



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
02.12.2015 Bulletin 2015/49

(51) Int Cl.:
B65D 21/02 (2006.01) **B65D 81/38** (2006.01)
B65D 25/28 (2006.01)

(21) Application number: **14169962.9**

(22) Date of filing: **27.05.2014**

(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

(72) Inventor: **Pardo Vicente, Miguel Angel**
15003 La Coruña (ES)

(74) Representative: **Carvajal y Urquijo, Isabel et al**
Clarke, Modet & Co.
Suero de Quiñones, 34-36
28002 Madrid (ES)

(71) Applicant: **Rotogal, S.L.**
15930 Boiro - A Coruña (ES)

(54) **Isothermal container**

(57) An isothermal container, made up of a receptacle (1) open at its upper base and a closing lid (2), both being made up of an inner layer and an outer layer of

food-quality polyethylene and an intermediate polyurethane foam filling. The receptacle (1) has an intermediate step, which enables stacking when empty.

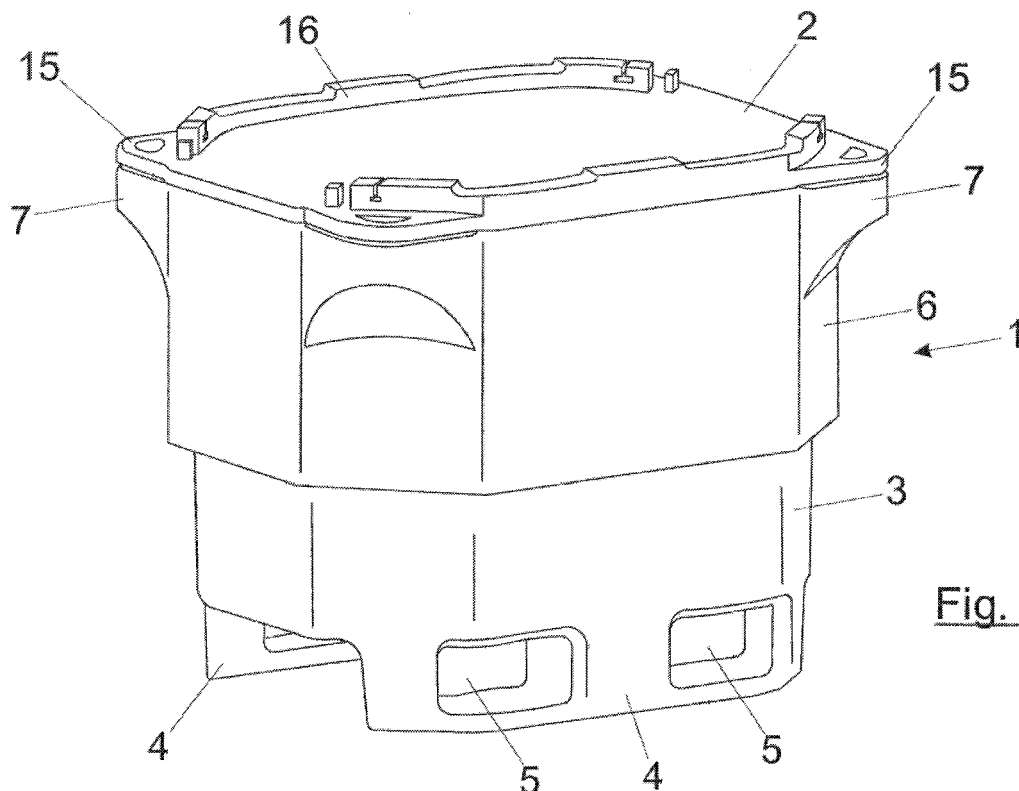


Fig. 1

Description

Field of invention

[0001] The present invention relates to an isothermal container that is made up of a receptacle, open at its upper base, and a closing lid, and which is specially conceived to transport fish caught by fishing boats, from when they are caught to the fish market or the distribution point.

Background of the invention

[0002] The containers currently used for the purpose stated above have certain problems that derive from their make-up and configuration.

[0003] On the one hand, the isothermal capacity of the containers is limited due to their make-up, which requires a higher consumption of ice in order to maintain the conditions of the fish, all of which is due to the nature of the walls of the container, which are made from a single layer of plastic material.

[0004] Furthermore, it is not possible to reduce the space occupied by the containers when they are transported empty due to their configuration. Neither do they have means to facilitate their handling, whether by hand or with lifting equipment.

Description of the invention

[0005] The object of the present invention is to provide a container with high isothermal characteristics, which in addition enables it to be used when empty and which is provided with means that facilitate handling thereof.

[0006] The container of the invention is of the type made up of a receptacle and a closing lid and, in accordance with the invention, the wall of each of the mentioned components has a "sandwich" type structure, with an inner layer and another outer layer made of a plastic material, preferably of food-quality polyethylene, and an intermediate polyurethane foam filling with high thermal insulation, which guarantees the higher isothermal capacity of the container.

[0007] With this make-up, by placing a small amount of flake ice in the base of the container so that it makes a "base" or "bed", a cold atmosphere is achieved inside the same and once the catch is inserted directly along with ice, they receive a thermal shock that makes them keep an adequate eye condition and shine. They shall also be transported to the fish market at a controlled temperature, such that it is guaranteed that they will keep their organoleptic properties and freshness until being put on sale after arriving in port.

[0008] According to another characteristic of the invention, the upper portion of the receptacle has two sections with different contours, a lower section with a smaller contour and a cross-section that decreases slightly in a downwards direction, and an upper section with a greater

contour, the lower section having an outer cross-section smaller than the inner cross-section of the upper section. In this way the containers may be piled up when they are empty, the lower section of one container being inserted inside the upper section of another container.

[0009] The fact that the containers may fit together enables them to be transported very "efficiently" on board from the point of view of space organisation, both on deck and in the hold. It must be taken into account that the fact that one unit can fit into another enables several units to be transported in a limited space. Likewise, the crew may be provided with the necessary number of containers depending on the catch each day, without needing to fill the hold and the deck with empty containers.

[0010] The upper section of the receptacle includes 4 handholds adjacent to the free edge of the wall, which facilitate the handling of the container and serve as secure lashing points to move the containers from the hold to the deck, from the hold to land or from the deck to land, by means of lifting and transport equipment.

[0011] The lower section of the receptacle is provided with support legs on the outside of the base that are shaped to enable the container to be handled with a manual pallet truck and/or lift truck.

[0012] With regard to the lid, it has a flat configuration, with the same contour as the receptacle, and it has a peripheral step that delimits a lower or inner portion with a contour equal to the inside of the upper section of the receptacle, and an upper or outer portion with the same contour as the outside contour of the upper section of the receptacle. 4 lateral handles project from the upper part of the lid, the position and contour of which coincide vertically with the handles of the receptacle. Protuberances project from the upper surface of the lid, whose inner lateral surface is positioned to coincide with the outer lateral surface of the support legs of the receptacle. In this way, the protuberances of the lid delimit supports for the legs of the receptacle, which secures the closed containers when stacked.

[0013] According to a preferred embodiment, the container has an approximately rectangular plan, the legs of the receptacle being configured as walls that run along two of the opposing walls of the receptacle, preferably the largest walls. These legs are each equipped with 2 openings, which face each other in both legs, to enable the arms of a forklift truck to be inserted.

[0014] The receptacle may be provided with a drain at the bottom to empty liquids, which is equipped with a stopper that closes hermetically.

[0015] The walls of the receptacle are completely smooth, inside and outside, to avoid any type of bacteria that is hard to remove from being deposited, also enabling it to be cleaned easily and quickly, which is also due to the drain at the bottom of the receptacle.

[0016] The improvement in hygiene qualities over the existing containers on the market is made clear in that there is never any contact between the handling means and the inner cavity of the container, thus avoiding any

type of contamination with external agents that may be found on the ground.

[0017] The containers may be manufactured with polyethylene walls by means of the rotational moulding process, avoiding, unlike in injection, the accumulation of stress in the material, thereby giving the containers a very high impact resistance in a way that is significant to its service life.

[0018] The material of the containers is easy to weld, which enables the containers that may be damaged, for example with the common perforations from the forks of forklift trucks, to be repaired in the client's own facilities. Repairing the walls by means of welding completely seals the walls again after perforation.

Brief description of the drawings

[0019] In the accompanying drawings a container is shown, by way of a non-limiting example, made in accordance with the invention, where:

- Figure 1 is a perspective view of the container, with the closing lid coupled onto the same.
- Figure 2 is a vertical cross-section of the receptacle that forms part of the container in figure 1.
- Figure 3 is a longitudinal cross-section of the lid that closes the receptacle.
- Figure 4 is a front elevation view of a set of lidless receptacles in a stacked position.
- Figure 5 is a set of closed containers in a stacked position.
- Figure 6 is a side elevation view of a set of stacked lids.

Detailed description of an embodiment

[0020] The container shown in figure 1 is made up of a receptacle (1) that is open at its upper base, on which a closing lid (2) is arranged.

[0021] As may be seen in figures 1 and 2, the receptacle (1) includes 2 sections with different contours, one lower section (3) with a smaller contour, which has a cross-section that decreases slightly in a downwards direction and which is provided with legs (4) at the bottom as an extension of the largest walls, each one equipped with two openings (5), which face each other in both extensions (4), to enable a forklift truck or similar to be inserted.

[0022] The upper section (6) has a greater contour than the lower section (3) and has an almost constant cross-section. This upper section (6) includes 4 handholds (7) adjacent to the free edge of the walls, which are located to coincide with the corners of the section (6).

[0023] The lower section (3) has a maximum outer contour equal to or less than the inner contour of the upper section (6). This configuration enables a number of empty and lidless receptacles (1) to be arranged in a stacked position, as shown in figure 4, with the lower section (3)

of each receptacle fitted into the upper section (6) of the receptacle located directly below.

[0024] As may be seen in figures 2 and 3, both the receptacle (1) and the lid (2) are made up of an inner layer (8) and an outer layer (9) of food-quality polyethylene and an intermediate polyurethane foam filling (10).

[0025] As may be seen in figure 2, the receptacle (1) is provided with a drainage hole (11) at the bottom.

[0026] As is shown in figure 3, the lid (2) is provided with peripheral step (12) that delimits a lower portion (13), which has a contour equal to the inner contour of the upper section (6) of the receptacle (1), and an upper part (14) with a contour equal to the outer contour of the upper section (6) of the receptacle (1). This configuration enables the lid (2) to be coupled onto the open base of the receptacle (1), the step (12) fitting onto the upper edge of the wall of the receptacle (1) thus ensuring that the receptacle (1) is closed hermetically.

[0027] As may also be seen in figure 3, 4 lateral handles (15) project from the upper section (14) of the lid (2), the configuration and position of which coincide with the handles (7) of the receptacle.

[0028] The handles (15 and 7) on the lid (2) and the receptacle (1) are located to coincide with the corners of the container.

[0029] Upper protuberances (16) project from the free upper surface of the lid (2), coinciding with the longitudinal edges of the lid, which are located to coincide with the outer lateral surface of the support legs (4) of the receptacle (1). In this way, the projections (16) of the lid delimit lateral barriers for the support legs (4) of the receptacle, thus enabling several closed receptacles to be stacked, as shown in figure 5, each one being supported through the legs (4) of the receptacle on the lid (2) of the receptacle (1) located directly below it, being supported laterally against the protuberances (16) of the lid.

[0030] The configuration described also enables several lids (2) to be stacked, as shown in figure 6.

[0031] In the example described, both the receptacle (1) and the lid (2) have a rectangular contour, but it can be understood that they may adopt any other configuration while maintaining the characteristics described.

Claims

1. An isothermal container, made up of a receptacle (1), open at its upper base, and a closing lid (2), **characterised in that** the wall of the receptacle (1) and the lid (2) are made up of an inner layer (8) and an outer layer (9) of food-quality polyethylene, and an intermediate polyurethane foam filling (10); whose receptacle (1) has 2 sections with different contours, one lower section (3) with a smaller contour, with a cross-section that decreases slightly in a downwards direction and equipped with support legs (4) on its base, and another upper section (6) with a greater contour and an approximately con-

stant cross-section, which includes 4 handholds (7) adjacent to the free edge of the walls, the lower section (3) having a maximum outer cross-section that is the same as or smaller than the inner cross-section of the upper section (6); and whose lid (2) is provided with a peripheral step (12) that delimits a lower portion (13) with a contour that is the same as the inner contour of the upper section (6) of the receptacle (1), and an upper portion (14) with a contour that is the same as the outer contour of said upper section of the receptacle, 4 lateral handles (15) projecting from this second upper section (14) coinciding with the handles (7) of the receptacle, as well as a number of upper protuberances (16), whose inner lateral surface is located to coincide with the outer lateral surface of the support legs (4) of the receptacle.

2. The container according to claim 1, **characterised in that** the receptacle (1) is provided with a drainage hole (11) at the bottom, with a stopper that closes hermetically.
3. The container according to claim 1, **characterised in that** the legs (4) of the receptacle (1) run along two of the opposing walls of the receptacle and each have 2 openings (5), which face each other in both legs.
4. The container according to claim 1, **characterised in that** the handholds (7) of the receptacle and the handholds (15) of the lid are shaped as lateral projections of the receptacle and the lid, being located at the corners in coinciding positions.

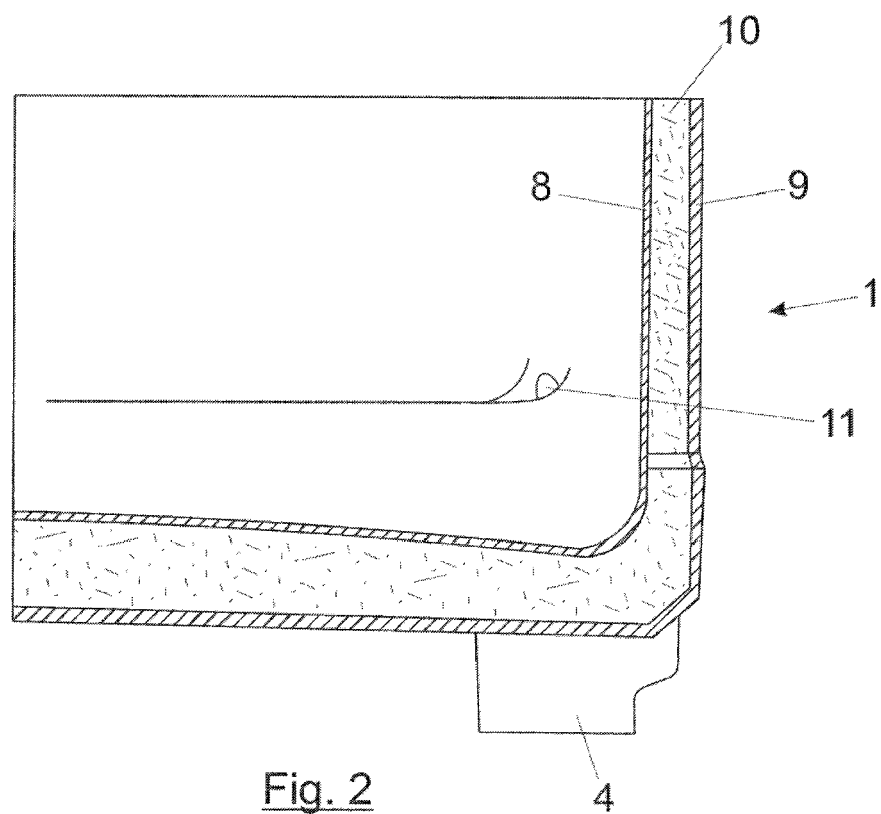
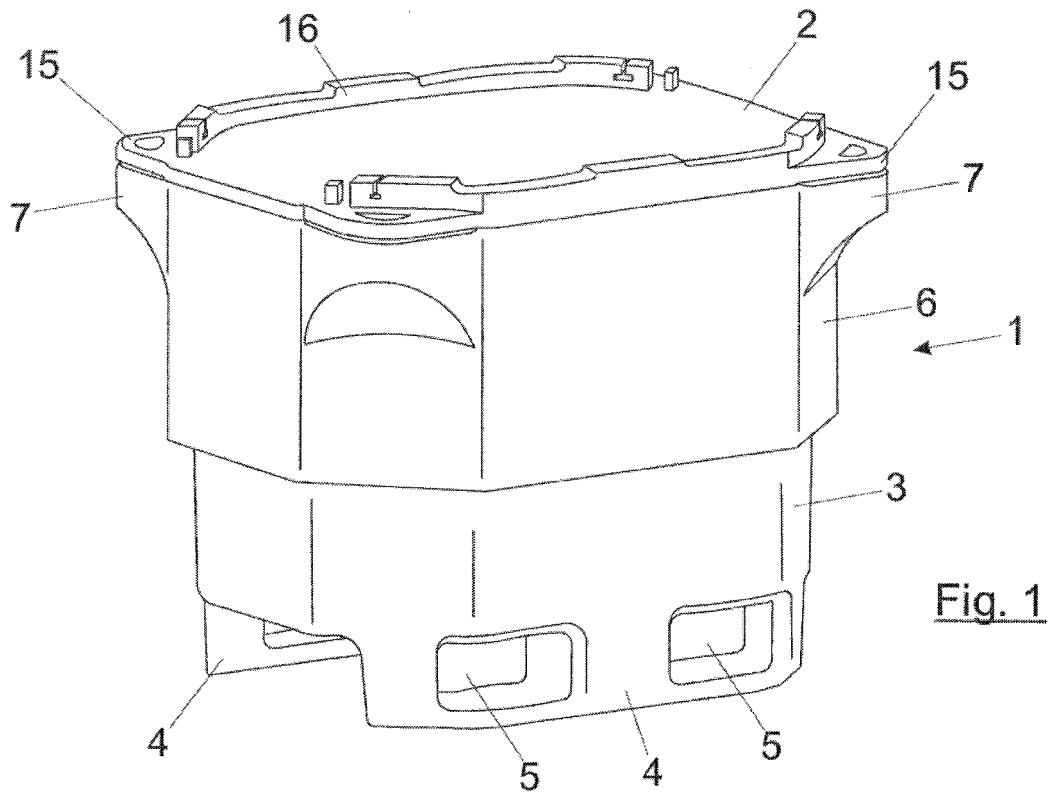
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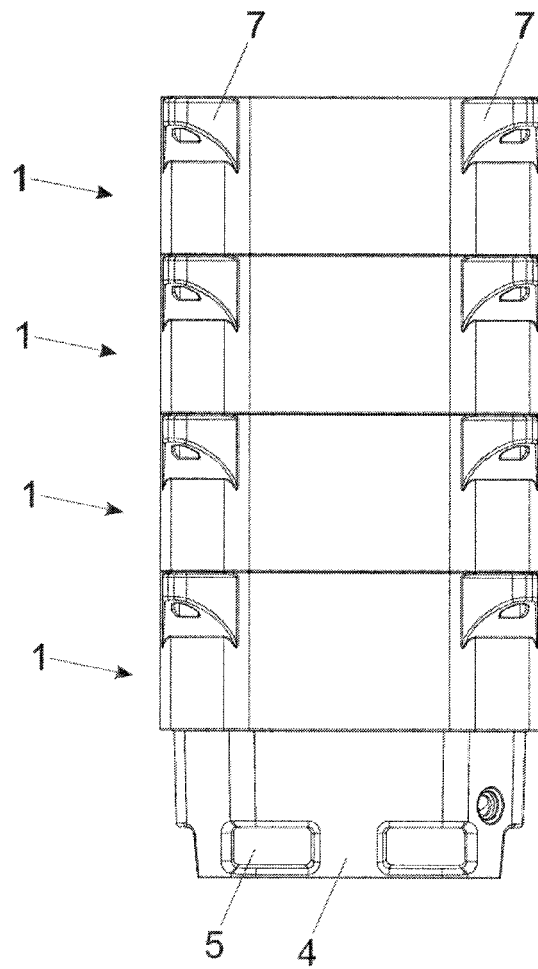
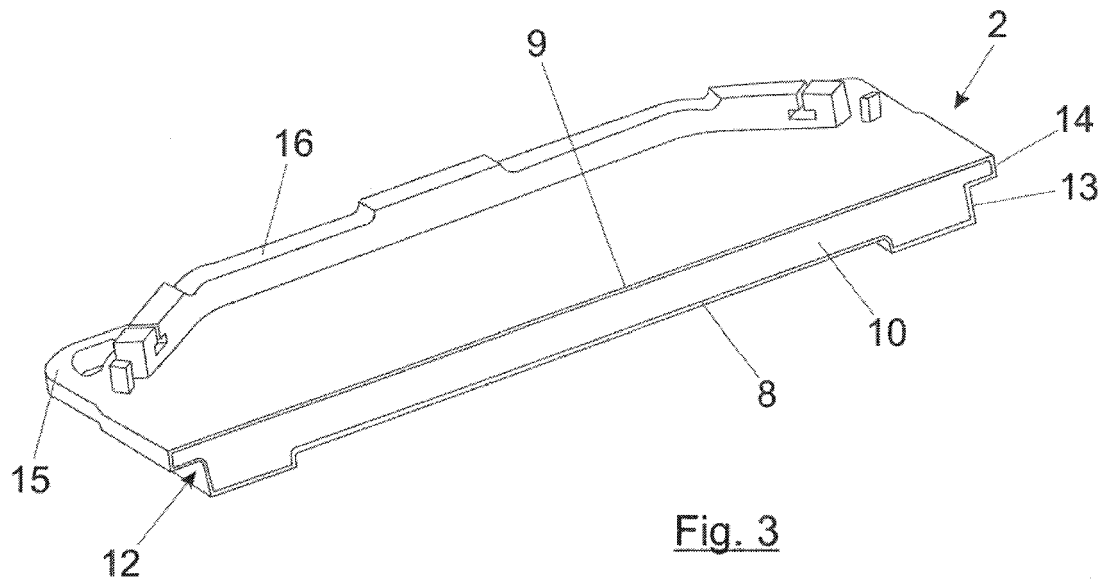
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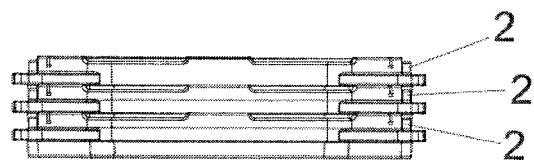
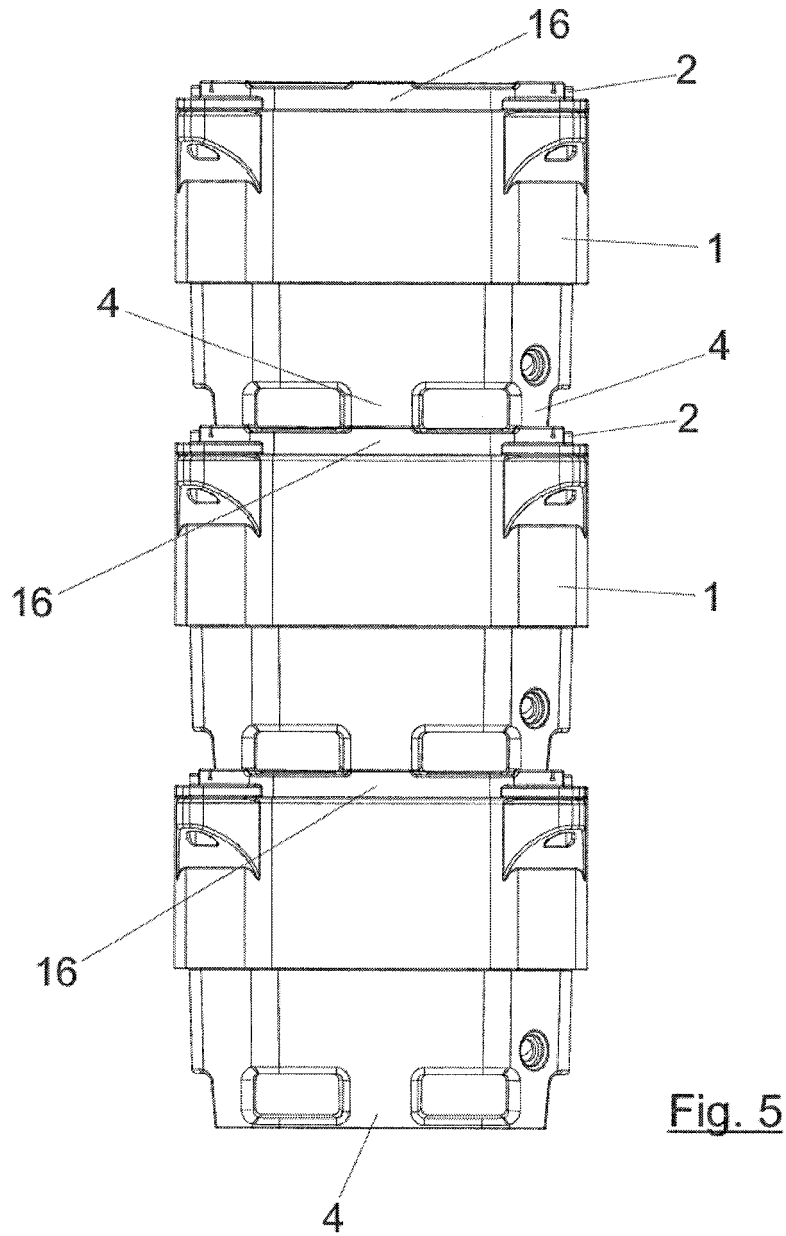
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EUROPEAN SEARCH REPORT

Application Number
EP 14 16 9962

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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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 17 November 2014	Examiner Derrien, Yannick
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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