(19) Europäisches Patentamt
European Patent Office
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(11) EP 3 354 579 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
01.08.2018 Bulletin 2018/31

(51) Int Cl.:
B65B 11/00 *(2006.01)* ***B65D 75/14*** *(2006.01)*

(21) Application number: **18153399.3**

(22) Date of filing: **25.01.2018**

(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

(30) Priority: **27.01.2017 IT 201700008772**

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(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 chocolates, candy, chocolate bars, snacks, chewing gums and the like, which consists of 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 with the first face (A), giving the sheet (1) a C-shape with one base longer than the other; stably coupling the short flap (3) to the inner surface of the long flap (2), thus confining the product (P) within a closed tubular portion, consequently giving the sheet (1) a P-like shape; orienting the protruding flap (2) of the sheet (1) along a direction that is parallel to the first face (A) of the product (P), without juxtaposing the flap (2) on itself; 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), according to the wallet wrapping method, stably coupling them in the closed configuration; folding the free flap (2) of the sheet (1), which comprises respective parts of the tubular portions (4, 5) which are folded and mutually coupled in a stable manner, onto the bottom of the product (P), and coupling it thereto.

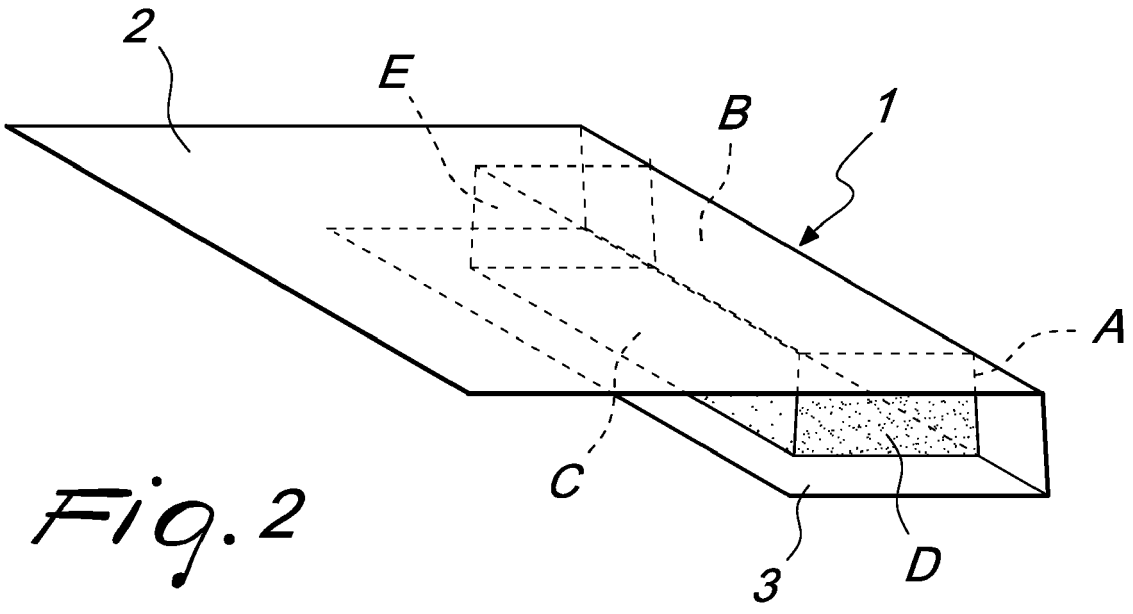


Fig. 2

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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 chocolates, candy, chewing gum, chocolate bars and the like, the use is known of two different types of wrapping: "envelope-style" wrapping and "wallet-style" wrapping.

[0004] In envelope-style wrapping, a sheet is wrapped around the product, and the laterally-protruding flaps (i. e. the flaps that protrude with respect to the two side heads of the product) are folded under the end flap, which in turn will be juxtaposed against the bottom of the product.

[0005] In wallet-style wrapping, a sheet is wrapped around the product, and its laterally-protruding flaps (i.e. the flaps that protrude with respect to the two side heads of the product) are folded back onto themselves (i.e. by juxtaposing them against the respective heads of the product with successive folds) and the end end flap is closed juxtaposing it against the bottom of the product.

[0006] Both kinds of wrapping have been used for a great many years on a wide variety of food and non-food products.

[0007] 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.

[0008] In essence the covering sheet will be sealed along its edges in order to isolate the product from the outside environment.

[0009] 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.

[0010] 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.

[0011] For envelope-style packages, only recently have machines been developed that are capable of stably coupling the flaps of the covering sheet while isolating the food product from the outside environment.

[0012] For wallet-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.

[0013] Some products, however, by tradition and/or because of specific requirements, preferably use wallet-style wrapping, and therefore they cannot be conveniently sealed and/or segregated inside the respective package.

[0014] 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 a wallet-style package.

[0015] 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 wallet-style packages.

[0016] Another object of the invention is to provide a process for the at least partially sealed wrapping of individual products that makes it possible to seal completely or partially each product within a respective wallet-style package.

[0017] 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.

[0018] 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, products of the type preferably chosen from among 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 with said first face, giving the sheet a C-shape with one base longer than the other,
- stably coupling the short flap to the inner surface of the long flap, thus confining the product within a closed tubular portion, consequently giving the sheet a P-like shape,
- orienting the protruding flap of the sheet along a direction that is parallel to the first face of said product, without juxtaposing said flap on itself,
- folding the tubular portions that protrude with respect to the two mutually opposite heads of said product onto the respective head, according to the wallet wrapping method, stably coupling them in the closed configuration,
- folding the free flap of said sheet, which comprises respective parts of the tubular portions which are folded and mutually coupled in a stable manner, onto the bottom of the product, and coupling it thereto.

[0019] 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 first step of the process for the at least partially sealed wrapping of individual products according to the invention;
Figure 2 is a schematic perspective view of a second step of the process according to the invention;
Figure 3 is a schematic perspective view of a third step of the process according to the invention;
Figure 4 is a schematic perspective view of the third step from a different angle with respect to Figure 3;
Figure 5 is a schematic perspective view of a fourth step of the process according to the invention;
Figure 6 is a schematic perspective view of a first intermediate configuration of the fifth step of the process according to the invention;
Figure 7 is a schematic perspective view of a second intermediate configuration of the fifth step of the process according to the invention;
Figure 8 is a schematic perspective view of a third intermediate configuration of the fifth step of the process according to the invention;
Figure 9 is a schematic perspective view of a sixth step of the process according to the invention.

[0020] 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.

[0021] The products P that will preferably be packaged by implementing the process according to the invention are of the type preferably chosen from among chocolates, candy, chocolate bars, snacks, chewing gums and the like.

[0022] The first step of the process entails juxtaposing the wrapping sheet 1 against a first face A of the product P.

[0023] Then a second step consists of 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, giving the sheet a C-shape with one base (flap 2) longer than the other (flap 3).

[0024] During a third step, it is necessary to stably couple the short flap 3 to the inner surface of the long flap 2, thus confining the product P within a closed tubular portion, consequently giving the sheet 1 a P-like shape.

[0025] The stable coupling of the short flap 3 to the inner face of the long flap 2 also entails fixing operations, such as heat-sealing, adhesive bonding and the like.

[0026] A fourth step entails orienting the protruding flap 2 of the sheet 1 along a direction that is parallel to the first face A of the product P, without juxtaposing the flap 2 on itself.

[0027] In essence, the flap 2 is folded 90° with respect to its initial position in the direction of rotation that does not superimpose it on the sheet 1 that is already wrapped around the product P.

[0028] During the fifth step, the tubular portions 4, 5 that protrude with respect to the two mutually opposite heads D, E of the product P need to be folded onto the respective head D, E, according to the wallet wrapping method, stably coupling them in the closed configuration.

[0029] Such operations entail folding a first, central region of each tubular portion 4, 5 onto the respective head D, E and, subsequently, folding the side regions onto the central region (in sequence).

[0030] Such steps of folding the tubular portions 4, 5 will be accompanied by fixing operations, such as heat-sealing, adhesive bonding and the like.

[0031] The sixth and last step of the wrapping process according to the invention involves folding the free flap 2 of the sheet 1, which comprises respective parts of the tubular portions 4, 5 which are folded and mutually coupled in a stable manner, onto the bottom of the product P, and coupling it thereto.

[0032] 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.

[0033] 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 C-shape (as can be seen in the accompanying Figure 2) with one base 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.

[0034] 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.

[0035] It should furthermore be noted that the stable coupling of the short flap 3 to the inner surface of the long flap 2 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.

[0036] Such tabs comprise heated bands for providing a heat-sealed coupling seam.

[0037] 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.

[0038] 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.

[0039] It is useful to detail the fact that 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 is achieved by way of a hopper

which is provided with separate plates for the sequential folding first of the central region, which is perpendicular to the first face A, and then of the outer regions, which are parallel to the first face A.

[0040] Finally, it should be noted that the terminal coupling of the free flap 2 of the sheet 1 to the bottom of the product P, at the end of the last step of the process according to the invention, is obtained by adhesive bonding. The possibility is not ruled out however of carrying out such operation by interposing strips of adhesive tape and/or by heat-sealing the flap 2 proper onto the part of sheet 1 underlying it (already arranged to cover the bottom of the product P).

[0041] 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 a wallet-style package.

[0042] Positively the process according to the invention enables high productivity of wallet-style packages.

[0043] Conveniently the process according to the invention makes it possible to completely or partially seal each product P within a respective wallet-style package.

[0044] 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.

[0045] 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.

[0046] 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.

[0047] In practice, the materials employed, as well as the dimensions, may be any according to requirements and to the state of the art.

[0048] The disclosures in Italian Patent Application No. 102017000008772 (UA2017A000487) from which this application claims priority are incorporated herein by reference.

[0049] 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), products (P) of the type preferably chosen from among chocolates, candy, chocolate bars, snacks, chewing gums and the like, which comprises the steps of:

   - 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 with said first face (A), giving the sheet (1) a C-shape with one base longer than the other,
   - stably coupling the short flap (3) to the inner surface of the long flap (2), thus confining the product (P) within a closed tubular portion, consequently giving the sheet (1) a P-like shape,
   - orienting the protruding flap (2) of the sheet (1) along a direction that is parallel to the first face (A) of said product (P), without juxtaposing said flap (2) on itself,
   - 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), according to the wallet wrapping method, stably coupling them in the closed configuration,
   - folding the free flap (2) of said sheet (1), which comprises respective parts of the tubular portions (4, 5) which are folded and mutually coupled in a stable manner, onto the bottom of the product (P), and coupling it thereto.

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 unit.

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 with said first face (A), giving the sheet (1) a C-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 short flap (3) to the inner surface of said long flap (2) 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 prod-

uct (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.

8. The process according to claim 1, **characterized in that** said folding 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) is achieved by way of a hopper which is provided with separate plates for the sequential folding first of the central region, which is perpendicular to the first face (A), and then of the outer regions, which are parallel to said first face (A).

9. The process according to claim 1, **characterized in that** said coupling of said free flap (2) of said sheet (1) to said bottom of said product (P) is obtained by adhesive bonding.

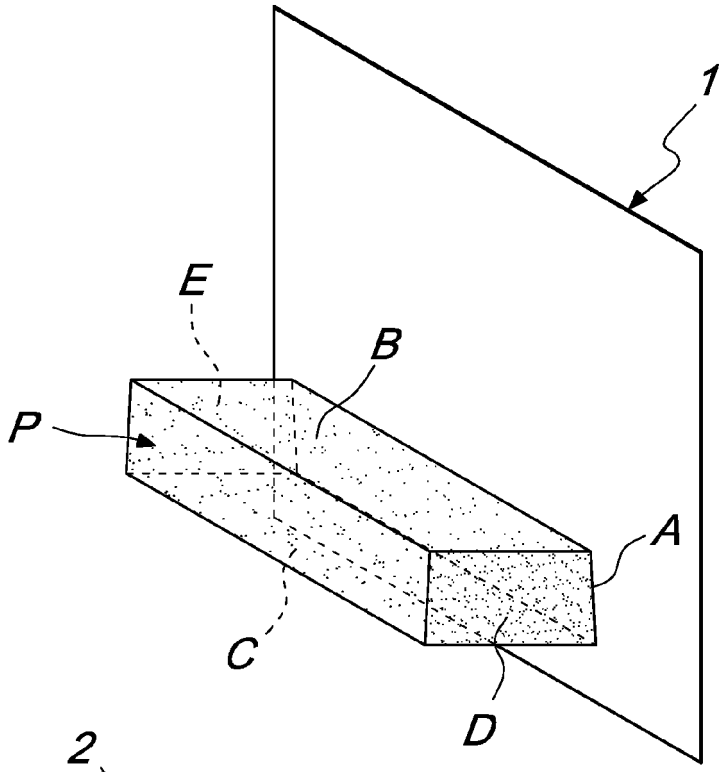


Fig. 1

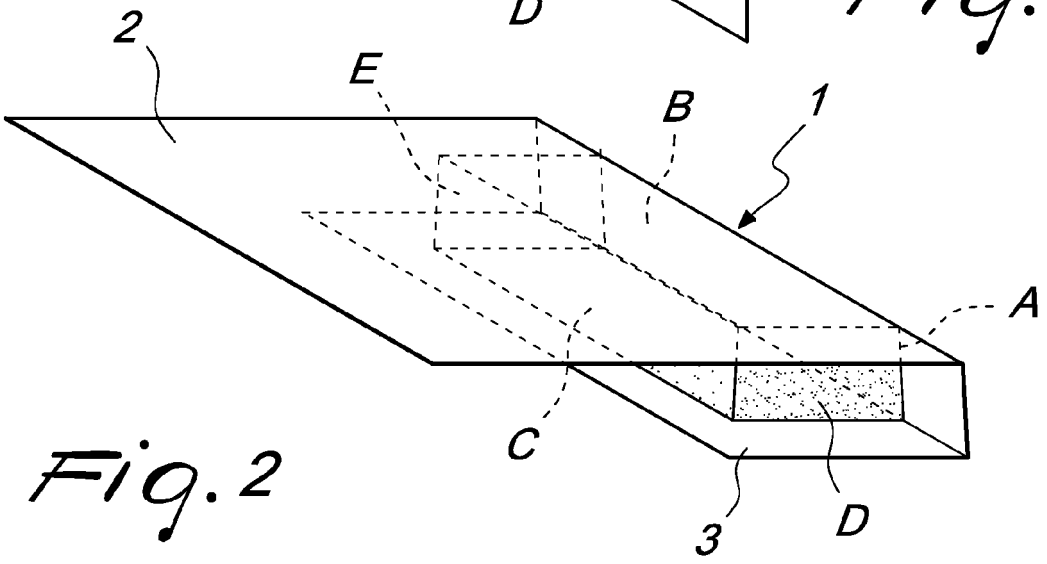


Fig. 2

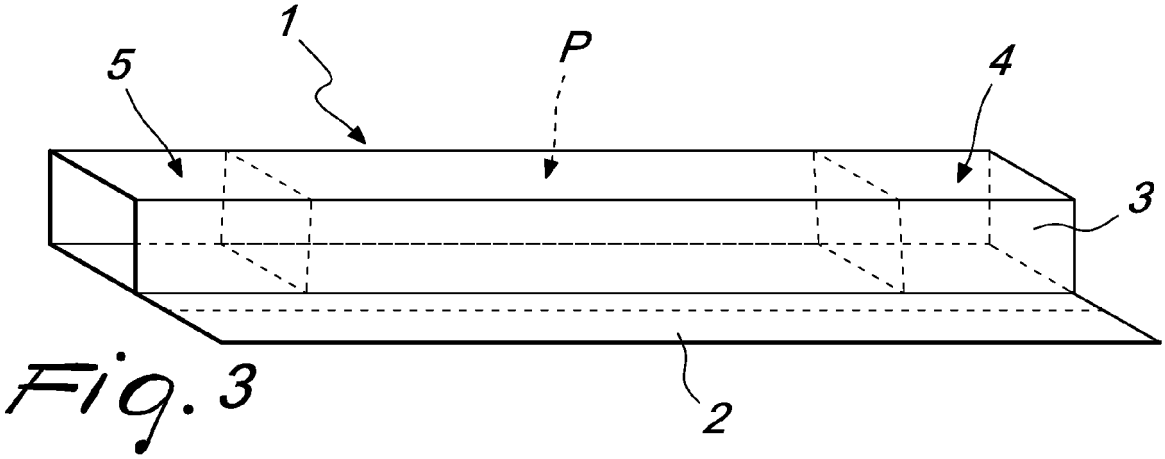


Fig. 3

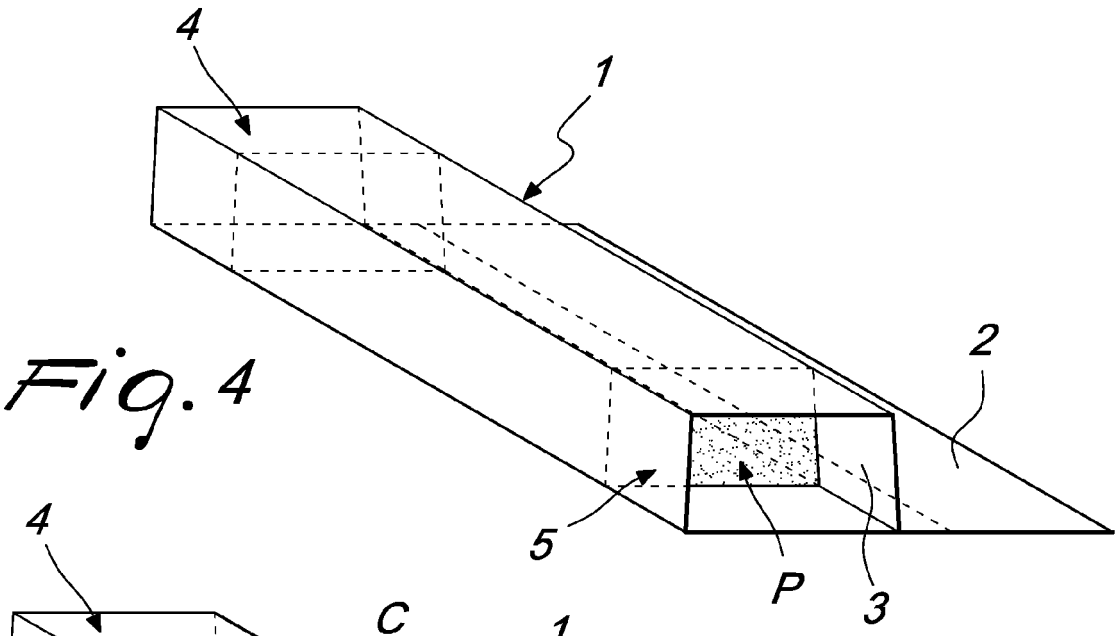


Fig. 4

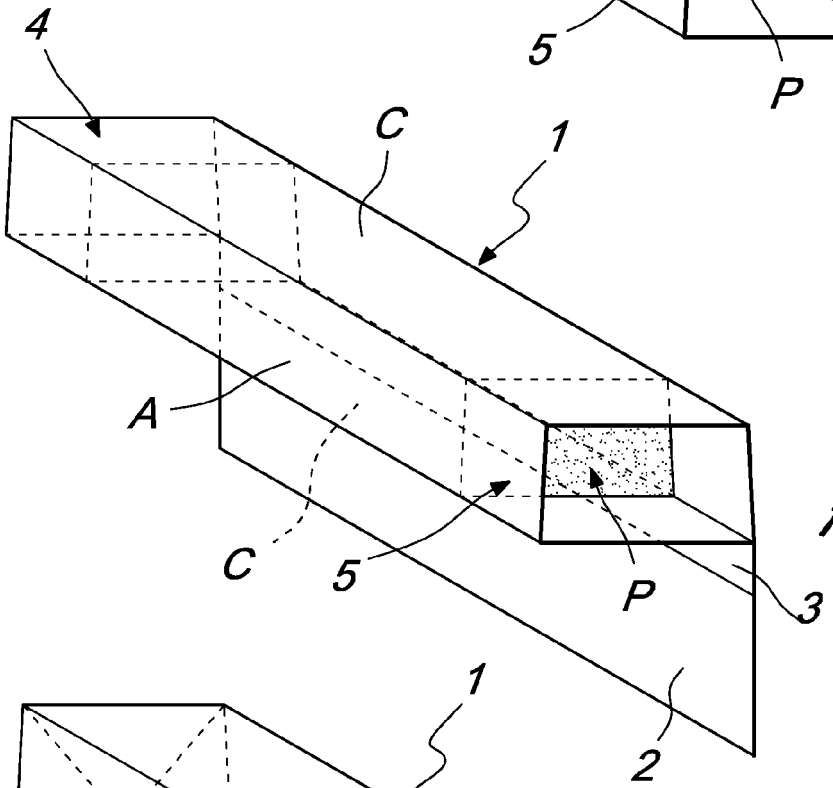


Fig. 5

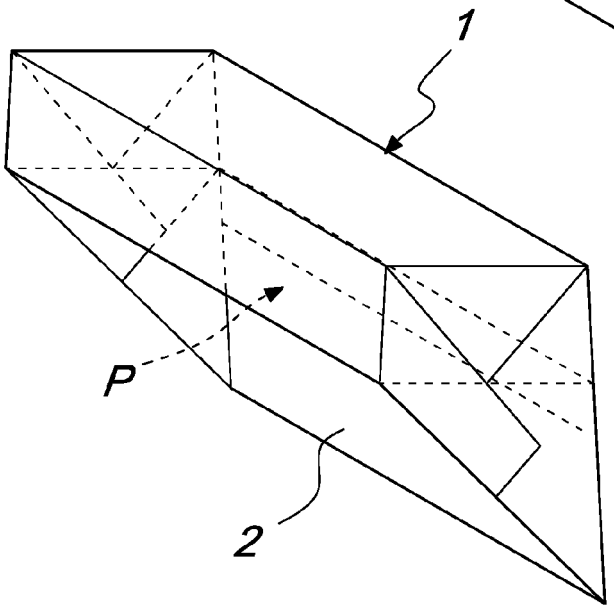


Fig. 6

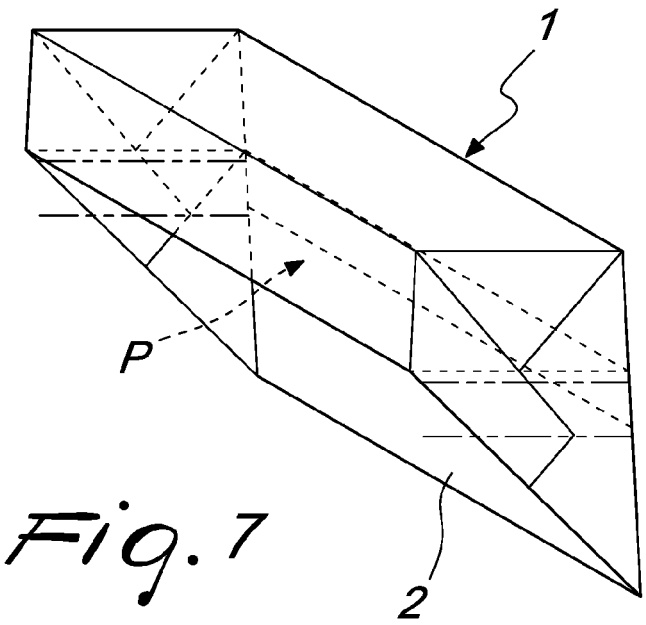


Fig. 7

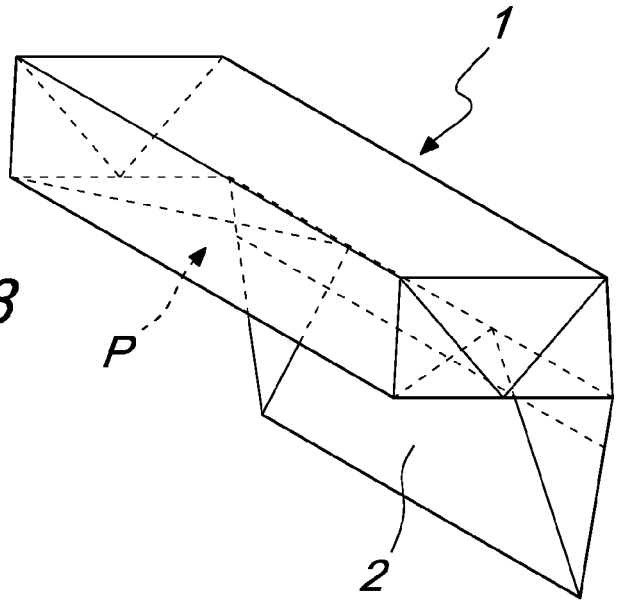


Fig. 8

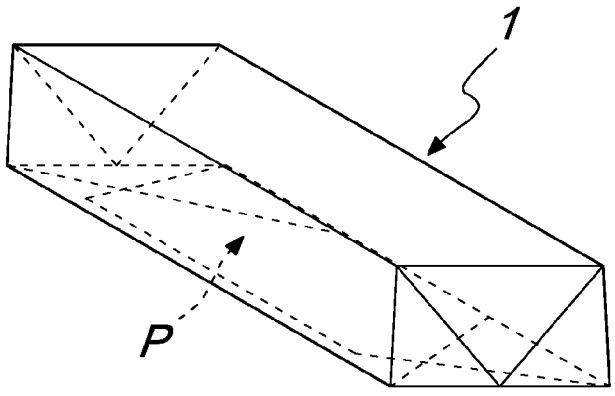


Fig. 9

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EUROPEAN SEARCH REPORT

Application Number
EP 18 15 3399

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	WO 2013/088409 A1 (SO TE MA PACK S R L [IT]) 20 June 2013 (2013-06-20) * figures 1A-1F *	1	INV. B65B11/00 B65D75/14
A	US 2 620 964 A (GERMAN ROSE ALFRED ET AL) 9 December 1952 (1952-12-09) * figures 6-11 *	1	
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TECHNICAL FIELDS SEARCHED (IPC)

B65B
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	14 February 2018	Ungureanu, Mirela

CATEGORY OF CITED DOCUMENTS

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