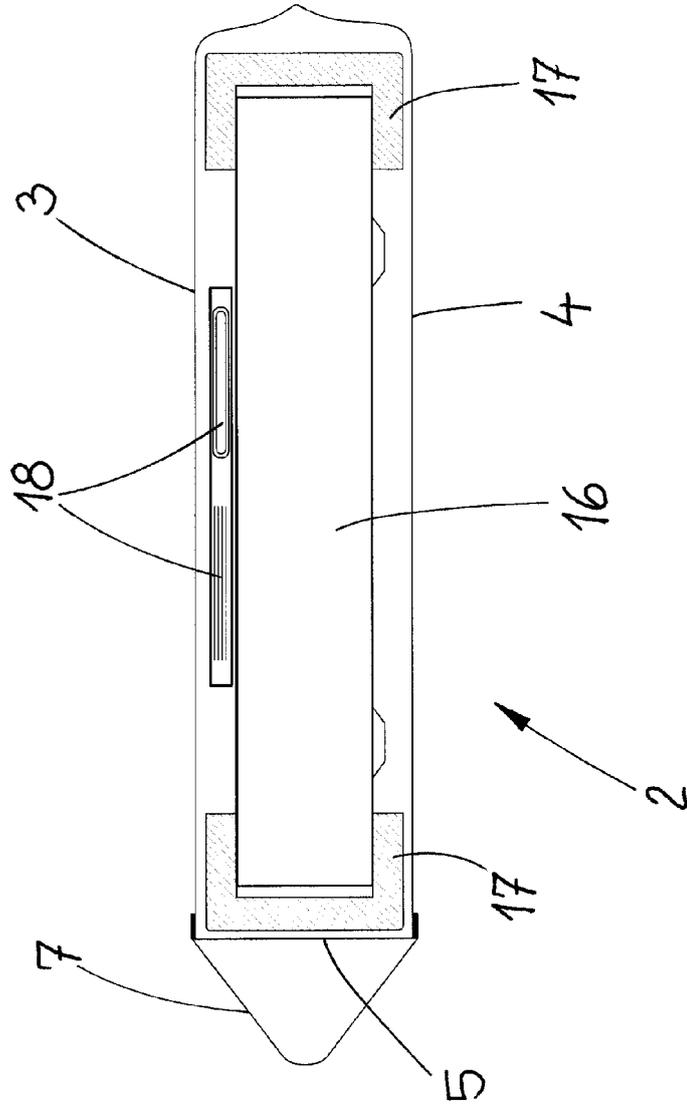


Fig. 2

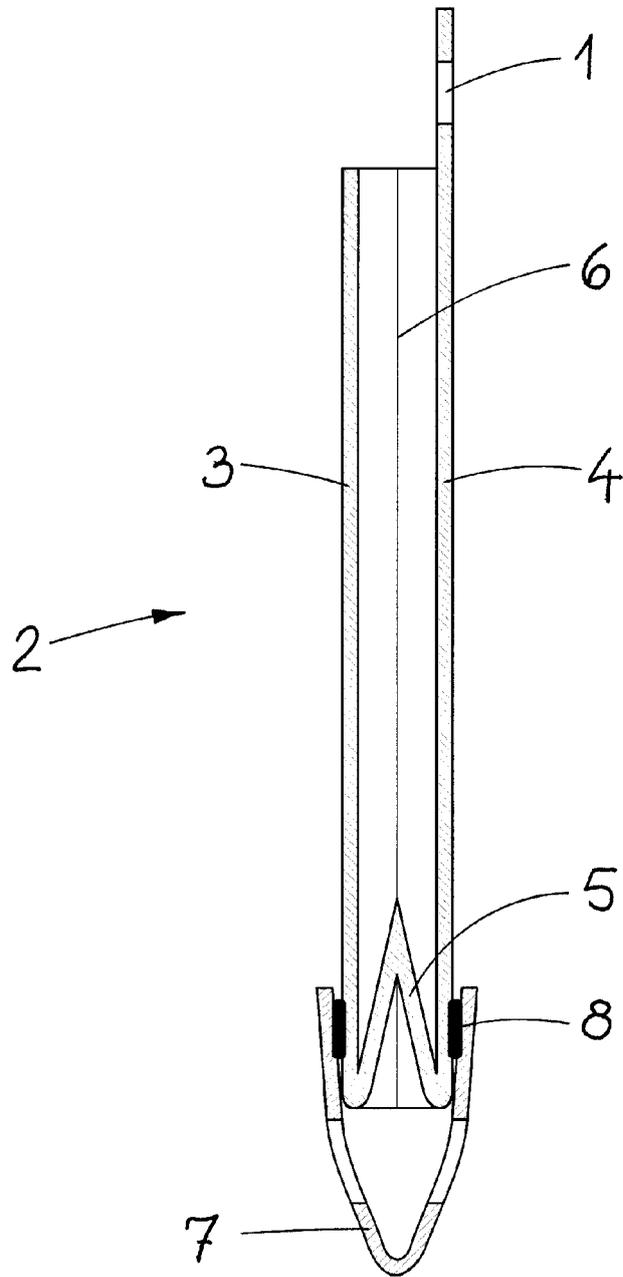
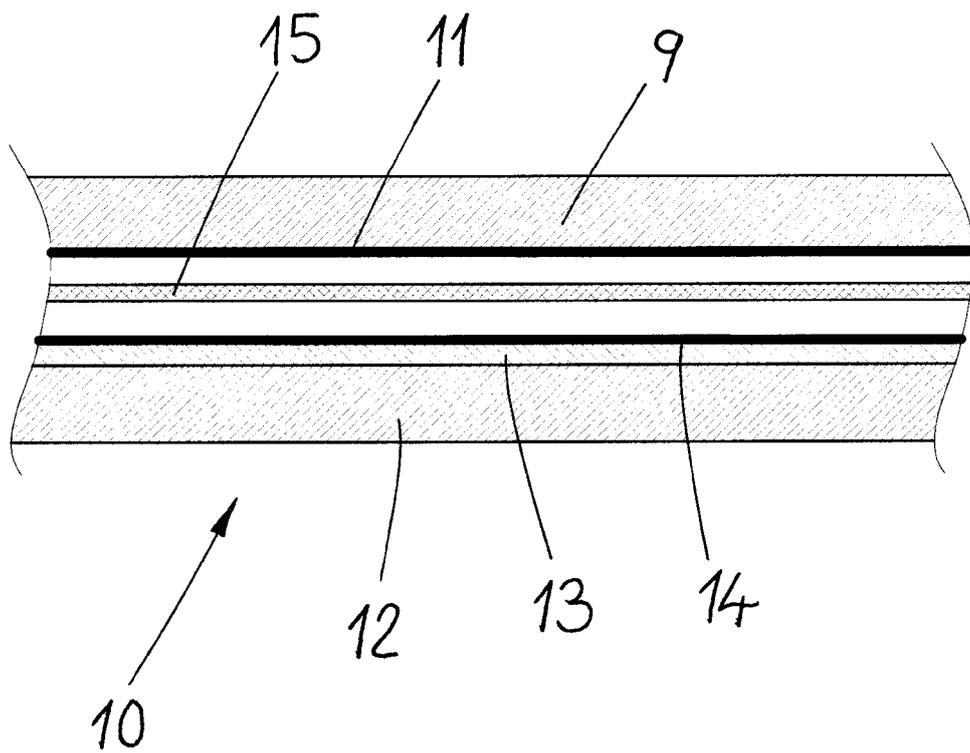


Fig. 3



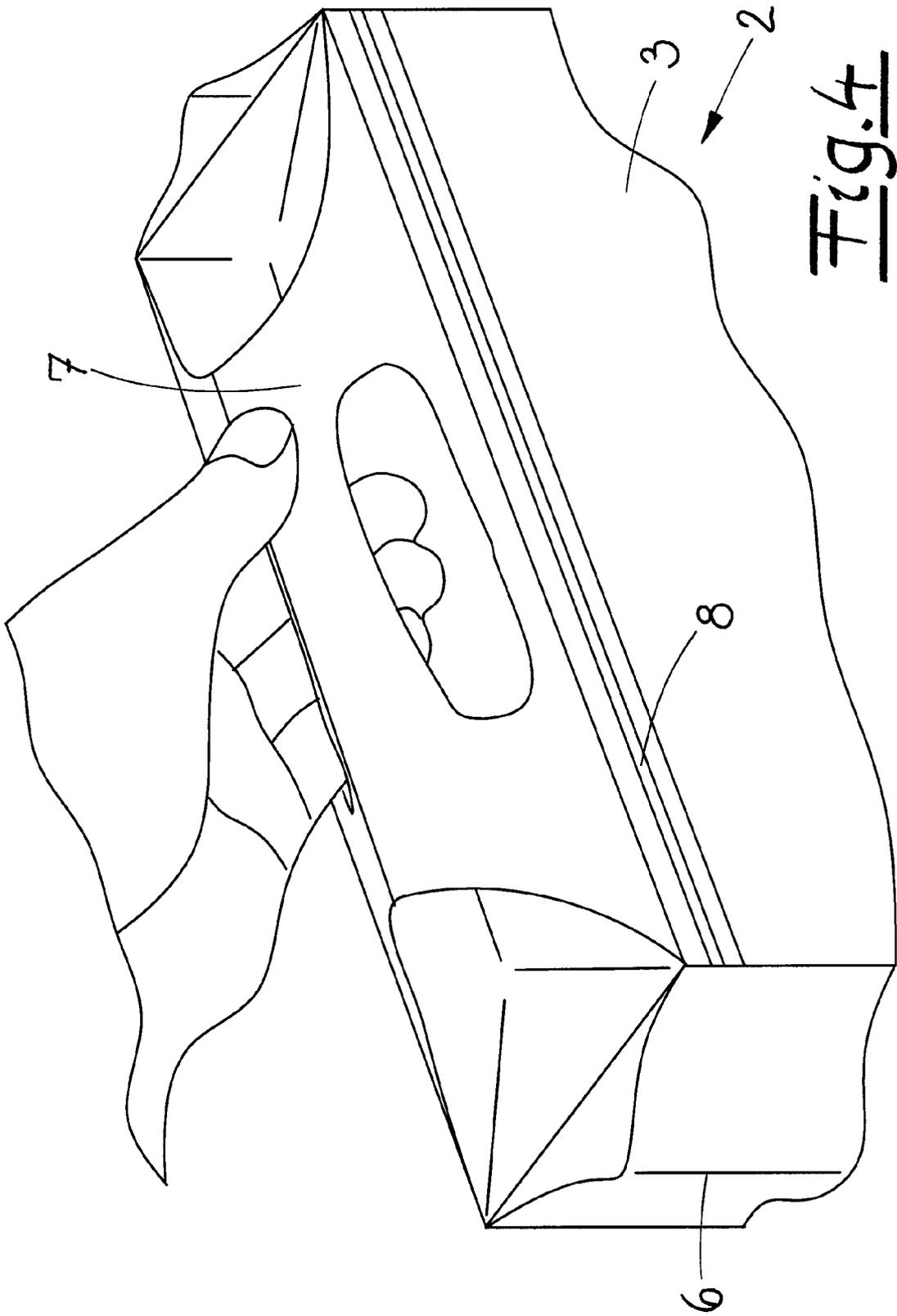


Fig. 4



EUROPEAN SEARCH REPORT

Application Number
EP 12 16 7774

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y,D	DE 25 12 452 A1 (SENGEWALD KARL H) 30 September 1976 (1976-09-30) * page 6, last paragraph - page 7, paragraph 1; figures 1-4 * -----	1-13	INV. B65D33/00
Y	US 6 033 112 A (SORENSEN JESSE PAUL [US] ET AL) 7 March 2000 (2000-03-07) * column 4, line 26 - line 56; figures 1-11 * -----	1-13	
			TECHNICAL FIELDS SEARCHED (IPC)
			B65D
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
Munich		11 January 2013	Derrien, Yannick
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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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11-01-2013

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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