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(54) **Shower box with variable volume**

(57) Shower box with variable volume, comprising one or more watertight pull-out compartments, each of them being adapted to be alternatively brought from a non-operating condition, wherein it is inserted inside the

shower box, to an operating condition, wherein it is inclined outwards, thus increasing the usable volume of the shower box.

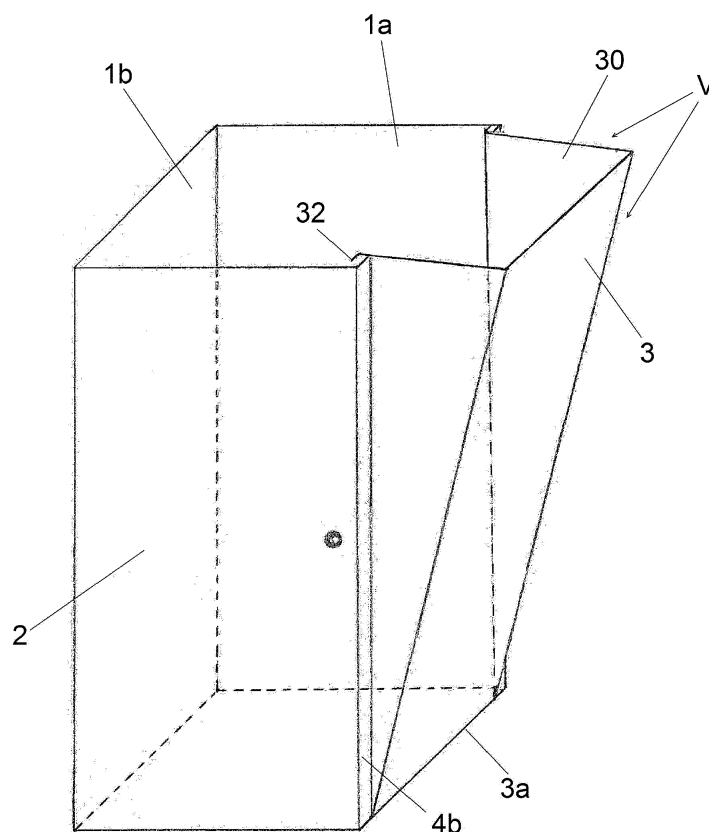


Fig. 2

Description

[0001] The present patent application relates to a shower box with variable volume.

[0002] The peculiarities and advantages of the present invention will become evident after a brief description of the prior art and its drawbacks.

[0003] As it is known, modern apartments tend to be smaller and smaller, also with reference to the bathroom area.

[0004] In view of the above, even the installation of a traditional shower box may become problematic, in view of the fact that it takes most of the space in the bathroom, making its use difficult and uncomfortable and impairing the installation of other sanitary fittings.

[0005] Such a drawback can be remedied installing a shower box with reduced dimensions that occupies a small part of the bathroom area. However, such a solution will reduce the space available inside the shower box, preventing its use in case of adult users with a powerful built.

[0006] Starting from such a critical evaluation, an innovative shower box definable as a shower box "with variable volume" has been devised in order to remedy the aforementioned problems.

[0007] The specific purpose of the present invention is to devise a shower box that occupies an especially limited area at the base, while allowing the user to be comfortably contained inside it, especially at the height of the chest, i.e. in the point where a reduced space would unacceptably limit the movements of the user's arms.

[0008] Such a purpose has been achieved by providing the shower box of the invention with a traditional parallelepiped structure, wherein at least one of its vertical walls is hinged at the base in order to be alternatively brought from a perfectly vertical position to an outward-inclined position.

[0009] In view of the above, the user of the shower box of the invention can keep the oscillating wall in perfectly vertical position when the shower box of the invention is not used.

[0010] While doing so, the volume of the entire shower box is kept within the area of the shower tray.

[0011] On the contrary, when the user intends to use the shower box of the invention, he will rotate the oscillating wall outwards, bringing it to an inclined position that allows for increasing the internal volume of the shower box towards the top and, most importantly, at the height of the user's chest and arms.

[0012] Moreover, the oscillating wall is provided with two lateral walls that ensure the watertightness of the internal volume of the shower box also when the oscillating wall is brought to its inclined operating position.

[0013] In view of the above, it can be otherwise said that the shower box of the invention is provided with a pull-out compartment (which is represented by the oscillating wall and the lateral walls), adapted to be disposed by the user in projecting position on the side of the shower

box of the invention.

[0014] Evidently, in view of the capability of the oscillating wall to be disposed in two alternative positions, the shower box of the invention can be defined as a shower box "with variable volume".

[0015] For explanatory reasons, the description of the invention continues with reference to the attached drawings, which only have an illustrative, not limiting value, wherein:

- Figure 1 is an axonometric view of a first embodiment of the shower box of the invention, shown with the pull-out compartment in non-operating position;
- Figure 2 is the same as Fig. 1, except for it shows the pull-out compartment in operating position;
- Figure 3 is an axonometric view of a second embodiment of the shower box of the invention, provided with two opposite specimens of the pull-out compartment, which are both shown in operating position;
- Figure 4 is an axonometric view of a third embodiment of the shower box of the invention, shown with the pull-out compartment in operating position;
- Figure 5 is an axonometric view of a fourth embodiment of the shower box of the invention, shown with the pull-out compartment in operating position;
- Figure 6 is an axonometric view of a fifth embodiment of the shower box of the invention, provided with two opposite specimens of the pull-out compartment, which are both shown in operating position;
- Figure 7 is an axonometric view of a sixth embodiment of the shower box of the invention, shown with the pull-out compartment in operating position.

[0016] With reference to Figs. 1 and 2, the shower box of the invention (B) is usually provided with a vertical parallelepiped structure and rests on a traditional shower tray (P) with substantially square shape.

[0017] In particular, the shower box (B) is formed of two fixed vertical walls (1 a, 1 b) mounted at right angle, a door panel (2) acting as access door and an oscillating vertical wall (3) disposed between the first fixed wall (1 a) and the door panel (2).

[0018] More precisely, the oscillating vertical wall (3) is mounted between two fixed thin vertical strips (4a, 4b), the first strip (4a) being fixed at 90° on the adjacent vertical edge of said fixed vertical wall (1 a), whereas the second strip (4b) is fixed at 90° on the adjacent vertical edge (2a) of the frame of said door panel (2).

[0019] Moreover, it must be noted that the oscillating vertical wall (3) is pivoted at the base, substantially at the height of the shower tray (P), with respect to its lower horizontal edge (3a).

[0020] Such a pivoting feature allows said oscillating wall (3) to alternatively pass from a non-operating condition, wherein it is perfectly vertical (as shown in Fig. 1), to an operating position, wherein it is inclined outwards (as shown in Fig. 2).

[0021] More specifically, as shown in Fig. 2, the in-

clined position of the oscillating wall (3) ensures the progressive increase of the internal volume of the shower box of the invention from the base to the top.

[0022] As shown in the aforementioned figures, the oscillating wall (3) is provided with two lateral walls (30) in symmetrically opposite position, which protrude towards the inside of the shower box (B) starting from the vertical edges of the oscillating wall (3).

[0023] Each of the lateral walls (30) has a profile shaped as an upturned right-angled triangle and is provided for the entire height of its internal sloping border (31) with a wing (32) folded at 90° outwards.

[0024] According to the aforementioned logics, it can be otherwise stated that the oscillating wall (3) and its opposite lateral walls (30) are adapted to generate a pull-out compartment (V) that is used to increase the internal volume of the shower box of the invention (B) as desired.

[0025] After describing the configuration of the shower box of the invention (B), this description continues illustrating its operating mode.

[0026] Referring to Fig. 1, when the shower box (B) is not used, the pull-out compartment (V) is kept inside the shower box (B) in order to minimize its total volume.

[0027] In such a condition, the oscillating wall (3) is in perfectly vertical position, it being disposed exactly flush with the vertical edges of the first fixed wall (1a) and of the door panel (2), without creating any external projection.

[0028] Instead, when the user intends to use the shower box (B), the pull-out compartment (V) is rotated outwards, thus largely projecting on the outside of the shower box (B).

[0029] Such an outward rotation of the pull-out compartment (V) stops when the lateral wings (32) of the lateral walls (30) of the oscillating wall (3) are stopped against the internal side of the two fixed vertical strips (4a, 4b), as expressly shown in Fig. 2.

[0030] Evidently, in such a projecting position of the pull-out compartment (3), the shower box of the invention (B) provides watertightness for the water poured inside it.

[0031] As a matter of fact, such a watertightness is guaranteed by two seals (not shown in the attached figures) that are vertically mounted on the inside of the two fixed vertical strips (4a, 4b) and adapted to be compressed when the pull-out compartment (V) reaches the end of its pull-out travel, between the fixed vertical strips (4a, 4b) and the two lateral wings (32) provided on the lateral walls (30) of the oscillating wall (3).

[0032] Fig. 3 refers to a second embodiment of the shower box of the invention (B), wherein the parallelepiped structure is formed of:

- a first fixed vertical wall (1 a)
- a door panel (2) acting as access door
- two opposite specimens of the oscillating door (3), each of them being regularly associated with the lateral walls (30) in such manner to generate an equal number of pull-out compartments (V).

[0033] In such a context, the two fixed vertical strips (4a, 4b) disposed on the sides of each of said oscillating walls (3) are respectively fixed to the adjacent vertical edge of the frame of the door panel (2) and to the adjacent vertical edge of the fixed vertical wall (1 a).

[0034] It is worthless saying that, being provided with an opposite pair of pull-out compartments (V), the second embodiment of the invention provides a larger space inside the shower box (B) than the embodiment shown in Figs. 1 and 2.

[0035] Fig. 4 refers to a third embodiment of the shower box of the invention (B), which can be defined as "corner version", it being adapted to be mounted in a corner of the bathroom, using the cooperation of two right-angled walls of the bathroom.

[0036] Such a corner version is formed of:

- a door panel (2) supported by its frame (not shown in the aforementioned figure)
- one specimen of the oscillating wall (3), disposed at right angle with respect to the door panel (2), as well as regularly provided with the traditional pair of opposite lateral walls (30).

[0037] The two fixed vertical strips (4a, 4b) disposed at the sides of the oscillating wall (3) are respectively fixed to the adjacent vertical edge of the frame of the door panel (2) and to one of the masonry walls that define the corner of the bathroom where the shower box of the invention (B) is mounted.

[0038] Fig. 5 shows a fourth embodiment of the shower box of the invention (B), which is expressly adapted to be mounted onto a masonry wall of the bathroom.

[0039] The structure of the shower box (B) is formed of:

- a second fixed vertical wall (1 b)
- a door panel (2) supported by its frame (not shown in the aforementioned figure) and mounted at right angle with respect to the second fixed vertical wall (1 b)
- one specimen of the oscillating wall (3) disposed in opposite position to the second fixed vertical wall (1 b), as well as regularly provided with the traditional pair of opposite lateral walls (30).

[0040] The two fixed vertical strips (4a, 4b) disposed at the sides of the oscillating wall (3) are respectively fixed to the adjacent vertical edge of the frame of the door panel (2) and to one of the masonry walls that define the corner of the bathroom where the shower box of the invention (B) is mounted.

[0041] Fig. 6 refers to a fifth embodiment of the shower box of the invention (B) expressly adapted to be mounted on a masonry wall of the bathroom, which has a larger internal volume than the embodiment shown in Fig. 4.

[0042] The fifth embodiment is formed of:

- a door panel (2) supported by its frame (not shown

in the aforementioned figure)

- two opposite specimens of the oscillating wall (3), each of them being provided with the traditional pair of opposite lateral walls (30).

[0043] In such a context, the two fixed vertical strips (4a, 4b) disposed on the sides of each of said oscillating walls (3) are respectively fixed to the adjacent vertical edge of the frame of the door panel (2) and to the masonry wall against which the shower box of the invention (B) is mounted.

[0044] Finally Fig. 7 shows a sixth embodiment of the invention, which is characterized by the fact that the pull-out compartment (V) does not occupy the entire height of the shower box of the invention (B), but only an upper section of the shower box of the invention (B), still increasing, however, the internal volume of the shower box (B) in the most critical point, i.e. at the height of the user's chest.

[0045] The sixth embodiment of the invention is formed of:

- a first fixed vertical wall (1 a)
- a second fixed vertical wall (1 b) mounted at right angle with respect to the first vertical wall (1 a)
- a door panel (2) supported by its frame (not shown in the aforementioned figure) in opposite position to the first fixed vertical wall (1 a)
- a third fixed vertical wall (1 c) in opposite position to the second vertical wall (1 b).

[0046] As mentioned above, the peculiarity of the latter embodiment of the invention consists in the fact that the third fixed vertical wall (1c) is provided on top, starting from approximately half of its height, with a rectangular window (7) defined by two fixed vertical strips (4a, 4b), wherein an oscillating wall (3) operates, the lower horizontal edge (3a) of which is hinged to the horizontal edge (7a) of said window (7).

[0047] In view of the above the oscillating wall (3) is adapted to pass from a perfectly vertical position to an outward-inclined position, as shown in Fig. 7.

[0048] Also in such a case, the oscillating wall (3) is provided with the traditional opposite pair of lateral walls (3) with triangular shape, the internal edges of which (31) are provided with wings (32) disposed at 90° outwards.

[0049] Also in such a case, in spite of its limited height, the oscillating wall (3) originates, in cooperation with its lateral walls (30), a pull-out compartment (V) that is structurally and functionally perfectly identical to the ones shown in the previous embodiment of the invention.

[0050] As a matter of fact, also in such a case, the two wings (32) provided in said pull-out compartment (V) interfere against the internal side of the fixed vertical strips (4a, 4b) acting as stops for the outward rotation of the pull-out compartment (V).

[0051] To better understand the scope of the present invention it can be said that all the different embodiments

of the shower box of the invention (B) are characterized by one or more watertight pull-out compartments (V), each of them being formed of an oscillating wall (3) and two opposite lateral walls (30); it being provided that each of said one or more pull-out compartments (V) is alternatively brought from a non-operating condition, wherein the oscillating wall (3) is in perfectly vertical position and the lateral walls (30) are inserted in the shower box (B), to an operating position, wherein the oscillating wall (3) is inclined outwards and the lateral walls (30) practically completely project from the shower box (B).

Claims

1. Shower box with variable volume comprising one or more watertight pull-out compartments (V), each of them being formed of an oscillating wall (3) hinged with respect to its lower horizontal edge (3a), as well as provided with two opposite lateral walls (30); wherein each of said one or more pull-out compartments (V) is alternatively brought from a non-operating condition, wherein the oscillating wall (3) is in perfectly vertical position and the lateral walls (30) are inserted in the shower box (B), to an operating position, wherein the oscillating wall (3) is inclined outwards and the lateral walls (30) practically completely project from the shower box (B).
2. The shower box of claim 1, wherein each of said one or more pull-out compartments (V) is disposed between two fixed vertical strips (4a, 4b) and each of the lateral walls (30) shaped as an overturned triangle is provided for the entire height of its internal sloping edge (31) with a wing (32) folded at 90° and adapted to interfere with the internal side, provided with a seal (40), of one of the vertical strips (4a, 4b) when the pull-out compartment (V) is in operating condition.
3. The shower box of one of the preceding claims, wherein said shower box (B) is fixed on a shower tray (P).
4. The shower box of one of the preceding claims, wherein the shower box (B) is formed of:
 - two fixed vertical walls (1 a, 1 b) mounted at right angle
 - one door panel (2) associated with its frame and mounted in opposite position to the first one (1 a) of said fixed vertical walls
 - one specimen of the oscillating wall (3) mounted in opposite position to the second one (1b) of said fixed vertical walls and also hinged at the lower horizontal edge (3a) at the height of the shower tray (P).

5. The shower box of one of the preceding claims, wherein the shower box (B) is formed of:

- a first fixed vertical wall (1 a)
- a door panel (2) associated with its frame and mounted in opposite position to the first fixed vertical wall (1 a) 5
- two opposite specimens of the oscillating wall (3), each of them being hinged at the lower horizontal edge (3a) at the height of the shower tray (P). 10

- one specimen of the oscillating wall (3) exactly inserted in the window (7) provided in the third fixed vertical wall (1c), as well as hinged at the lower horizontal edge (3a) at the horizontal edge (7a) of the window (7).

6. The shower box of one of the preceding claims, wherein the shower box (B) is formed of:

- a door panel (2) associated with its frame 15
- one specimen of the oscillating wall (3) mounted at right angle with the door panel (2), as well as hinged at the lower horizontal edge (3a) at the height of the shower tray (P). 20

7. The shower box of one of the preceding claims, wherein the shower box (B) is formed of:

- a second fixed vertical wall (1 b) 25
- a door panel (2) associated with its frame, mounted in opposite position to the second fixed vertical wall (1 b)
- one specimen of the oscillating wall (3) mounted in opposite position to the second fixed vertical wall (1b), as well as hinged at the lower horizontal edge (3a) at the height of the shower tray (P). 30

8. The shower box of one of the preceding claims, wherein the shower box (B) is formed of: 35

- a door panel (2) associated with its frame
- two opposite specimens of the oscillating wall (3), each of them being hinged at the lower horizontal edge (3a) at the height of the shower tray (P). 40

9. The shower box of one of the preceding claims, wherein the shower box (B) is formed of: 45

- a first fixed vertical wall (1 a)
- a second fixed vertical wall (1 b) mounted at right angle with respect to the first vertical wall (1 a) 50
- a door panel (2) associated with its frame and mounted in opposite position to the first fixed vertical wall (1 a)
- a third fixed vertical wall (1c) mounted in opposite position to the second fixed vertical wall (1 b), as well as centrally provided on top with a basically rectangular window (7) laterally defined by the fixed strips (4a, 4b) 55

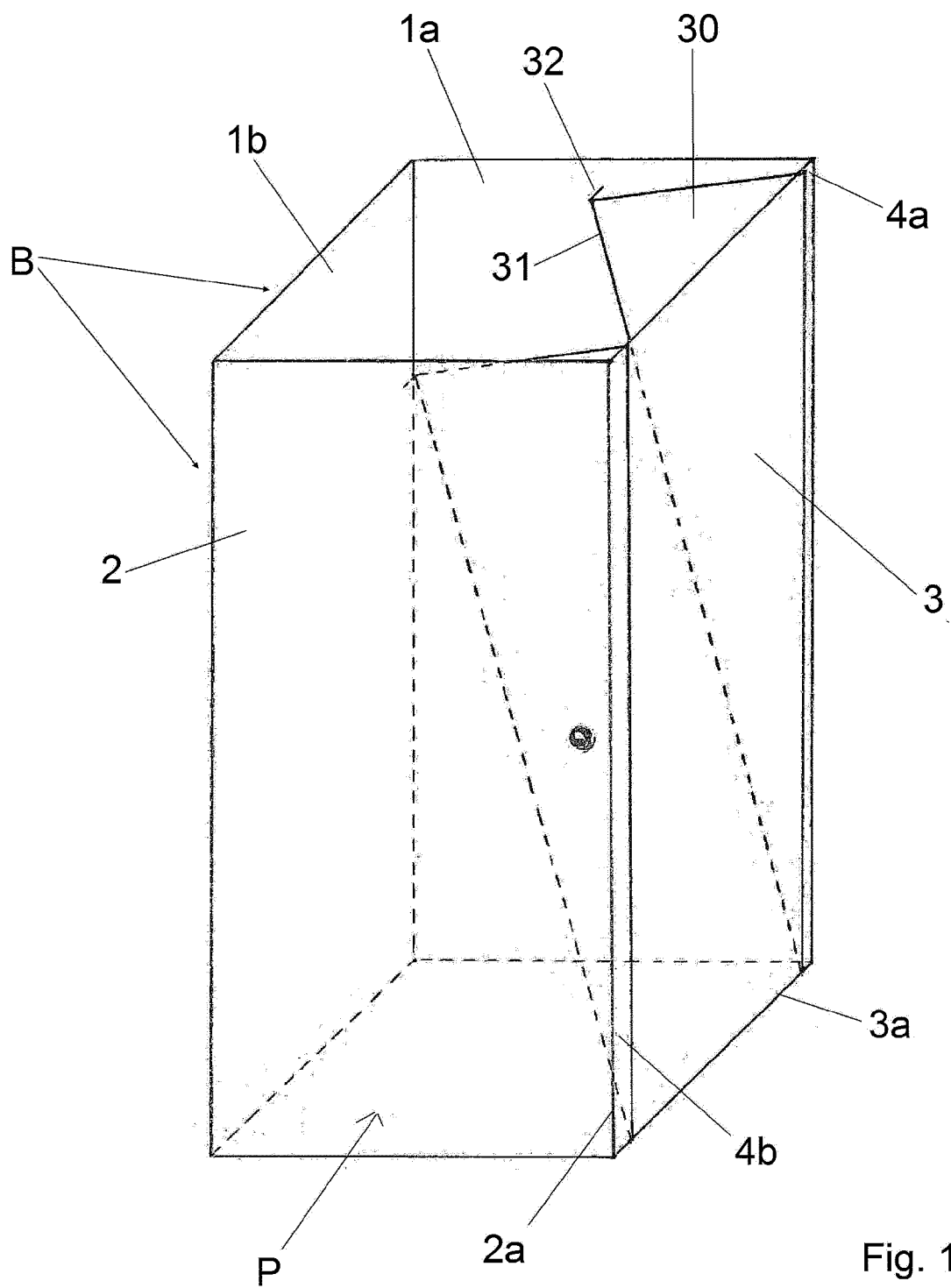


Fig. 1

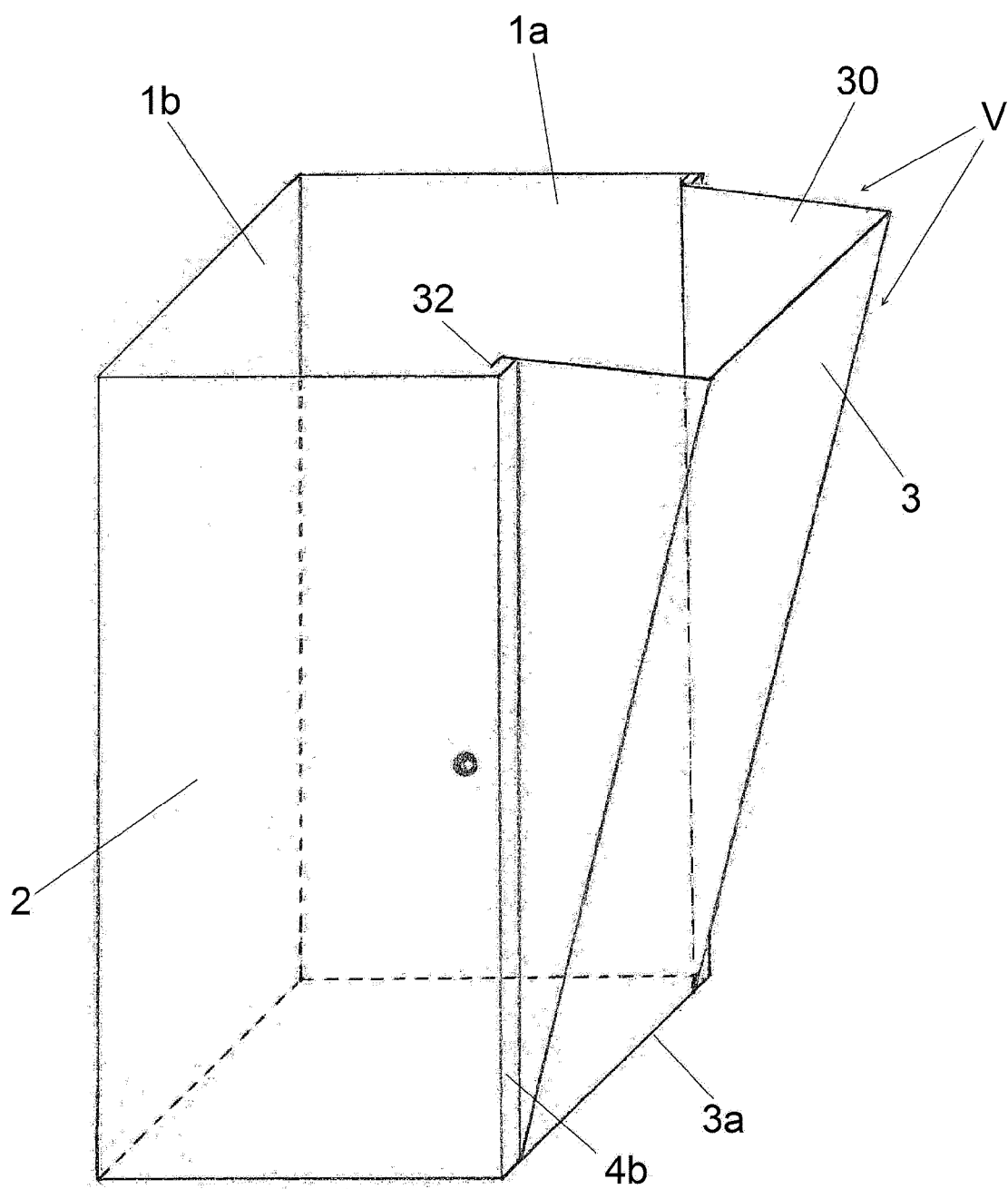


Fig. 2

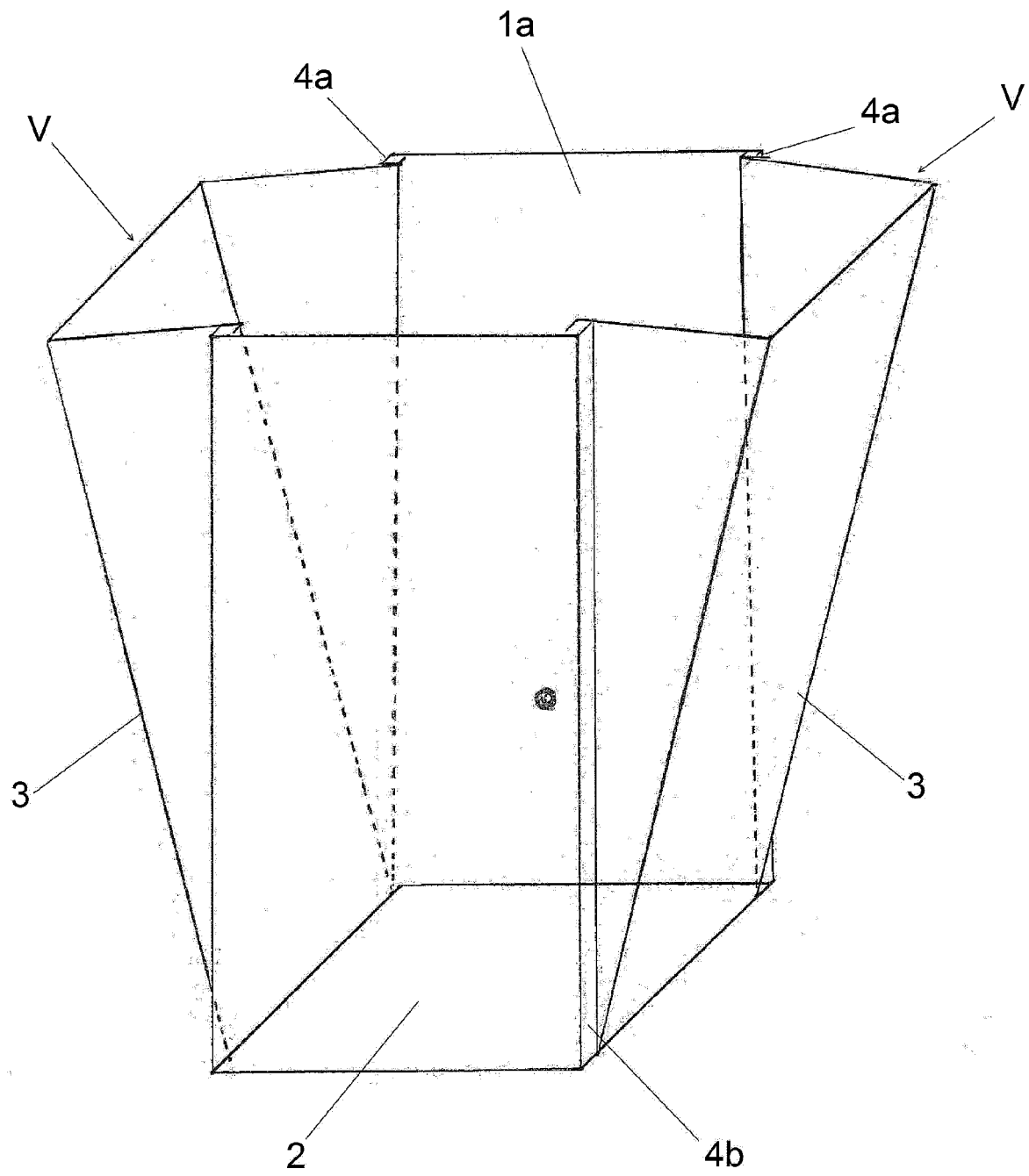


Fig. 3

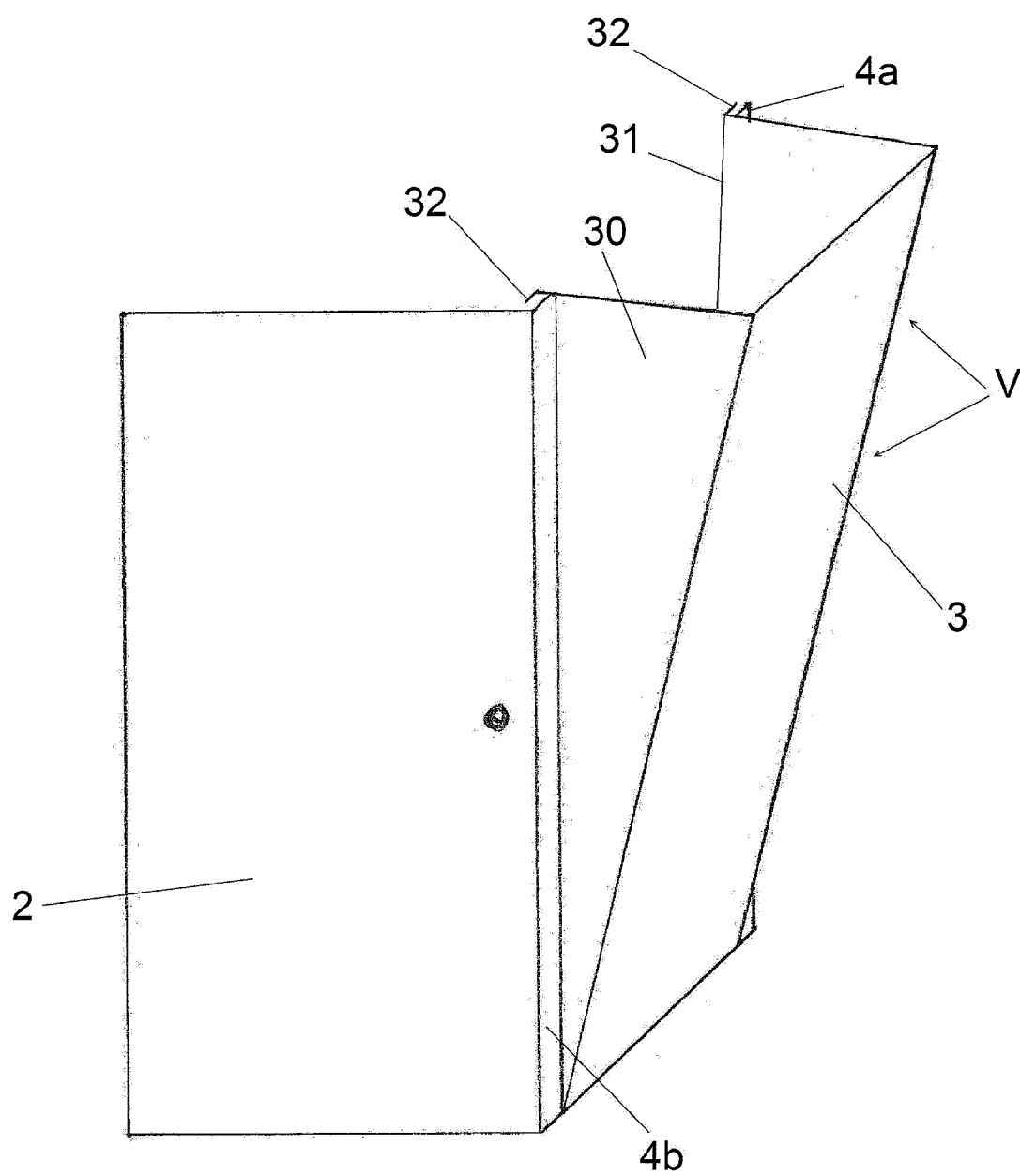


Fig. 4

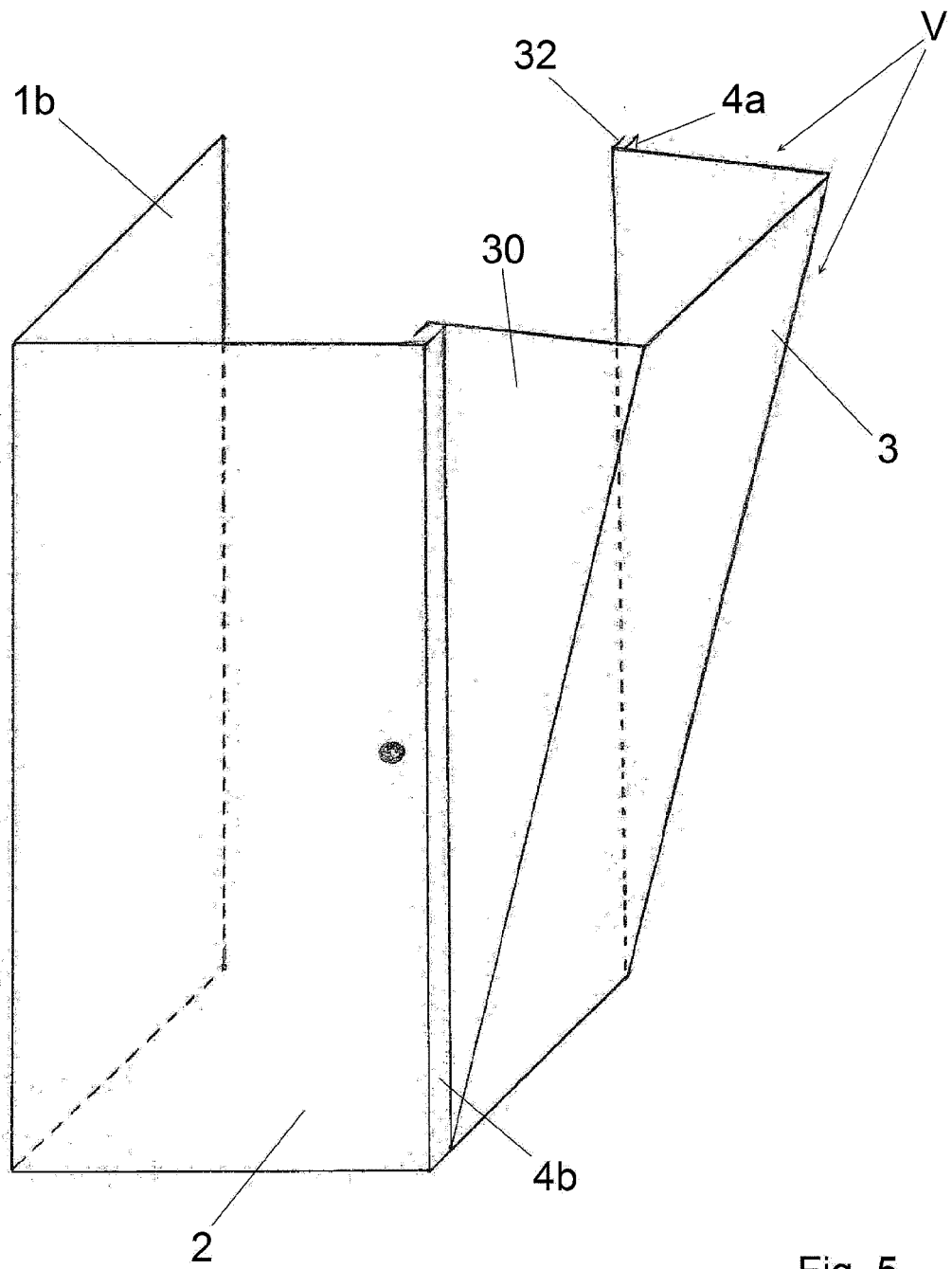


Fig. 5

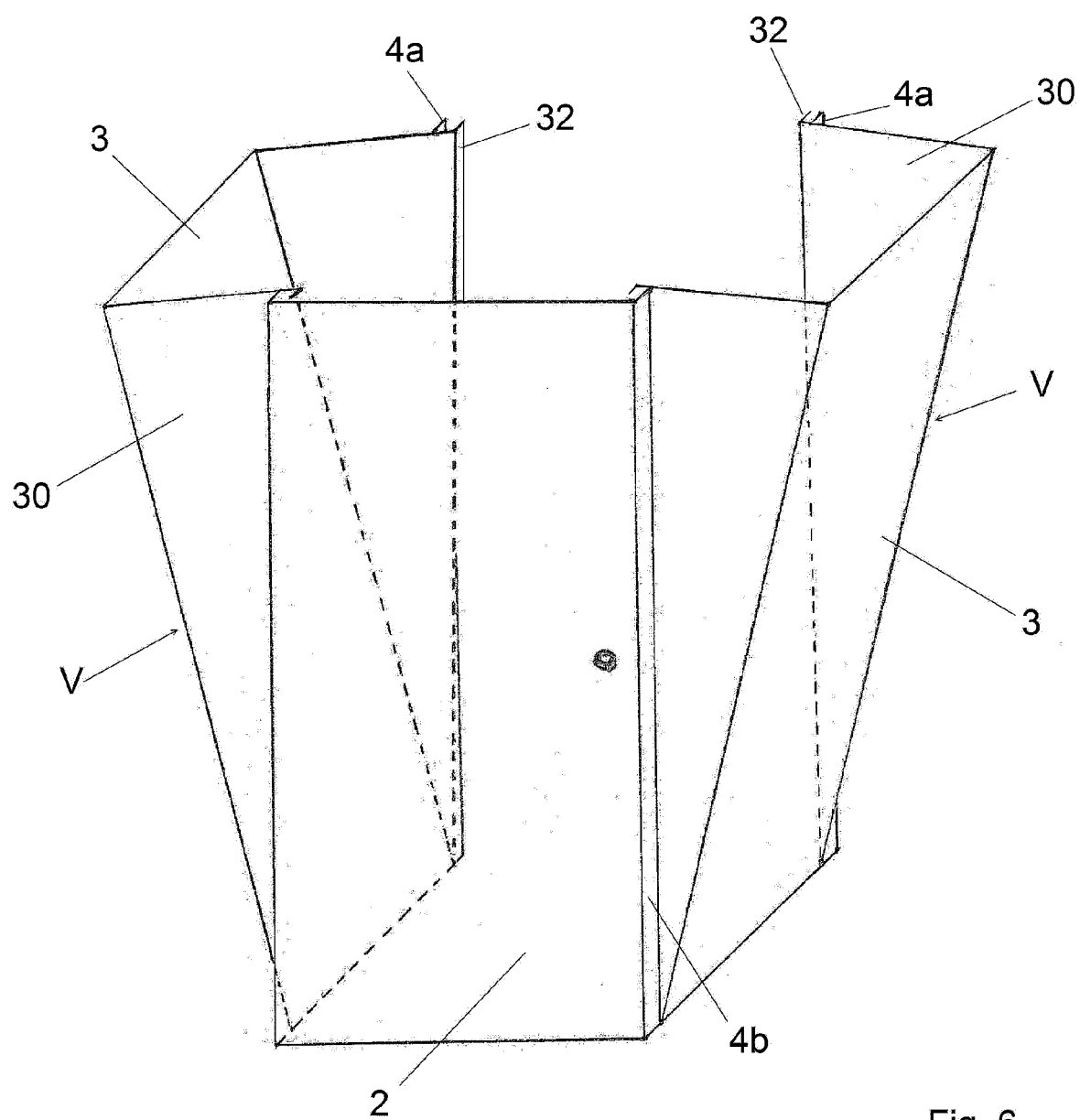


Fig. 6

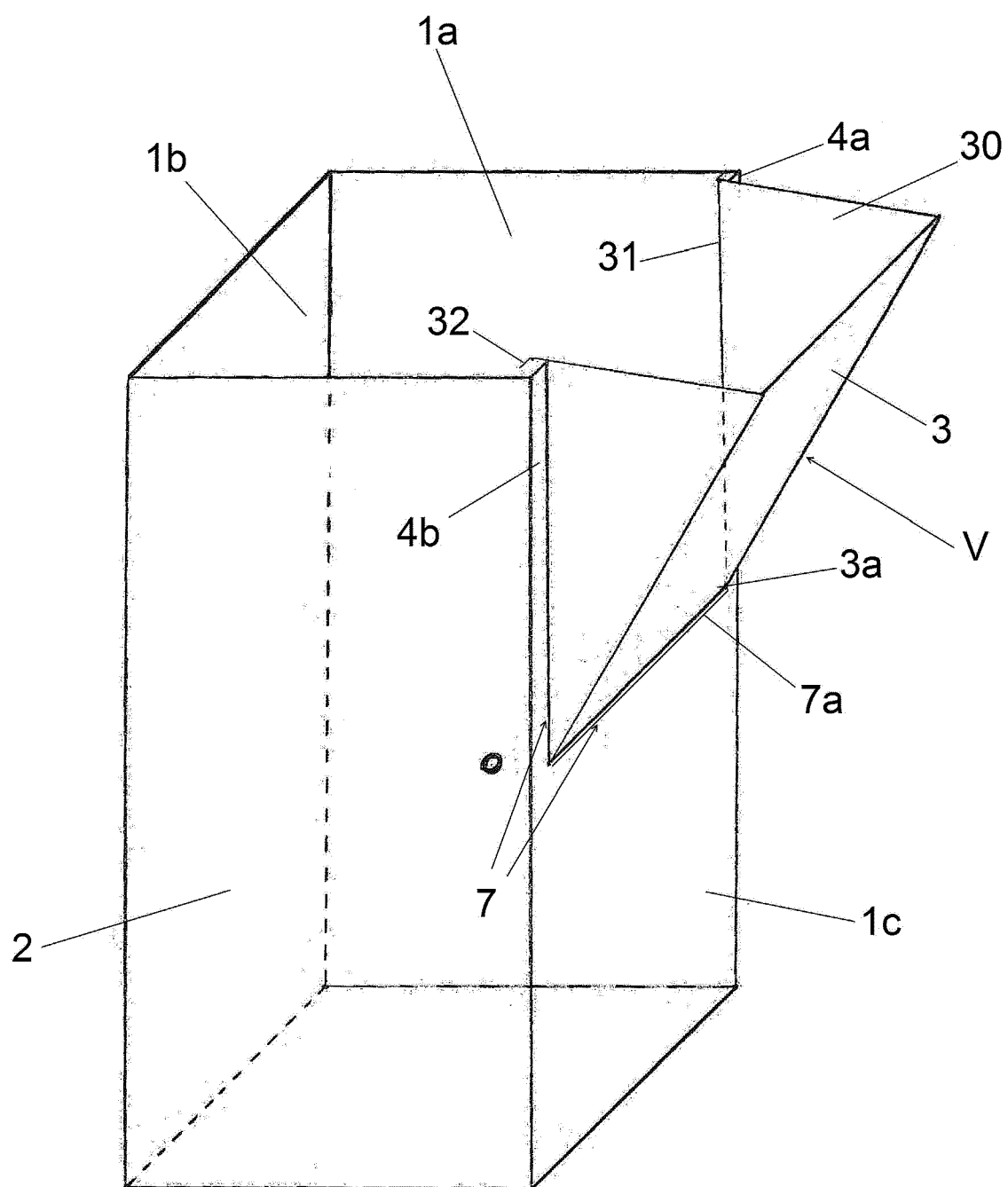


Fig. 7



EUROPEAN SEARCH REPORT

Application Number
EP 15 15 1014

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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	US 2011/167728 A1 (ALELOV ILYA G [US]) 14 July 2011 (2011-07-14) * paragraph [0036] - paragraph [0048]; figure 9 *	1-9	INV. A47K3/32
A	US 991 222 A (MILLER JOHN P [US]) 2 May 1911 (1911-05-02) * column 1, line 2 - column 3, line 15; figures *	1-9	
A	US 2006/070177 A1 (BATHURST DAVID B [US] ET AL) 6 April 2006 (2006-04-06) * paragraph [0003] - paragraph [0040]; figures 1-6 *	1-9	
			TECHNICAL FIELDS SEARCHED (IPC)
			A47K
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 29 May 2015	Examiner van de Beek-Duijker
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 15 15 1014

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29-05-2015

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