



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
08.08.2018 Bulletin 2018/32

(51) Int Cl.:
B65B 11/32 (2006.01) **B65B 11/42** (2006.01)
B65D 75/06 (2006.01) **B65D 75/08** (2006.01)
B65B 9/06 (2012.01)

(21) Application number: **18154024.6**

(22) Date of filing: **30.01.2018**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
MA MD TN

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(30) Priority: **01.02.2017 IT 201700010618**

(54) **PROCESS FOR THE AT LEAST PARTIALLY SEALED WRAPPING OF INDIVIDUAL PRODUCTS**

(57) A process for the at least partially sealed wrapping of individual products (P), products (P) of the type preferably chosen from among fruit jellies, chocolates, candy, chocolate bars, snacks, chewing gums and the like, which consists in juxtaposing a wrapping sheet (1) against a first face (A) of the product (P); folding the flaps (2, 3) of the sheet (1) onto the product (P) along the faces (B, C) that are contiguous to the first face (A), giving the sheet (1) a U-shape with one flap (2) longer than the other; stably coupling the long flap (2) to the inner surface of the short flap (3), thus confining the product (P) within a closed tubular portion, consequently giving the sheet (1) a P-shape; folding the free short flap (3) of the sheet (1), which comprises a respective portion of the long flap (2) which is folded and stably coupled thereto, onto the base of the product (P); rotating the product (P), stably

coupled to the sheet (1), through 180° about a longitudinal axis thereof; folding the tubular portions (4, 5) that protrude with respect to the two mutually opposite heads (D, E) of the product (P) onto the respective head (D, E), stably coupling them in the closed configuration and defining first, central portions (6) that are coplanar to the first face (A) and second, external portions (7 and 8), which are respectively coplanar to the faces (B and C); folding the external portions (7) onto the respective central portion (6); folding the external portions (8) onto the respective external portion (7), which was previously folded onto the central portion (6), so as to form two substantially triangular tabs (9 and 10); compressing the tabs (9 and 10) so as to reinforce the mutual coupling of the portions (6, 7 and 8).

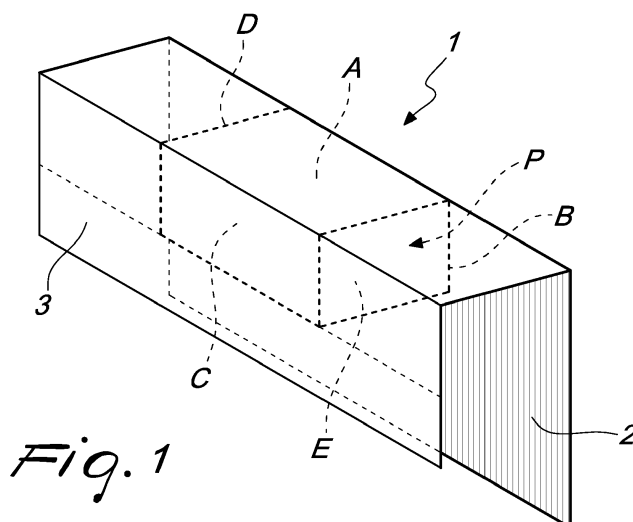


Fig. 1

Description

[0001] The present invention relates to a process for the at least partially sealed wrapping of individual products.

[0002] The use is known of individual wrapping for various different kinds of products: in particular for food products this kind of wrapping makes it possible to protect the product proper from contamination that could occur owing to contact with the outside environment.

[0003] For products such as fruit jellies, the use is known of a type of wrapping known as "open-point style".

[0004] Such type entails that a sheet is wrapped around the product, folding the laterally-protruding flaps (i.e. the flaps that protrude with respect to the two lateral heads of the product) substantially in a triangular shape.

[0005] Such type of wrapping has been used for a great many years on a wide variety of food and non-food products.

[0006] Recently, the greater attention placed on the risks of contamination of food products (to contain contagions and/or allergic reactions, intolerances and the like) has resulted in the introduction of sealed packages for segregating food products.

[0007] In essence the covering sheet will be heat-sealed along its edges in order to isolate the product from the outside environment.

[0008] For simpler packages, this change has been rapidly implemented by introducing respective heat-sealers on the packaging machines or depositing layers of adhesive substances onto some portions of the covering sheet, so that these stably couple the juxtaposed faces thereof.

[0009] For more complex kinds of wrapping, isolation of the product (by way of adhesive and/or heat-sealing) is not always possible and, in any case, it is difficult to industrialize.

[0010] For open-point style wrapping, it is not possible to seal the product inside (even with a partial adhesive bonding/heat-sealing of the flaps of the wrapper), or at least it is not possible to do it on an industrial scale with a good rate of productivity.

[0011] Some products, however, by tradition and/or because of specific requirements, preferably use open-point style wrapping, and therefore they cannot be conveniently sealed and/or segregated inside the respective package.

[0012] The aim of the present invention is to solve the above mentioned drawbacks, by providing a process for the at least partially sealed wrapping of individual products that can be implemented on an industrial scale, producing an open-point style package.

[0013] Within this aim, an object of the invention is to provide a process for the at least partially sealed wrapping of individual products that enables high productivity of open-point style packages.

[0014] Another object of the invention is to provide a process for the at least partially sealed wrapping of indi-

vidual products that makes it possible to seal completely or partially each product within a respective open-point style package.

[0015] A still further object of the present invention is to provide a process for the at least partially sealed wrapping of individual products which is low cost, easily and practically implemented, and safe in use.

[0016] This aim and these and other objects which will become better apparent hereinafter are achieved by a process for the at least partially sealed wrapping of individual products, said products being of the type preferably chosen from among fruit jellies, chocolates, candy, chocolate bars, snacks, chewing gums and the like, which consists of:

- juxtaposing a wrapping sheet against a first face of the product;
- folding the flaps of said sheet onto the product along the faces that are contiguous to said first face, giving the sheet a U-shape with one flap longer than the other;
- stably coupling the long flap to the inner surface of the short flap, thus confining the product within a closed tubular portion, consequently giving the sheet a P-shape;
- folding the free short flap of said sheet, which comprises a respective portion of the long flap which is folded and stably coupled thereto, onto the base of said product;
- rotating the product, stably coupled to the sheet, through 180° about a longitudinal axis thereof;
- folding the tubular portions that protrude with respect to the two mutually opposite heads of said product onto the respective head, stably coupling them in the closed configuration and defining first, central portions that are coplanar to said first face and second, external portions, which are respectively coplanar to said faces;
- folding said external portions onto the respective central portion;
- folding said external portions onto the respective external portion, which was previously folded onto said central portion, so as to form two substantially triangular tabs;
- compressing said tabs so as to reinforce the mutual coupling of said portions.

[0017] Further characteristics and advantages of the invention will become better apparent from the detailed description that follows of a preferred, but not exclusive, embodiment of the process for the at least partially sealed wrapping of individual products according to the invention, which is illustrated by way of non-limiting example in the accompanying drawings wherein:

Figure 1 is a schematic perspective view of a second step of the process for the at least partially sealed wrapping of individual products according to the in-

vention;

Figure 2 is a schematic perspective view of a third step of the process according to the invention;

Figure 3 is a schematic perspective view of a fourth step of the process according to the invention;

Figure 4 is a schematic perspective view of a fifth step of the process according to the invention;

Figure 5 is a schematic perspective view of a sixth step of the process according to the invention;

Figure 6 is a schematic perspective view of a seventh step of the process according to the invention;

Figure 7 is a schematic perspective view of an eighth step of the process according to the invention.

[0018] With reference to the figures, the reference numeral 1 generally designates the wrapping sheet used in the process for the at least partially sealed wrapping of individual products P according to the invention.

[0019] The products P that will preferably be packaged by implementing the process according to the invention are of the type preferably chosen from among fruit jellies, chocolates, candy, chocolate bars, snacks, chewing gums and the like.

[0020] The first step of the process entails juxtaposing the wrapping sheet 1 against a first face A of the product P.

[0021] A second step consists in folding the flaps 2, 3 of the sheet 1 onto the product P along the faces B, C that are contiguous to the first face A, giving the sheet 1 a U-shape with one flap 2 longer than the other flap 3.

[0022] In a third step it is necessary to stably couple the long flap 2 to the inner surface of the short flap 3, thus confining the product P within a closed tubular portion, consequently giving the sheet 1 a P-shape.

[0023] The stable coupling of the long flap 2 to the inner face of the short flap 3 also entails fixing operations, such as heat-sealing, adhesive bonding and the like.

[0024] It should furthermore be noted that the stable coupling is done by way of a folding element that impacts the long flap 2, spreads it below the product P proper, and presses it against the short flap 3.

[0025] A fourth step entails folding the free short flap 3 of the sheet 1, which comprises a respective portion of the long flap 2 which is folded and stably coupled thereto, onto the base of the product P.

[0026] In the fifth step, it is necessary to rotate the product P, which is stably coupled to the sheet 1, through 180° about a longitudinal axis thereof.

[0027] Subsequently, the sixth step entails folding the tubular portions 4, 5 that protrude with respect to the two mutually opposite heads D, E of the product P onto the respective head D, E, stably coupling them in the closed configuration and defining first, central portions 6 that are coplanar to the first face A and second, external portions 7 and 8, which are respectively coplanar to the faces B and C.

[0028] The sixth step entails folding such external portions 7 and 8 onto the respective central portion 6.

[0029] The seventh step consists in folding such external portions 8 onto the respective external portion 7, which was previously folded onto the central portion 6, so as to form two substantially triangular tabs 9 and 10.

[0030] Finally, the ninth step of the wrapping process, according to the invention, entails compressing the tabs 9 and 10 so as to reinforce the mutual coupling of the portions 6, 7 and 8.

[0031] It should be noted that the juxtaposition of the sheet 1 against the first face A of the product P can positively occur during the advancement of the product P toward the respective packaging unit.

[0032] Folding the flaps 2, 3 of the sheet 1 onto the product P along the faces B, C that are contiguous with the first face A, which gives the sheet 1 a U-shape (as can be seen in the accompanying Figure 1) with one flap longer than the other (the flap 2 is longer than the flap 3), can advantageously be obtained by making the product P pass through a hopper, preceded (in its travel toward the hopper) by the sheet 1, which will be juxtaposed against the first face A of the product 1 proper.

[0033] It should be noted that, in such case, the hopper conveniently will have a shape and dimensions that are at least partially complementary to those of the product P, so as to lay out the sheet 1 and make it adhere to the outer surface of the product P proper.

[0034] It should furthermore be noted that the stable coupling of the long flap 2 to the inner surface of the short flap 3 and of the protruding tubular portions 4, 5 to each other and on the two mutually opposite heads D, E of the product P is obtained by way of tabs that are forced onto the outer surface of the corresponding regions of the sheet 1 which is arranged around the product P.

[0035] Such tabs comprise heated bands for providing a heat-sealed coupling seam.

[0036] It should be noted that the sheet 1, in order to enable valid and stable couplings, comprises localized layers of at least one substance chosen from among adhesives, thermoplastic polymers, adhesive tapes and the like.

[0037] Such layers can already be present on the sheet 1 when it is supplied in order to begin the wrapping operations, or they can be deposited on respective localized areas of the sheet 1 in one of the steps of the process.

[0038] It is useful to detail further the fact that the foldings of the tubular portions 4, 5 that protrude with respect to the two mutually opposite heads D, E of the product P onto the respective head D, E, of the external portions 7 onto the respective central portion 6, and of the external portions 8 onto the respective external portion 7 are provided in sequence by way of respective contoured folding elements, forced onto respective contrast elements the shape and dimensions of which are complementary to the folding elements.

[0039] Finally it should be noted that the compression of the tabs 9 and 10 can be achieved by way of a pair of substantially mutually opposite rollers.

[0040] Advantageously the present invention solves

the above mentioned problems, by providing a process for the at least partially sealed wrapping of individual products P that can be implemented on an industrial scale, producing an open-point style package.

[0041] Positively the process according to the invention enables high productivity of open-point style packages.

[0042] Conveniently the process according to the invention makes it possible to completely or partially seal each product P within a respective open-point style package.

[0043] Conveniently the process according to the invention is easily and practically implemented, and is substantially low cost: such characteristics make the process according to the invention an innovation that is certain to be safe in use.

[0044] The invention, thus conceived, is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims. Moreover, all the details may be substituted by other, technically equivalent elements.

[0045] In the embodiments illustrated, individual characteristics shown in relation to specific examples may in reality be interchanged with other, different characteristics, existing in other embodiments.

[0046] In practice, the materials employed, as well as the dimensions, may be any according to requirements and to the state of the art.

[0047] The disclosures in Italian Patent Application No. 102017000010618 (UA2017A000609) from which this application claims priority are incorporated herein by reference.

[0048] 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 process for the at least partially sealed wrapping of individual products (P), the products (P) being of the type preferably chosen from among fruit jellies, chocolates, candy, chocolate bars, snacks, chewing gums and the like, which consists in:

- juxtaposing a wrapping sheet (1) against a first face (A) of the product (P);
- folding the flaps (2, 3) of said sheet (1) onto the product (P) along the faces (B, C) that are contiguous to said first face (A), giving the sheet (1) a U-shape with one flap (2) longer than the other;
- stably coupling the long flap (2) to the inner surface of the short flap (3), thus confining the

product (P) within a closed tubular portion, consequently giving the sheet (1) a P-shape;

- folding the free short flap (3) of said sheet (1), which comprises a respective portion of the long flap (2) which is folded and stably coupled thereto, onto the base of said product (P);
- rotating the product (P), stably coupled to the sheet (1), through 180° about a longitudinal axis thereof;
- folding the tubular portions (4, 5) that protrude with respect to the two mutually opposite heads (D, E) of said product (P) onto the respective head (D, E), stably coupling them in the closed configuration and defining first, central portions (6) that are coplanar to said first face (A) and second, external portions (7 and 8), which are respectively coplanar to said faces (B and C);
- folding said external portions (7) onto the respective central portion (6);
- folding said external portions (8) onto the respective external portion (7), which was previously folded onto said central portion (6), so as to form two substantially triangular tabs (9 and 10);
- compressing said tabs (9 and 10) so as to reinforce the mutual coupling of said portions (6, 7 and 8).

2. The process according to claim 1, **characterized in that** said juxtaposition of said sheet (1) against a first face (A) of said product (P) occurs during the advancement of the product (P) toward the packaging assembly.

3. The process according to claim 1, **characterized in that** said folding of the flaps (2, 3) of said sheet (1) onto the product (P) along the faces (B, C) that are contiguous to said first face (A), giving the sheet (1) a U-shape with one base longer than the other, is obtained by making said product (P) pass through a hopper, preceded by said sheet (1) and juxtaposed against said first face (A) thereof.

4. The process according to claim 3, **characterized in that** said hopper has a shape and dimensions that are at least partially complementary to those of said product (P).

5. The process according to claim 1, **characterized in that** said stable coupling of said long flap (2) to the inner surface of said short flap (3) and of said protruding tubular portions (4, 5) to each other and on the two mutually opposite heads (D, E) of said product (P) is obtained by way of tabs that are forced onto the outer surface of the corresponding regions of said sheet (1) which is arranged around said product (P).

6. The process according to claim 5, **characterized in that** said tabs comprise heated bands for providing a heat-sealed coupling seam.
7. The process according to claim 5, **characterized in that** said sheet (1) comprises localized layers of at least one substance chosen from among adhesives, thermoplastic polymers, adhesive tapes and the like. 5
8. The process according to claim 1, **characterized in that** said foldings of the tubular portions (4, 5) that protrude with respect to the two mutually opposite heads (D, E) of said product (P) onto the respective head (D, E), of the external portions (7) onto the respective central portion (6), and of the external portions (8) onto the respective external portion (7) are provided in sequence by way of respective contoured folding elements, forced onto respective contrast elements the shape and dimensions of which are complementary to said folding elements. 10 15 20
9. The process according to claim 1, **characterized in that** said compression of said tabs (9 and 10) is achieved by way of a pair of substantially mutually opposite rollers. 25

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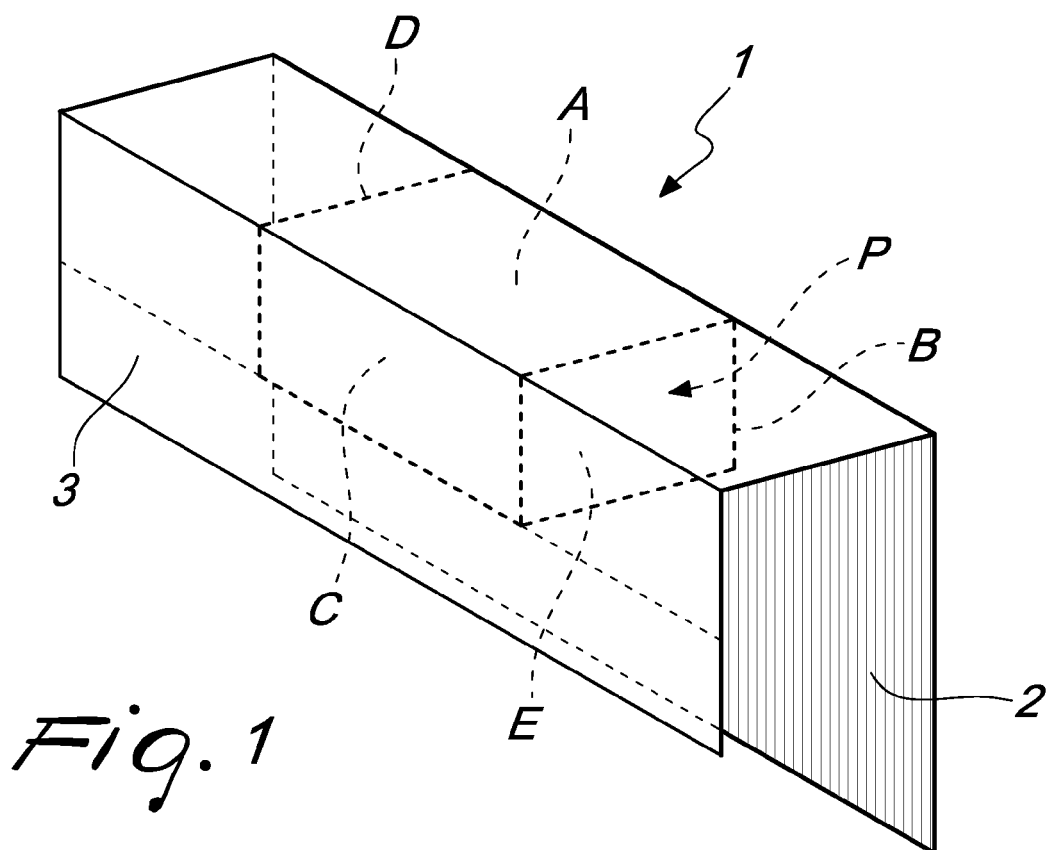


Fig. 1

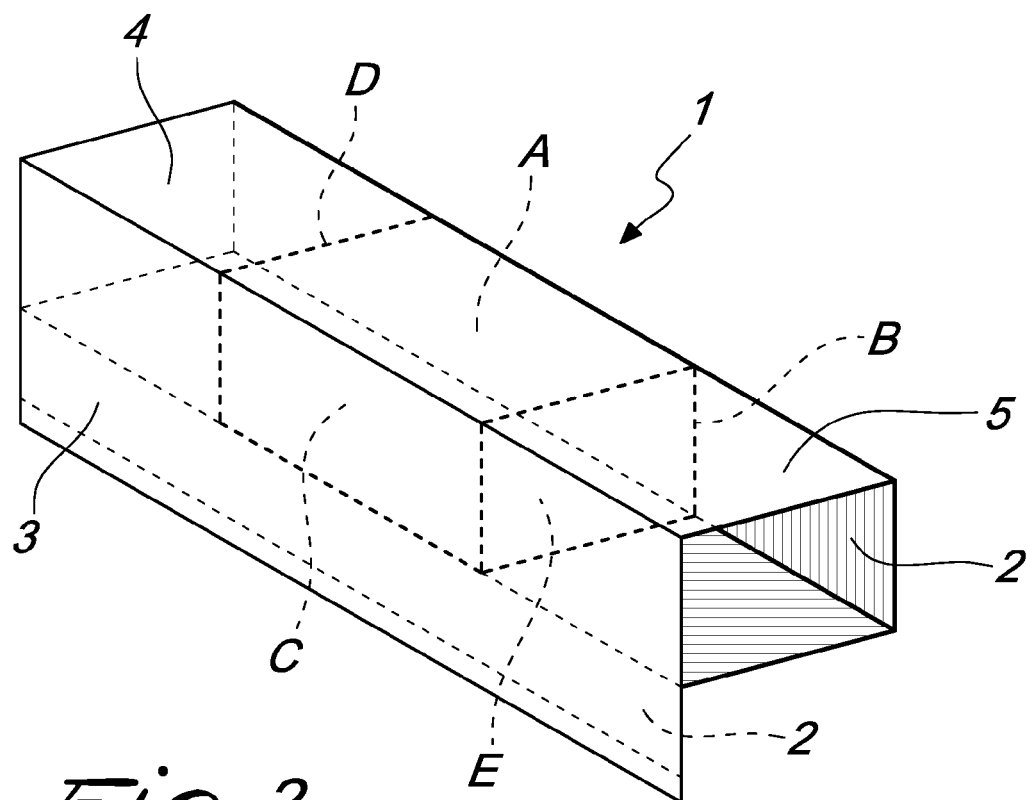


Fig. 2

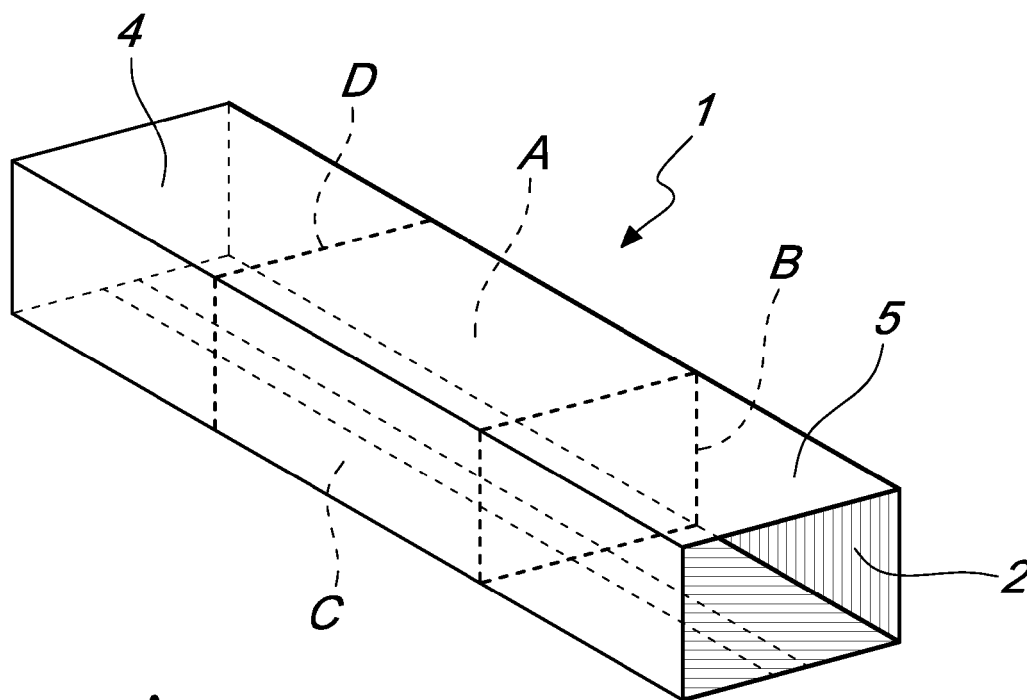


Fig. 3

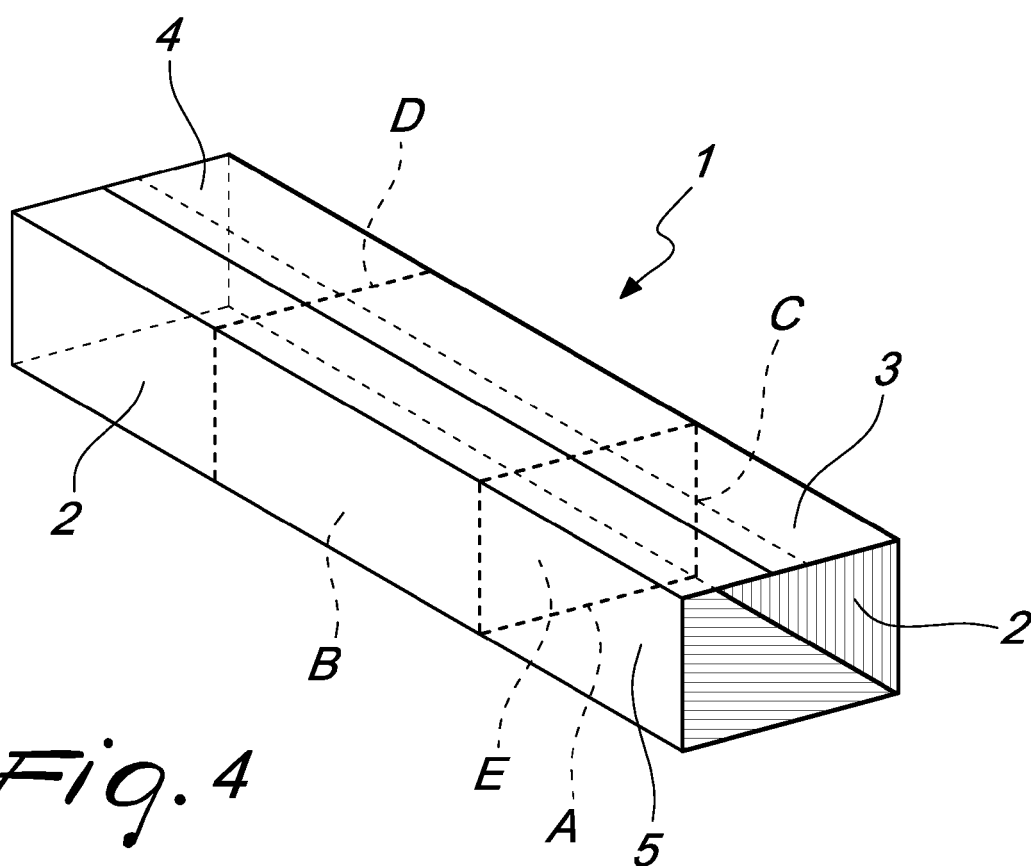
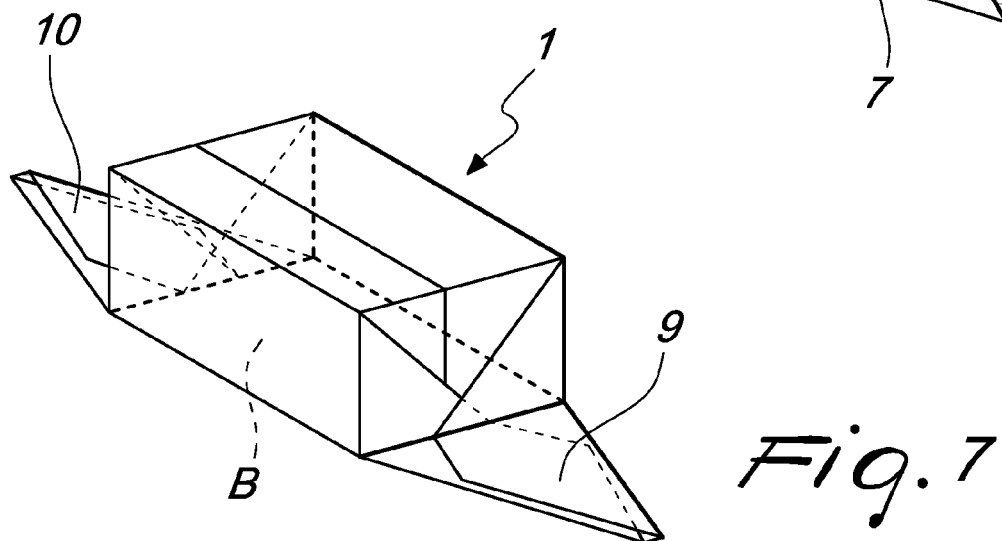
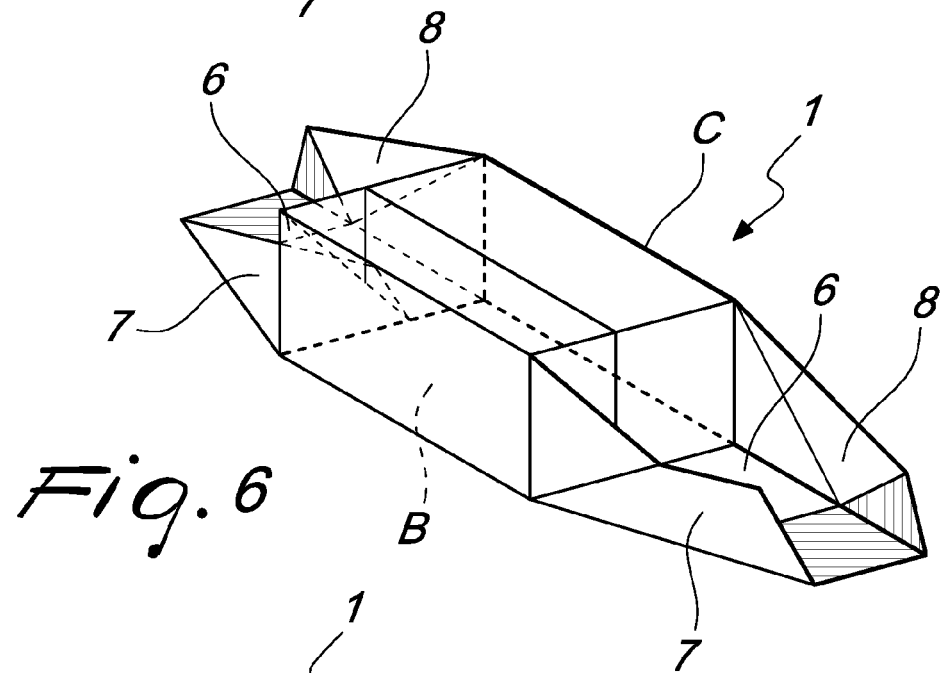
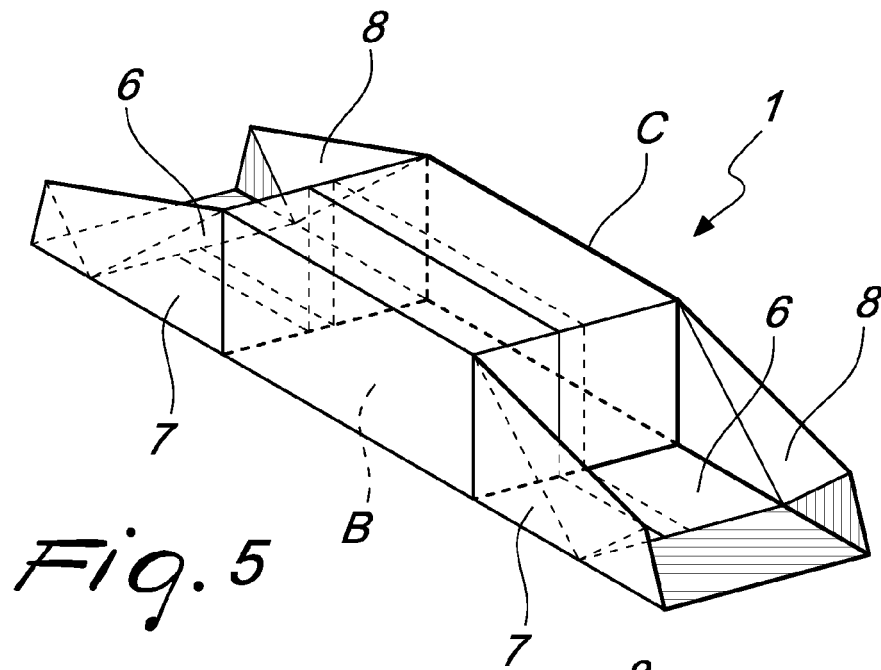


Fig. 4





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Application Number
EP 18 15 4024

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			TECHNICAL FIELDS SEARCHED (IPC)
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 16 February 2018	Examiner Ungureanu, Mirela
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EPO FORM 1503 03/82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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