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(71) Applicant: **SACCHETTIFICIO NAZIONALE G. CORAZZA SPA** [IT/IT]; Via Benelux, 2, 35020 Ponte San Nicolo' (PD) (IT).

(72) Inventor: **SELMIN, Alessandro**; c/o SACCHETTIFICIO NAZIONALE G. CORAZZA Spa, Via Benelux, 2, 35020 Ponte San Nicolo' (PD) (IT).

(74) Agent: **BENETTIN, Maurizio**; Ufficio Veneto Brevetti Srl, Via Sorio, 116, 35141 Padova (IT).

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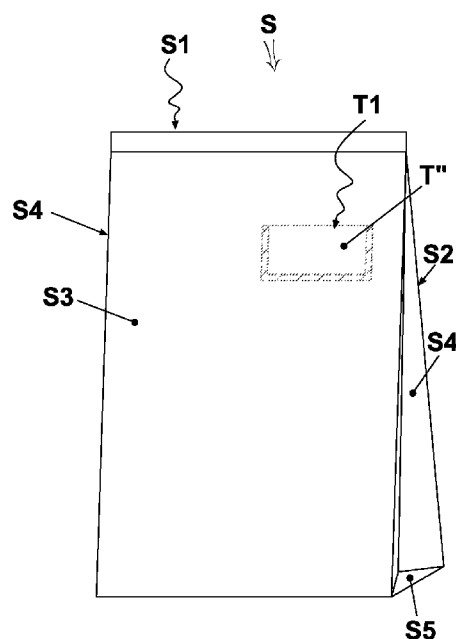


Fig. 2

(57) Abstract: The invention is a container bag (S) made of a plastic or composite material and suited to contain food products for animals, comprising parts/sides (S2, S3, S4), a closed bottom (S5) and an upper opening (S1) suited to be closed in order to contain the food products, at least one additional pocket (T', T''), in turn comprising at least one portion (21) of a sheet (2) that is heat sealed onto at least one of said parts (S2) of the bag (S) along or in proximity to at least part of its perimeter.

BAG SUITED TO CONTAIN ANIMAL FOOD PRODUCTS AND PROVIDED WITH A POCKET APPLIED THERETO, SYSTEM AND METHOD FOR MAKING SAID BAG

DESCRIPTION

The present patent concerns the sector of packaging bags made of plastic materials or composite materials, and in particular it concerns a new container bag made of a plastic or composite material, in particular suited to contain animal food products and provided with an internal or external additional pocket, a system and a process for making the new container bag.

Packaging or container bags are known that are produced starting from at least one continuous film or sheet, for example made of a plastic or composite material, which is processed in successive bending, cutting and welding steps in order to obtain a bag with closed bottom and an upper filling opening, which is located opposite the bottom and is closed and sealed once the bag has been filled.

The process for making the bags known in the art comprises also the steps of application of one or more handles on the outside of the bag.

The bags known in the art are manufactured through continuous processing cycles, in such a way as to maximize productivity and thus reduce costs.

The bags intended to contain food products for animals are generally produced in medium to large sizes. Once they have been opened, they generally need to be carefully closed in order to prevent the unpleasant smell of animal food from spreading around, as well as to preserve the product contained therein.

In particular, in the case of large bags, whose content is consumed even in more than two-three weeks, even if the bag is closed manually, for example with clips or ties, or using other techniques, the food comes into contact with air and humidity, which modify its characteristics in terms of taste and smell.

The subject of the present patent is constituted by a new type of container bag made of a plastic or composite material, particularly suited to contain food products for animals and provided with an internal or external additional pocket, as well as by a

system and a process for making said bag.

The main object of the present invention is to provide a container bag with at least one internal or external additional pocket, and wherein said pocket is heat sealed onto the main sheet used to form the bag during the normal production and finishing steps, thus optimizing productivity.

An advantage offered by the new process lies in that it is possible to apply the internal or external additional pocket during other bag forming operations, and therefore the production of the bag is not slowed down.

It is the main object of the present invention to provide a bag with a new pocket that can be used to contain objects or gadgets of various types, for example useful for preserving the food contained in the bag.

It is another object of the present invention to provide a bag with a new pocket that can be used for the application of removable information or promotional coupons related to the food contained in the bag.

It is another object of the present invention to provide a bag with a new pocket that can be used for the introduction of poop bags or bags suited to be used as doggy bags.

It is another object of the present invention to provide a bag that can be customized according to its intended use and to the needs of the customer.

These and other direct and complementary objects are achieved by the new container bag made of a plastic or composite material, particularly suited to contain food products for animals and provided with an internal or external additional pocket, and by a system and a process for making the new container bag.

The new container bag is mainly made of a plastic or composite material and comprises a main film or sheet with which it is formed, and wherein one side of said main sheet forming the bag is provided with at least one pocket comprising at least one portion of a sheet, in turn heat sealed onto said main sheet at the level of or in proximity to at least part of its perimeter, preferably defining at least one opening for

the successive introduction and extraction of objects.

In the preferred solution, said pocket is applied to the side of the main sheet intended to be facing towards the inside of the bag, in any position, for example on the front part or on the rear part of the bag or on its sides, and is conveniently oriented with the open side facing upwards.

According to the invention, however, any of the sides of said portion can be open, meaning that any part of the perimeter of said portion can be open, so that said open or opening side can be oriented in any way, according to the needs.

According to the invention, said pocket can be applied to the side of the main sheet that is intended to be facing towards the outside of the bag.

Said pocket can be developed mainly in the vertical or the horizontal direction, and has any shape and size, which can be customized according to the needs.

Also the material with which said pocket is made and any possible printed pattern or graphic element added thereto can be customized.

In the solution with internal pocket, the pocket and the bag can be made in such a way that said pocket cannot be seen from the outside of the bag.

According to the invention, however, said pocket may be visible also from the outside.

On the contrary, according to the invention, when said pocket is positioned on the outside of the bag it can be made in such a way that it is clearly visible, for example using special printing and graphic effects, or in such a way that it is not immediately visible, for example using the same printed patterns as those used for the external print present on the bag.

According to the invention, said portion can be pre-cut along one or more lines, so that it can be easily opened. In this solution, said portion forming the pocket is made of a plastic or composite material, for example a poly laminate material, and can be provided with promotional messages, discount coupons, loyalty cards or points coupons, or more generally useful information and data to be kept, or poop bags or

doggy bags.

The new bag may also comprise one or more objects housed inside said pocket, that is, completely or partially interposed between said main sheet and said sheet portion. For example, said object is constituted by at least one sheet suited to absorb the oxygen and/or humidity and/or the odours present inside the bag, in order to guarantee the correct preservation of the food both before and after the opening of the bag.

In this solution, said portion forming the packet is conveniently made of a film provided with microholes, meaning a film that is permeable to gases.

As an alternative, said portion forming the pocket can also be made of a material capable of absorbing oxygen and/or humidity and/or odours.

Alternatively, said portion forming the pocket is made of a perfumed material or said pocket may contain a perfumed sheet.

According to another example of embodiment, the pocket may contain one or more poop bags and/or other objects useful for the animal care and/or for feeding the animal or other objects in general.

Said portion forming the pocket can be coloured in a manner different from the inside of the bag, so that it is more visible, or it can be of a neutral colour, of the same colour as the inside of the bag or transparent.

The new system for the production of the container bags described above and provided with at least one additional pocket comprises in its main parts:

- at least one main feeding and sliding station suited to feed and slide at least one main continuous sheet for forming the bag, hereinafter called main sheet, in at least one first direction;
- at least one secondary feeding and sliding station, suited to feed and slide at least one secondary continuous sheet that slides in a second direction oriented with respect to said first direction in such a way that said secondary continuous sheet is at least partially superimposed to said main sheet; for

example, said second direction is substantially orthogonal to said first direction;

- at least one cutting station where said secondary continuous sheet is cut according to predefined distances into portions to be applied to at least one side of said main sheet;
- at least one heat sealing station, where said portions are heat sealed in succession onto said at least one side of said main sheet,

and wherein said at least one heat sealing station in turn comprises: at least one pressing element suited to press said portion on said side of said main sheet, and at least one resistance suited to rest on one side of said main sheet in a position corresponding to the position of application of said portion, thus heat sealing said portion onto said main sheet.

According to the invention, in said heat sealing station said pressing element and said resistance act substantially simultaneously on the two opposite sides of said main sheet.

Alternatively, according to the invention said pressing element and said resistance act one after the other on the same side of said main sheet.

Alternatively, said system may even comprise a pre-cutting station for pre-cutting said portion along one or more lines, in such a way that said portion, once it has been applied, can be easily torn along said lines.

Therefore, said portions are applied to one side of said main sheet during the bag production and finishing process, these last operations being performed downstream of said heat sealing station.

According to the invention, said new system may comprise also at least one insertion station for inserting one or more objects of any type, having any shape and function, in said pocket formed by said portion.

The process is automated and operates in perfect synchronism with the other steps and elements involved in the production of the bag. The passages through the

various elements of the system and the effective speed of the system itself are not slowed down by the presence of the pocket, since the pocket is flat and adheres perfectly to the body of the bag.

For the same reason, the pocket does not hinder the bag filling operations.

The new process comprises the following steps:

- sliding said main sheet in said first advance direction;
- sliding said secondary continuous sheet in said second advance direction, parallel or not parallel to said first advance direction, and wherein said secondary continuous sheet is at least partially superimposed to said main sheet;
- cutting said secondary continuous sheet into portions suited to be applied to said main sheet;
- heat sealing a succession of said portions onto said main sheet by:
 - a) pressing said portion on one side of said main sheet;
 - b) pressing a resistance on said main sheet in a position corresponding to said portion, preferably on the opposite side of said main sheet, thus heat sealing said portion onto said main sheet.

The characteristics of the new container bag and of the system for making said bag are highlighted in greater detail in the description provided below, with reference to the attached drawings that are enclosed hereto by way of non-limiting example.

Figures 1 and 2 show two views of the new container bag (S), with an internal additional pocket (T', T''), represented by a dashed line, respectively oriented vertically and horizontally, with the open side (T1) facing upwards, meaning towards the opening (S1) of the bag (S).

Figure 1a shows a detail of the pocket (T') shown in Figure 1.

Figures 3 and 4 show a view of the inside of the bag (S), respectively in the solution with vertical pocket (T') and with horizontal pocket (T'').

Figure 5 shows a schematic view of a part of the new system for making the

container bag (S) shown in the preceding figures, and in particular it shows the part related to the application of the pocket (T', T'') to the main sheet (4) used to form the bag (S).

The new container bag (S) is particularly suited to contain food products for animals, is mainly made of a plastic or composite material and comprises a main film or sheet (1) with which said bag (S) is made, wherein the latter comprises a front part (S3), a rear part (S2), sides (S4) that for example can be configured as bellows, a closed bottom (S5) and an upper opening (S1) suited to be closed in order to contain the food.

At least one part (S2) of said bag (S) is provided with at least one pocket (T', T'') comprising at least one portion (21) of a sheet (2), said portion (21) being heat sealed onto said part (S2) of the bag (S) along part of its perimeter, in particular at the level of or in proximity to at least three of its edges (211, 212, 213), while the fourth edge (214) is open and defines the opening (T1) for the introduction of objects.

In the solution illustrated in the figures, said pocket (T', T'') is applied to the side (S21) of said part (S2) facing towards the inside of the bag (S), in any position.

According to the invention, however, said pocket may be applied to the side (S22) of the part (S2) facing towards the outside of the bag (S), in any position.

In the solution represented in the figures, said pocket (T', T'') is applied to the back part, but according to the invention it can also be applied to the front part (S3) or to the sides (S4), with the open side (T1) facing upwards.

In any case, according to the invention any of the sides of said portion (21) can be open and customized according to the needs.

The new system (P) for the production of the container bags (S) described above comprises at least one main feeding and sliding station (P1) suited to feed and slide at least one main continuous sheet (1) in at least one first direction.

The new system (P) comprises also at least one secondary feeding and sliding station

(P2) suited to feed and slide at least one secondary continuous sheet (2) that slides in a second direction (Y) oriented with respect to said first direction (X) in such a way that said secondary continuous sheet (2) is at least partially superimposed to said main sheet (1).

Said secondary station (P2) comprises at least one winding reel (22) for winding said secondary continuous sheet (2) and a plurality of guide rollers (23) suited to drive and slide said secondary continuous sheet (2) in said second direction (Y).

In the example shown in the figure, said second direction (Y) is substantially orthogonal to said first direction (X).

The new system (P) comprises also at least one cutting station (P3) for cutting said secondary continuous sheet (2) according to predefined distances in portions (21) to be applied to at least one side (11) of said main sheet (1).

Said cutting station (P3) comprises at least one blade (3) or cutting die suited to cut said secondary continuous sheet (2) in said portions (21), preferably once said portion (21) has been superimposed to said main sheet (1) in the application position.

Said cutting die (3) can have any shape, so that it is possible to shape the portion (21) forming the pocket (T', T'') as desired.

The new system (P) comprises also at least one heat sealing station (P4) suited to heat seal a succession of said portions (21) onto said side (11) of said main sheet (1).

Said at least one heat sealing station (P4) in turn comprises at least one pressing element (4) suited to press said portion (21) on said side (11) of said main sheet (1) and at least one resistance (5) suited to rest on the opposite side (12) of said main sheet, in a position corresponding to the position of application of said portion (21), thus heat sealing said portion (21) onto said main sheet (1).

Said pressing element (4) of said heat sealing station moves alternately in a direction (Z) that is substantially orthogonal to said main sheet (1).

In particular, said pressing element (4) performs a movement towards the side (11)

of the main sheet (1) on which said portion (21) is pressed and a movement in the opposite direction, during which said main sheet (1) advances in said first direction (X) and a successive portion (21) is correctly positioned for the heat sealing operation.

According to the invention, in said heat sealing station (P4) said pressing element (4) and said resistance (5) act substantially at the same time on the two opposite sides (11, 12) of said main sheet (1).

Said resistance (5) is preferably U-shaped, meaning that its shape substantially corresponds only to part of the perimeter of said portion (11), for example to only three sides (211, 212, 213) of said portion (21), while the fourth side (214) remains open for the possible successive introduction of objects.

In this way the pocket (T', T'') with an opening (T1) for the introduction of objects is obtained.

These are the schematic outlines that are sufficient to the expert in the art to carry out the invention, consequently, during the production steps variants may be produced that fall within the scope of the innovative concept introduced hereby.

Therefore, with reference to the above description and the attached drawings, the following claims are expressed.

CLAIMS

1. Container bag (S) made of a plastic or composite material and suited to contain food products for animals, comprising parts/sides (S2, S3, S4), a closed bottom (S5) and an opening (S1) suited to be closed to contain the food, **characterized in that** it comprises at least one additional pocket (T', T''), in turn comprising at least one portion (21) of a sheet (2) that is heat sealed onto at least one of said parts (S2) of the bag (S) along or in proximity to at least part of its perimeter.

2. Container bag (S) according to claim 1, **characterized in that** said pocket (T', T'') is applied in any position inside said bag (S).

3. Container bag (S) according to claim 1, **characterized in that** said pocket (T', T'') is applied in any position outside said bag (S).

4. Container bag (S) according to any of the claims from 1 to 3, **characterized in that** it comprises one or more objects housed inside said at least one pocket (T', T''), and wherein said objects comprise at least one sheet suited to absorb oxygen and/or humidity and/or the odours present inside the bag (S) in order to correctly preserve the food both before and after the opening of the bag (S).

5. Container bag (S) according to any of the claims from 1 to 4, **characterized in that** it comprises one or more objects housed inside said at least one pocket (T', T''), and wherein said objects comprise at least one or more poop bags and/or bags for containing animal food and/or for containing other objects for animal care and/or objects in general.

6. Container bag (S) according to any of the claims from 1 to 5, **characterized in that** said portion (21) forming said pocket (T', T'') is made of a plastic or composite material and is provided with promotional messages, discount coupons, loyalty cards or points coupons, or in general useful information and data to be kept.

7. Container bag (S) according to any of the claims from 1 to 5, **characterized in that** said portion (21) forming said pocket (T', T'') is made of a film provided with microholes and thus permeable to gases.

8. Container bag (S) according to any of the claims from 1 to 5, **characterized in that** said portion (21) forming said pocket (T', T'') is made of a material that is capable of absorbing oxygen and/or humidity and/or odours.

9. System (P) for the production of container bags (S) according to one or more of the preceding claims, said bags (S) being made starting from at least one main continuous sheet (1), **characterized in that** it comprises:

- at least one main feeding and sliding station (P1) suited to feed and slide said at least one main continuous sheet (1) in at least one first direction (X);
- at least one secondary station (P2) suited to feed and slide at least one secondary continuous sheet (2) that slides in a second direction (Y) oriented with respect to said first direction (X) in such a way that said secondary continuous sheet (2) is at least partially superimposed to said main sheet (1);
- at least one cutting station (P3) for cutting said secondary continuous sheet (2) in portions (21) to be applied to at least one side (11) of said main sheet (1);
- at least one heat sealing station (P4) for heat sealing a succession of said portions (21) onto said side (11) of said main sheet (1), said at least one heat sealing station (P4) in turn comprising at least one pressing element (4) suited to press said portion (21) on said side (11) of said main sheet (1) and at least one resistance (5) suited to rest on said main sheet (1) in a position corresponding to the position of application of said portion (21), thus heat sealing said portion (21) onto said main sheet (1).

10. System (P) for the production of container bags (S) according to claim 9, **characterized in that** the shape of said resistance (5) substantially corresponds to part of the perimeter of said portion (21), leaving at least one part (214) of the latter open and in any case oriented for the possible successive introduction of objects.

11. Process for the production of container bags (S) according to one or more of the claims from 1 to 8, said bags (S) being made starting from at least one main continuous sheet (1), **characterized in that** it comprises the following steps:

- sliding said main sheet (1) in at least one first advance direction (X);
 - sliding at least one secondary continuous sheet (2) in a second advance direction (Y), parallel or not parallel to said first advance direction (X), and wherein said secondary continuous sheet (2) is at least partially superimposed to said main sheet (1);
 - cutting said secondary continuous sheet (2) in portions (21) suited to be heat sealed onto said main sheet (1);
 - heat sealing a succession of said portions (21) onto said main sheet (1) by:
 - a) pressing said portion (21) on one side (11) of said main sheet (1);
 - b) placing a resistance (5) on said main sheet (1) in a position corresponding to said portion (21), thus heat sealing said portion (21) onto said main sheet (1),
- and wherein said portions (21) are applied to a side of said main sheet (1) during the bag production and finishing operations, which are performed after said heat sealing step.

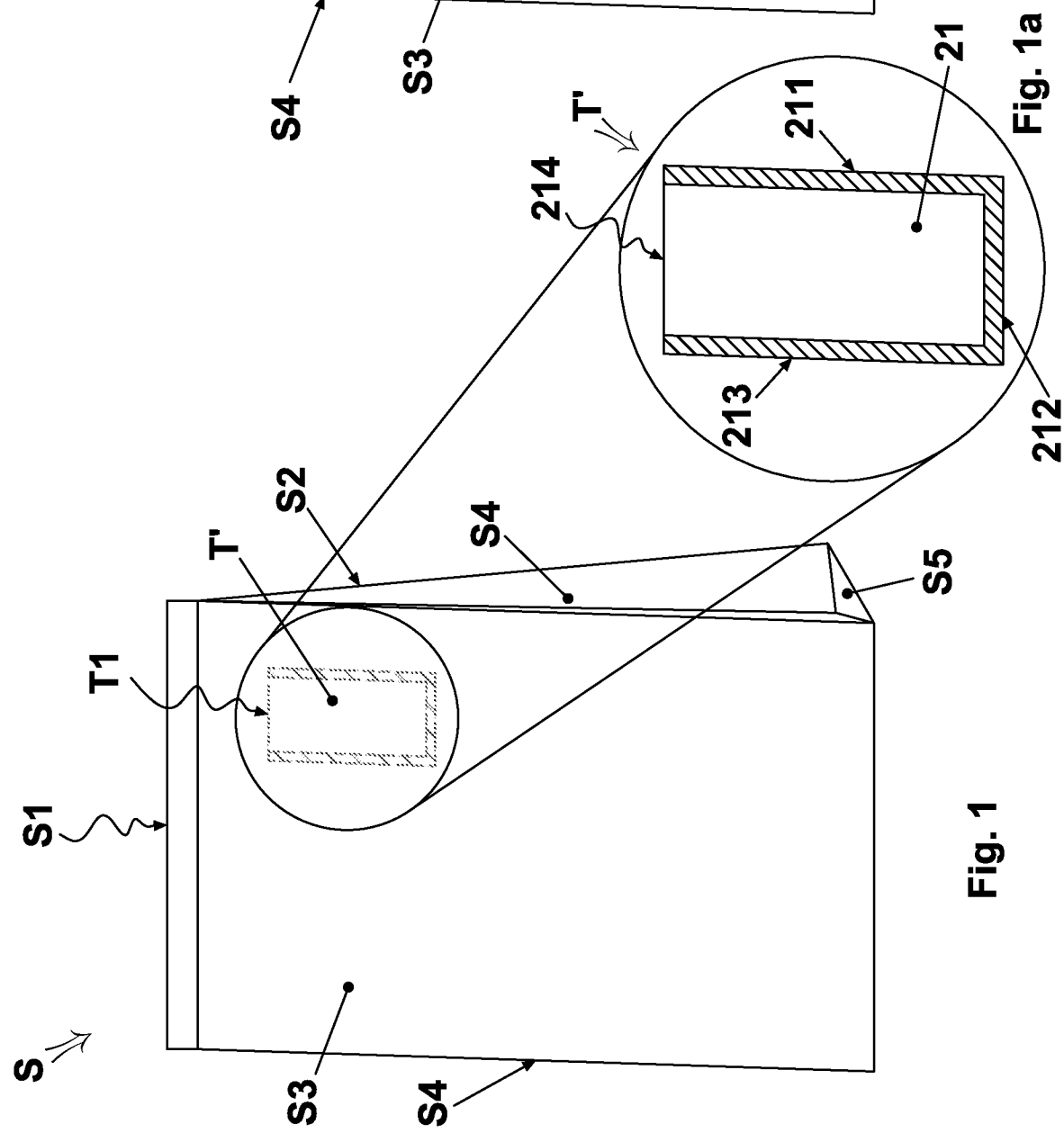
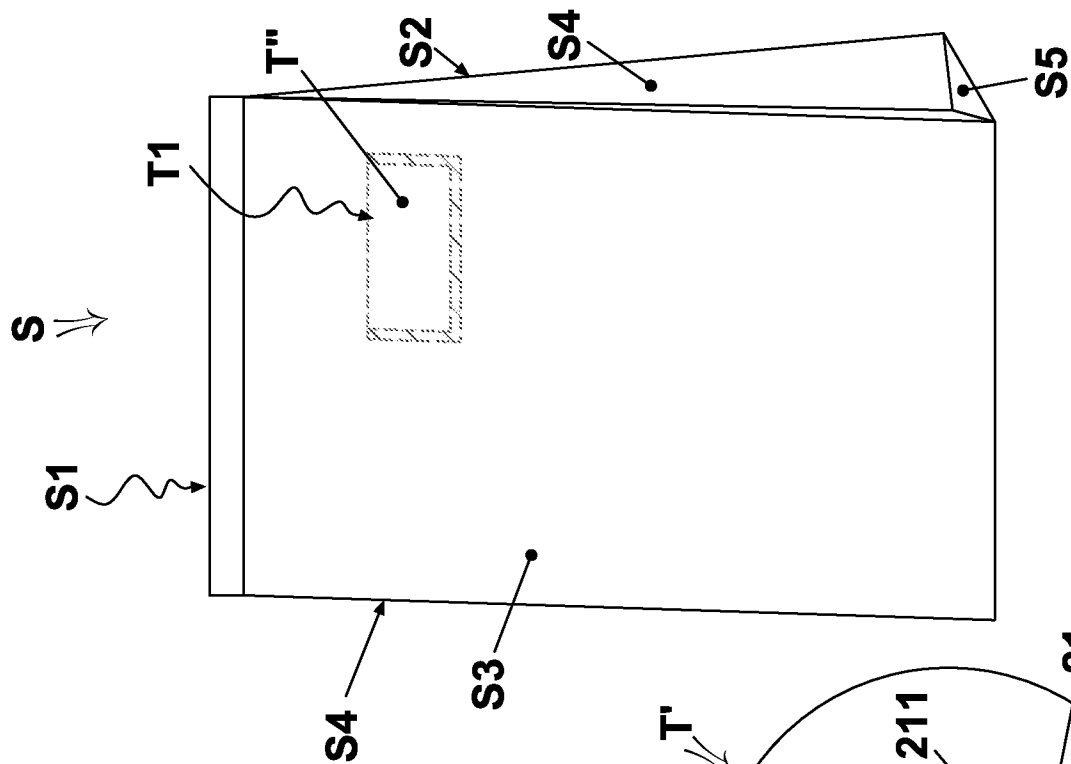


Fig. 1

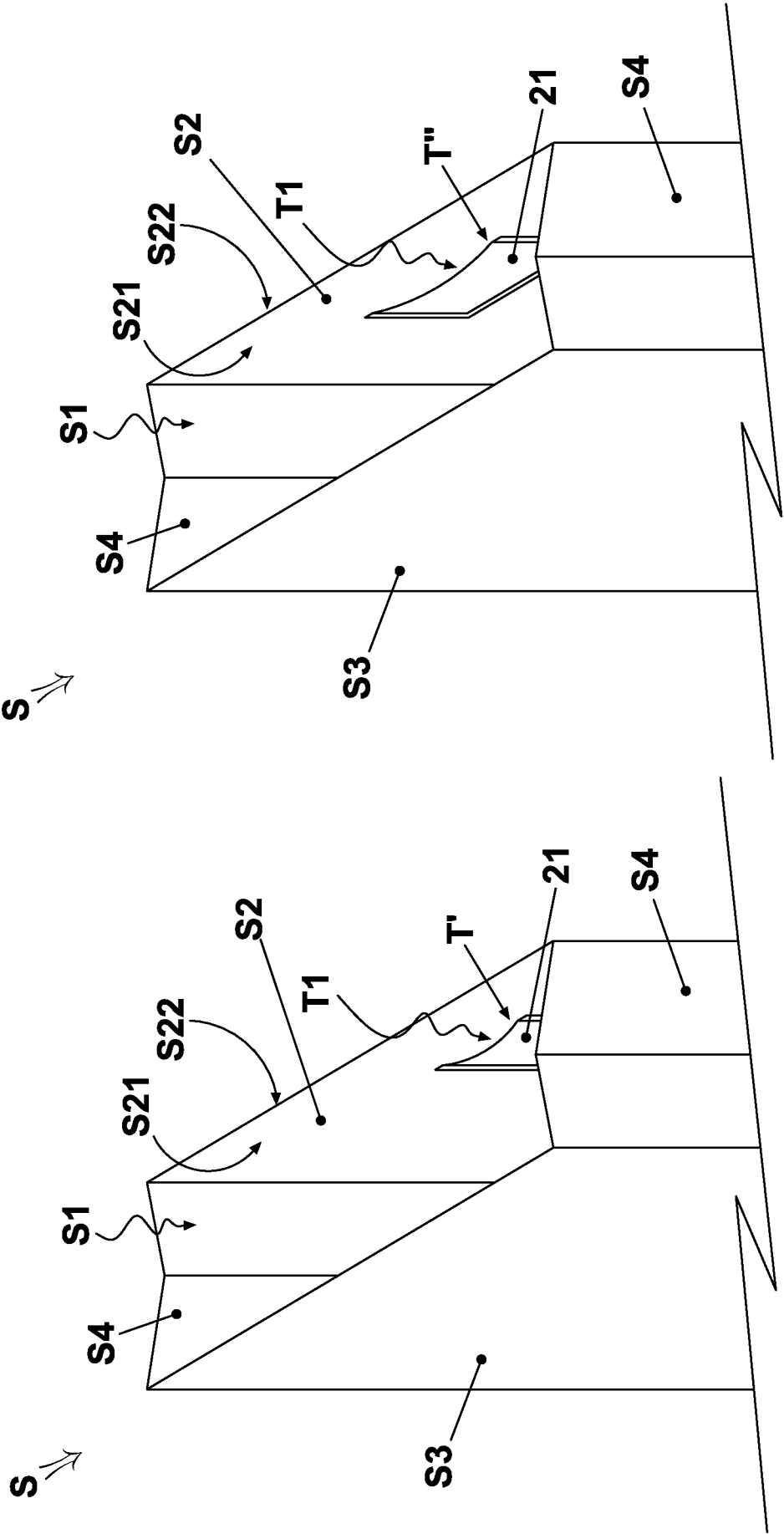


Fig. 4

Fig. 3

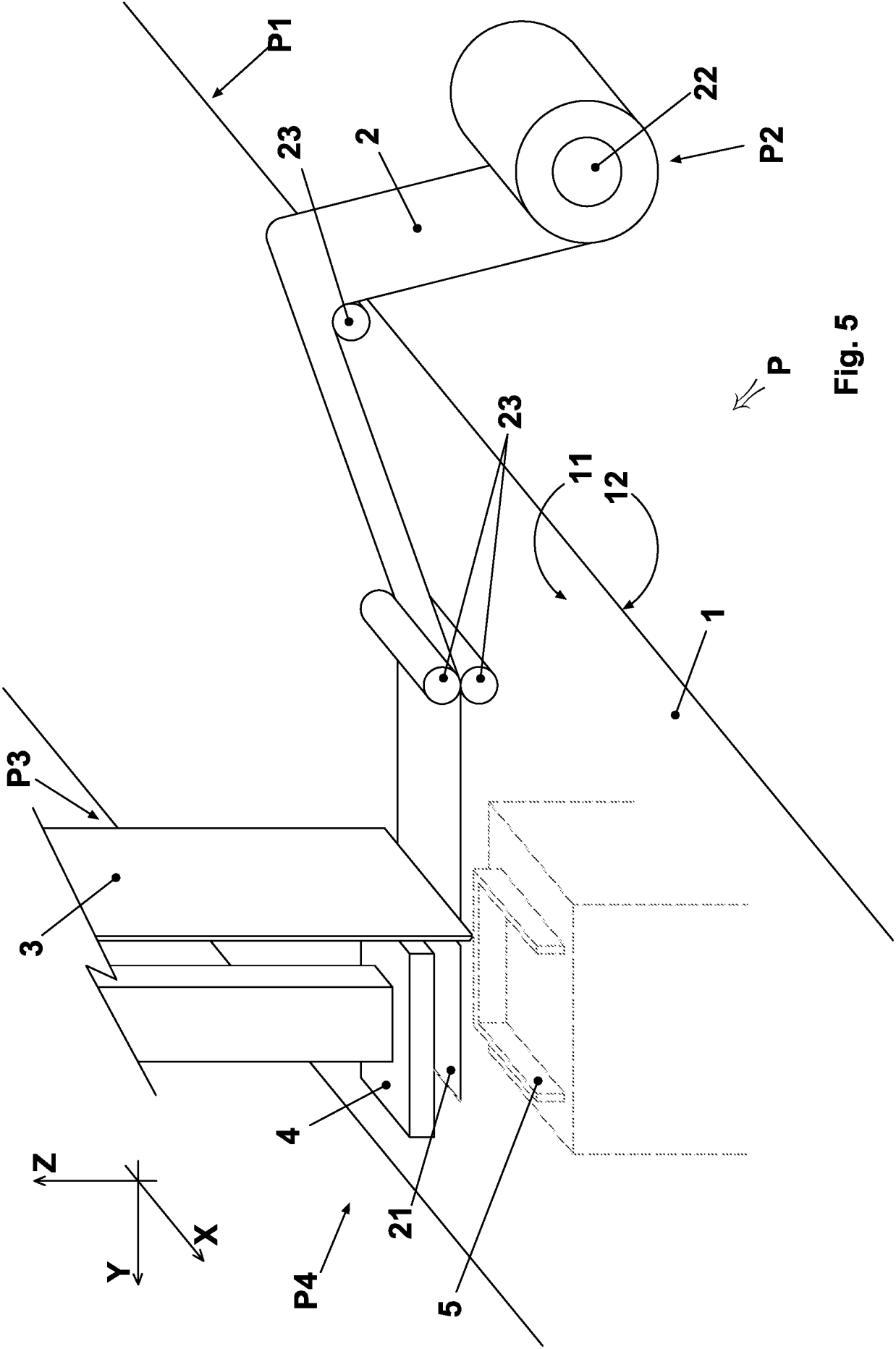


Fig. 5

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2016/052846

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D75/54 B65D30/22 B65D81/26
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 B31B

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, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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X	DE 197 20 112 A1 (POLYMER SYNTHES WERK GMBH [DE]) 10 December 1998 (1998-12-10) figures 1,2	1-11
X	US 6 530 471 B1 (TSUYUGUCHI KENICHI [JP]) 11 March 2003 (2003-03-11) figure 5	1-11
X	WO 2010/040052 A1 (COMPAC INT INC [US]) 8 April 2010 (2010-04-08) figures 3,6	1-11
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Further documents are listed in the continuation of Box C.



See patent family annex.

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Date of the actual completion of the international search

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Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Wimmer, Martin

INTERNATIONAL SEARCH REPORT

International application No

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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