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(54) Title: MULTIPURPOSE MODULAR BOX WITH COUNTERCONICAL SLIDE-TRACK CONNECTING SYSTEM

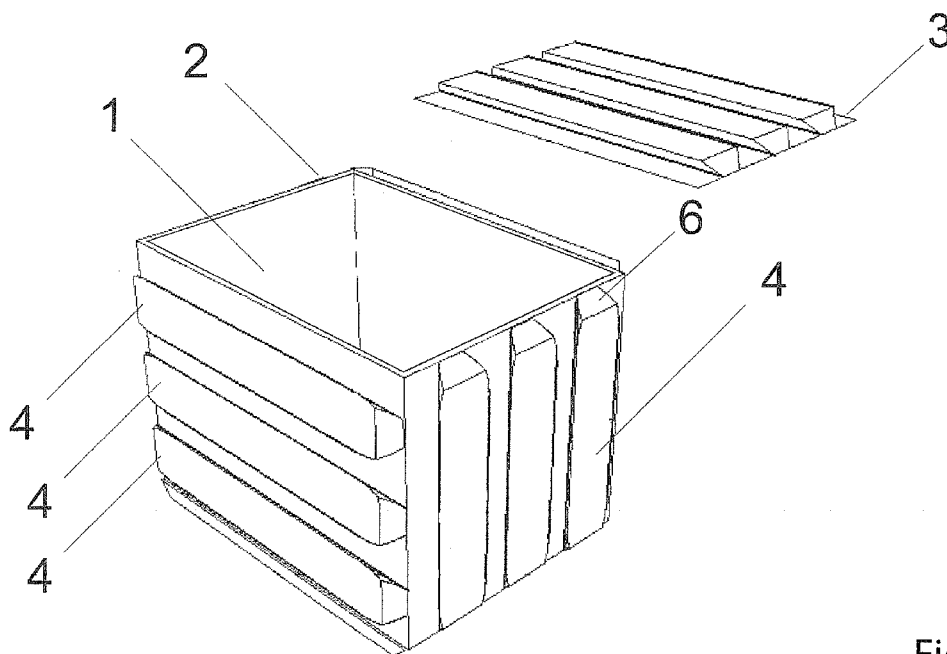


Fig. 9

(57) Abstract: The invention refers to a multipurpose modular box (1) with counterconical slide-track connecting system, in the shape of a square or rectangular box, for the transporting, storing and presenting of products. The box (1) includes tracks (4, 5) in the shape of a trapezoid, glued to the sides (2) and the lid (3). The tracks (4,5) are attached to the sides (2) and lid (3) of the box (1) at a distance (a) equal to the longer base of the trapezoid-track (4). The tracks (4,5) in the shape of a trapezoid-swallowtail enable quick, easy and convenient connecting of two boxes (1) by translatory movement along the tracks (4, 5), thereby forming different compositions and assemblies with new functions and additional use values.



MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,  
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KM, ML, MR, NE, SN, TD, TG).

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- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*
- *of inventorship (Rule 4.17(iv))*

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**MULTIPURPOSE MODULAR BOX  
WITH COUNTERCONICAL  
SLIDE-TRACK CONNECTING SYSTEM**

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**Field of Invention**

10 The invention belongs to the field of packaging for storing and transporting objects. The invention can more closely be classified into the field of packaging with body formed by connecting two or more rigid elements, which are completely made of wood, and which is of characteristic shape.

15 The code of the field into which the invention can be classified according to the International Classification of Patents is: B65D 6/02.

**Technical problem**

20 The technical problem solved by the invention is how to solve the construction of packaging for collective transport of products, as well as for transporting and storing perishable goods, without adding energy and non-degradable materials.

The invention also solves the technical problem of packaging and a place for presenting products, and also for easy accessibility of displayed products at sales locations.

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**Prior Art**

From the background art, more specifically national patent literature, there is a known solution entitled: "Wooden packaging for bottles and jars of various sizes and shapes". This solution is described in patent application P-475/95, published on 14 August 1998. According to this solution the packaging is made of wooden elements-slats, connected by joining elements, also slats, but narrower. The wooden elements and joining elements form the bottom, front and back sides, the lateral side, and horizontal bars. This solution is very similar in construction to wooden crates for fruit and vegetables, but is used for bottles and jars. It differs from the solution according to the invention in construction, functionality and application.

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A solution similar to crates for fruit and vegetables is also known from prior art described in European patent application entitled: "Stackable wooden box", under number 3070019, which was published on 21 September 2016. This application describes a wooden rectangular box without a lid, with corner reinforcement elements in the shape of pyramids. The reinforcement elements have a small, rounded protrusion on the upper side for connecting with other boxes of the same kind, which are stacked one on top of another.

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5 Korean patent application number 20160079287, published on 6 July 2016, describes a solution entitled "Packaging box". This solution comprises a rectangular box with reinforcements along the edges of the box and the centers of the sides of the box in the shape of square slats. The construction of this solution differs from the construction solution according to the invention and as opposed to the invention, the boxes can just be stacked one on top of another without any form of connecting.

10 From prior art there is also a known EP patent application number 2214974, published on 11 August 2010. This application describes a solution entitled: "Container particularly for agricultural products". The container is open-topped and rectangular in shape. The sides of the container are lattice-shaped with cylindrical reinforcements along the edges of the container. This solution also differs from the invention in construction, appearance, material and application, and as its name suggests is used only for agricultural products.

15 All the described solutions from prior art, regardless of differences in terms of construction and function, can, as opposed to the invention, only be used as packaging. Moreover, as opposed to the invention, they cannot be firmly interconnected in all directions.

### 20 **Disclosure of Invention**

The multipurpose modular box with counterconical slide-track connecting system, according to the invention, is made of wood, in the form of a rectangular or square box with a detachable lid. On the lateral sides, the bottom and the lid the box includes wooden trapezoid-shaped (swallowtail) tracks for connecting the boxes to one another. The number of tracks per side is even and odd, preferably three and four tracks per side. Three sides of the box have three tracks each, and three sides have four tracks each. The tracks are mounted to the sides of the box at the distance of the width of the track. This enables ideal fitting and connecting of two boxes to one another with a sliding motion.

30 The main advantage of the multipurpose modular box with counterconical slide-track connecting system according to the invention is the quick, easy and guided connecting of two or more boxes by way of tracks. The trapezoid shape of the tracks, as well as the chamfered edges of the tracks at the ends, enable to boxes to be connected with two hands in a single movement without any problems.

35 The primary function of the box is the transport, packaging and storage of goods and bottled drinks, primarily wines. For this purpose the interior of the box is lined with a degradable bag made of pressed wool. The wool serves as an insulator, so that the goods being transported in the box maintain their temperature during transport.

40 The construction of the box with connecting tracks on each side enables an unlimited number and the most diverse ways of interconnecting the boxes.

As the boxes are made of a noble material - wood, other than as packaging they can also be used in a multitude of different areas. Two or more connected boxes can be used for presenting products and for easy accessibility of products at sales locations. The boxes can also be used as easily moved and easily exchanged pieces of household furniture, or as elements for games of connecting modules into various shapes in children's playrooms. They can also be used to house pets in a limited amount of space, and also as decorative and useful containers for gardening and horticulture.

### Brief Description of Drawings

- 10 Figure 1 shows a rectangular box in horizontal cross section;  
Figure 2 shows a square box in horizontal cross section;  
Figure 3 shows a track from above;  
Figure 4 shows a lateral view of the track from figure 3;  
15 Figure 5 shows the A-A cross section of the track from figure 3;  
Figure 6 shows the view from above of a track at the end of a side with an even number of tracks;  
Figure 7 shows the B-B cross section of the track from figure 6;  
Figure 8 shows a lateral view of the track from figure 6;  
20 Figure 9 shows an axonometric projection of a box with detached lid;  
Figure 10 shows an axonometric projection of two connected boxes, displaced by half a box side;  
Figure 11 shows an axonometric projection of several connected boxes in one plane;  
Figure 12 shows an axonometric projection of several connected open boxes placed at an angle to the surface they are lying on, suitable for presenting products in the boxes;  
25 Figure 13 shows an axonometric projection of several connected boxes displaced height-wise, whereas the boxes are placed on the wall on top of one lid, which is attached to the wall;  
Figure 14 shows an axonometric projection of several connected boxes, displaced in relation to one another both height-wise and width-wise;  
30 Figure 15 shows an axonometric projection of one of the possible forms of connecting several boxes;  
Figure 16 shows an axonometric projection of several connected boxes displaced in relation to one another, whereas the boxes are attached to the ceiling by way of one lid, which is affixed to the ceiling;  
35 Figure 17 shows an axonometric projection of several connected open boxes placed at an angle to the surface they are lying on;  
Figure 18 shows a horizontal cross section of two connected square boxes;  
Figure 19 shows a horizontal cross section of two connected boxes where one box is square and the other rectangular;  
40 Figure 20 shows a horizontal cross section of two connected square boxes displaced in relation to one another;  
Figure 21 shows the manner of connecting box sides by way of notches;

Figure 22 shows an axonometric projection of an unfolded box in an execution variation;

Figure 23 shows an axonometric projection of a box in an execution variation.

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### Detailed Description of the Invention

The multipurpose modular box 1 with counterconical slide-track connecting system, according to the invention, is in the shape of a rectangular or square box, as needed. The sides 2 and lid 3 of the box 1 are made of pressed wood sheets - plywood. They are laser cut. Depending on the purpose and size of the box 1 the thickness of the sides 2 and lid 3 can vary. Moreover, depending on the preferred and required properties, the box 1 can also be made of a different wood.

15 The sides 2 of the box 1 are connected to one another by fitting the notches 7 together, forming a so-called comb joint. Notches 7 are cut along three edges of each side 2. Connecting the sides 2 by notching the notches 7 forms a secure, firm joint, with an exact right angle, without the need for additional gluing.

20 On sides 2 and lid 3 trapezoid-shaped (swallowtail) tracks 4, 5 are attached to the box 1 by gluing. Tracks 4, 5 are made of solid wood, or in another variation are cast from plastic modules of these same trapezoid and panel shapes and then joined together into one whole. They can be made of any preferred wood, but for lesser weight of the box 1 it is preferable that the wood be of low specific gravity.

25 The number of tracks 4, 5 on the sides 2 and lid 3 is even and odd, preferably three and four each. Thus there can be three tracks 4 on each of two sides 2 and bottom of the box 1, and four tracks on each of the other two sides 2 and lid 3, two tracks 4 and two tracks 5 each. Two tracks 5 on the ends of the sides 2 are placed so that they adjoin to the side 2 at the shorter base b, while the lateral side of the trapezoid-track 5 which forms a right angle with base d is the continuation of the side 2.

35 The described example has three and four tracks per side 2, 3 of the box 1, but the box 1 can also be executed with a greater number of tracks as needed, always in a combination of odd and even number of tracks per side 2, 3. For example, it can have five and six tracks or seven and eight tracks per side 2.

40 Track 4 has a cross section in the shape of a right trapezoid with longer base a and shorter base b. The angle between lateral side c of the trapezoid and base a is  $45^\circ$ .

Track 5 is in the shape of a right trapezoid, whose longer base  $d = (a-b)/2$ , while the angles between the longer base d and the lateral sides are  $45^\circ$  and  $90^\circ$ .

The distance a between tracks 4, 5 is equal to the longer side a of trapezoid-track 4. The area formed by the two tracks 4, 5 and the side 2 of the box 1 is of identical shape as track 4. At their ends, lengthwise, the tracks 4, 5 are cut at an angle of  $45^\circ$ , forming a slanting surface 6. The slanting surface 6 is at an angle of  $45^\circ$  to the surface of the side 2. The slanting surface 6 enables easy insertion of tracks 4, 5 when connecting two boxes 1.

The inside of the box 1 contains a bag 8 of carded pressed wool. The thickness of the pressed wool which the bag 8 is made of can vary, depending on requirements. The shape and size of the bag 8 can also be changed as needed.

The multipurpose modular box 1 with counterconical slide-track connecting system, according to the invention can in an execution variation also be executed as box 11. The box 11 as execution variation is without side 2, instead of which tracks 4, 5 are attached to the wooden frame 9 of the box 11.

In variation 1 the multipurpose modular box 11 with counterconical slide-track connecting system includes a wooden frame 9 in the shape of a rectangular box. The frame 9 is comprised of slats 10. The tracks 4, 5 are connected at their ends to the slats 10 in the same manner and in the same position as in the primary execution of the box 1. The lid 13 of variation 1 of the box 11 includes two slats 10 connected with two tracks 4 and two tracks 5 parallel to one another.

The finished box 1 is coated in waterproof, colorless oils and resin.

Multipurpose modular boxes 1 with counterconical slide-track connecting system, according to the invention, are easily connected one to another by linear coupling of tracks 4, 5. The slanting surface 6 enables the tracks 4, 5 of one box 1 to be inserted between the tracks 4, 5 of another box 1 easily and without loss of direction.

Boxes 1 can be connected one to another as preferred and required, in an unlimited number and in various directions. The drawings show some of the possibilities for connecting the boxes 1, which does not exclude all of the other possible connecting variations.

The box 1 is primarily intended as packaging for transport and storage of food and drink. As packaging variously connected and positioned the boxes 1 can also be applied for presenting and easy accessibility of products.

Considering the unlimited possibilities for connecting the boxes 1 without additional joining elements, the boxes 1 can also be used as pieces of furniture.

They can also be used to house pets in a limited area and as flower boxes for gardening purposes.

## CLAIMS

- 5 1. Multipurpose modular box with counterconical slide-track connecting system is in the shape of a rectangular or square box with sides (2) and lid (3) of pressed wood sheets, characterized in that,  
the box (1) includes tracks (4, 5) on each side (2) and lid (3), the tracks (4, 5) are made of solid wood, in the shape of a trapezoid, glued by their shorter base (b) to the sides  
10 (2) and lid (3) at a distance (a) equal to the longer base (a) of the tracks (4, 5), that the ends of the tracks (4,5) are executed as a slanting surface (6) at an angle of 45°.
- 15 2. The box according to claim 1, characterized in that, the box (1) on each of three sides (2,3) includes three tracks (4), and on the other three sides (2,3) includes two tracks (4) and two tracks (5), where the tracks (4,5) are the same length as the sides (2) and the lid (3).
- 20 3. The box according to claims 1 and 2, characterized in that, the tracks (4) are in the shape of a right trapezoid, where the angles on the longer base (a) are 45° each.
4. The box according to claims 1 and 2, characterized in that, the tracks (5) are in the shape of a right trapezoid, where the angles on the longer base (d) are 45° and 90°, and the tracks (5) are attached by their shorter base (b) with a right angle to the edge of side (2).
- 25 5. The box according to claim 1, characterized in that, the inside of the box (1) is lined with a bag (8) made of carded pressed wool.
- 30 6. The box according to claim 1, characterized in that, the sides (2) of the box (1) connect to one another by notching of notches (7), where the notches (7) are executed on three edges of the sides (2).
- 35 7. The box according to claim 1 and variation 1, characterized in that, it includes a wooden frame (9) in the shape of a rectangular box made of slats (10), that the lid (13) includes two slats (10), where the tracks (4,5) are glued at their ends by their shorter base (b) to the slats (10).
- 40



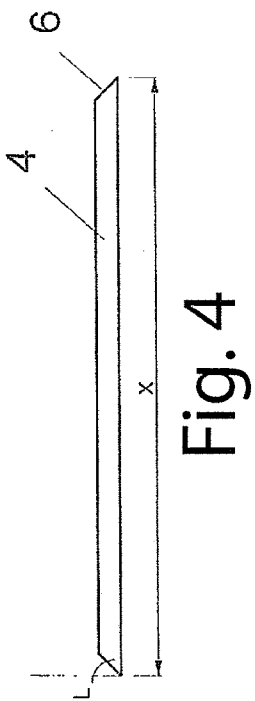


Fig. 4

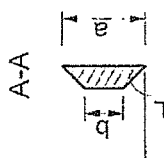


Fig. 5

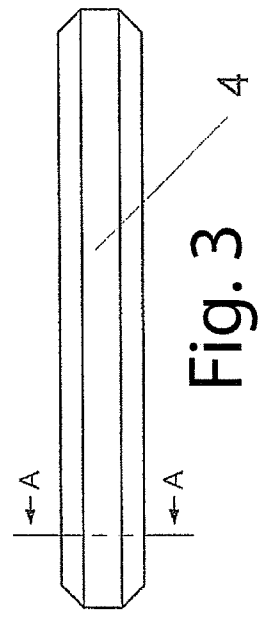


Fig. 3

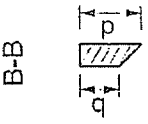


Fig. 7

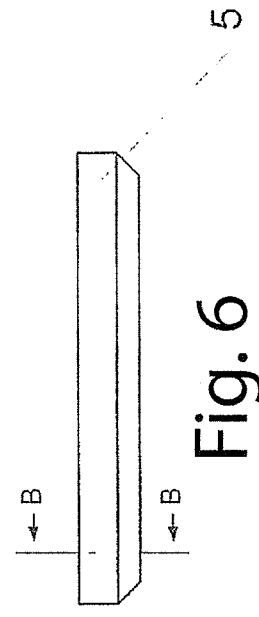


Fig. 6

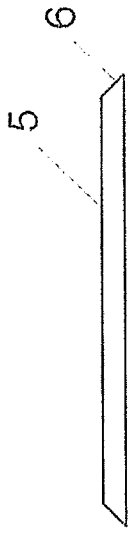


Fig. 8

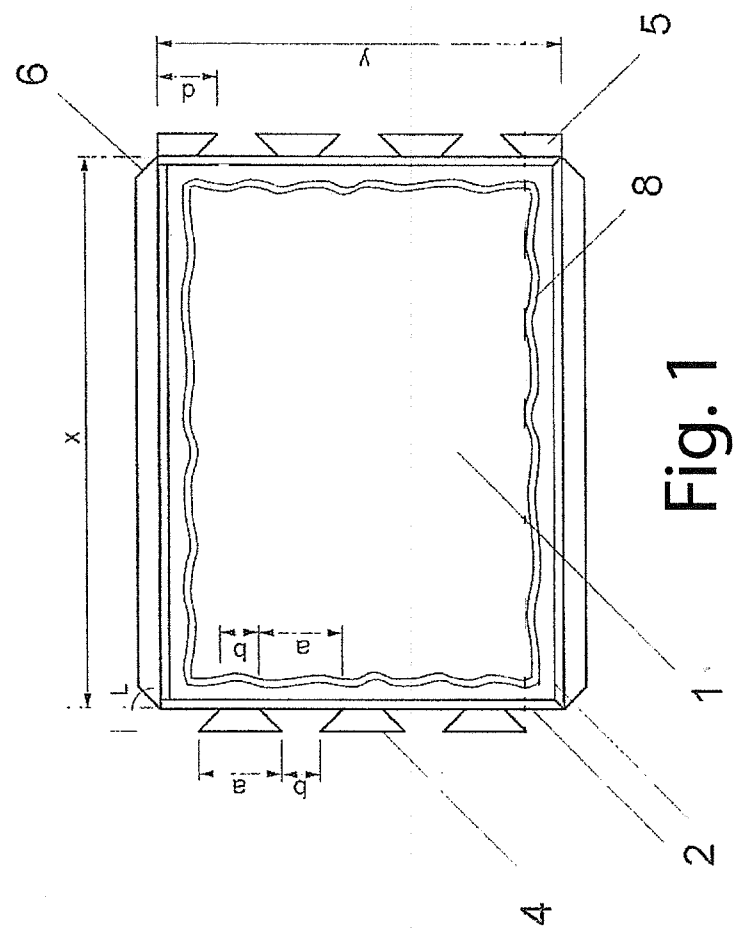


Fig. 1

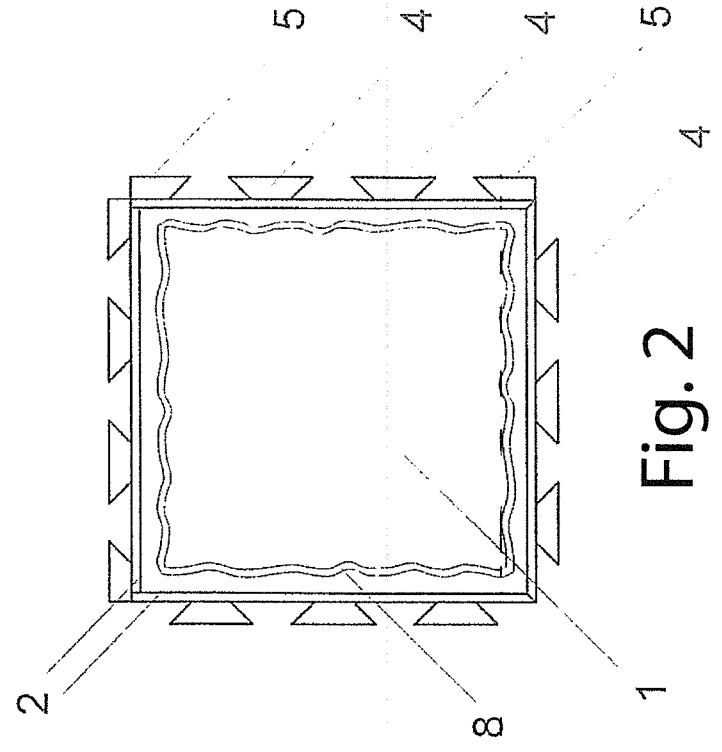


Fig. 2

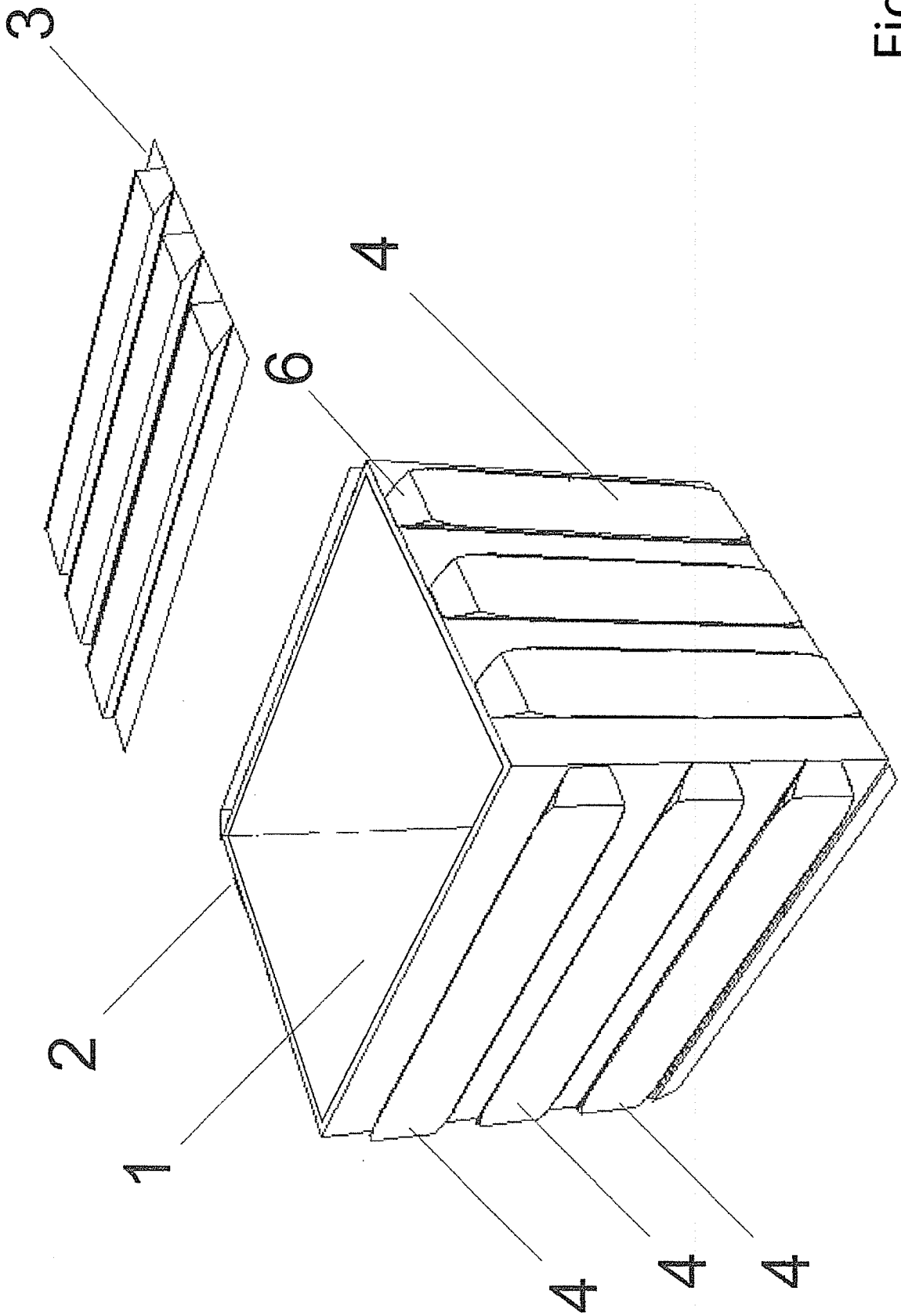


Fig. 9

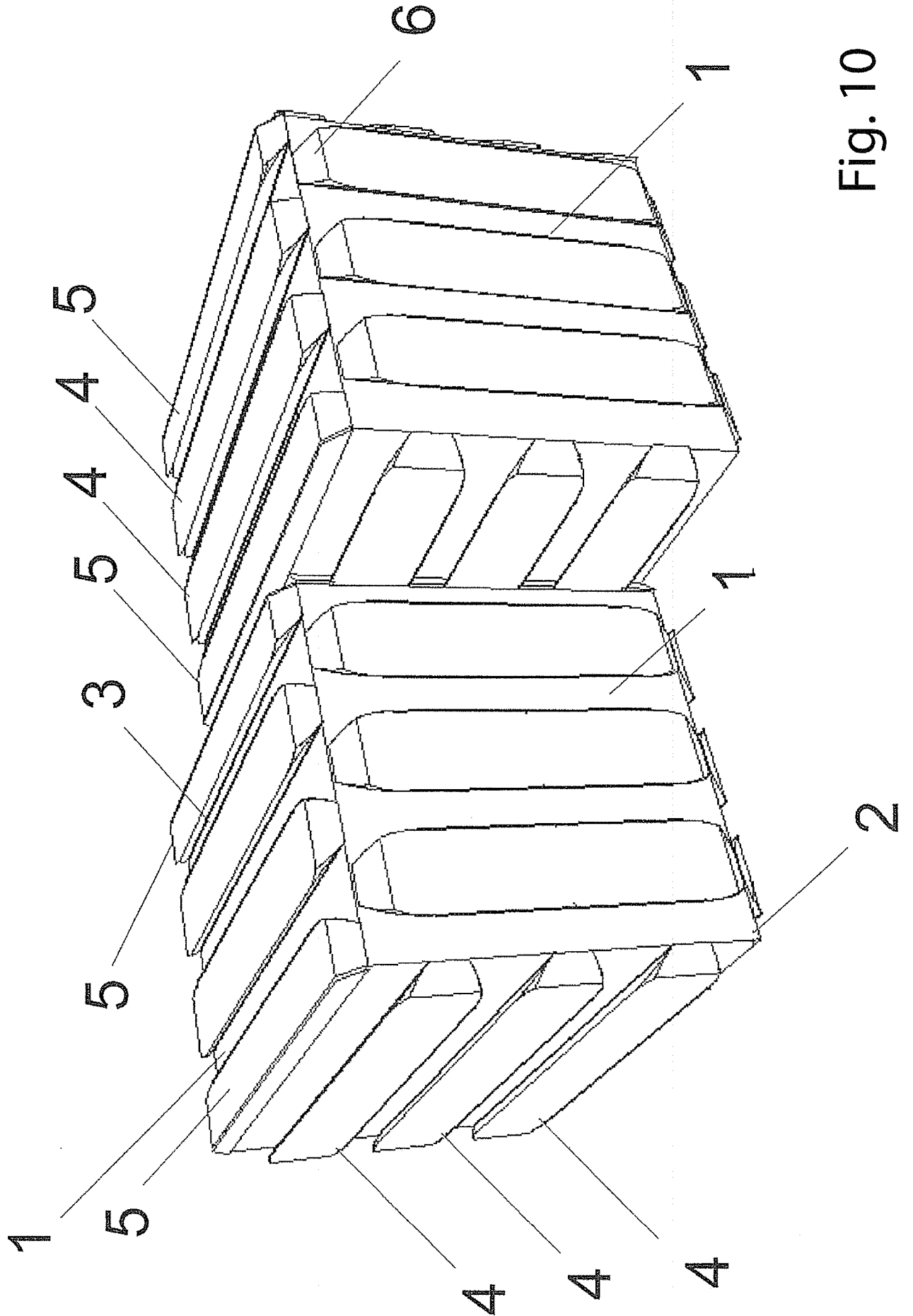


Fig. 10

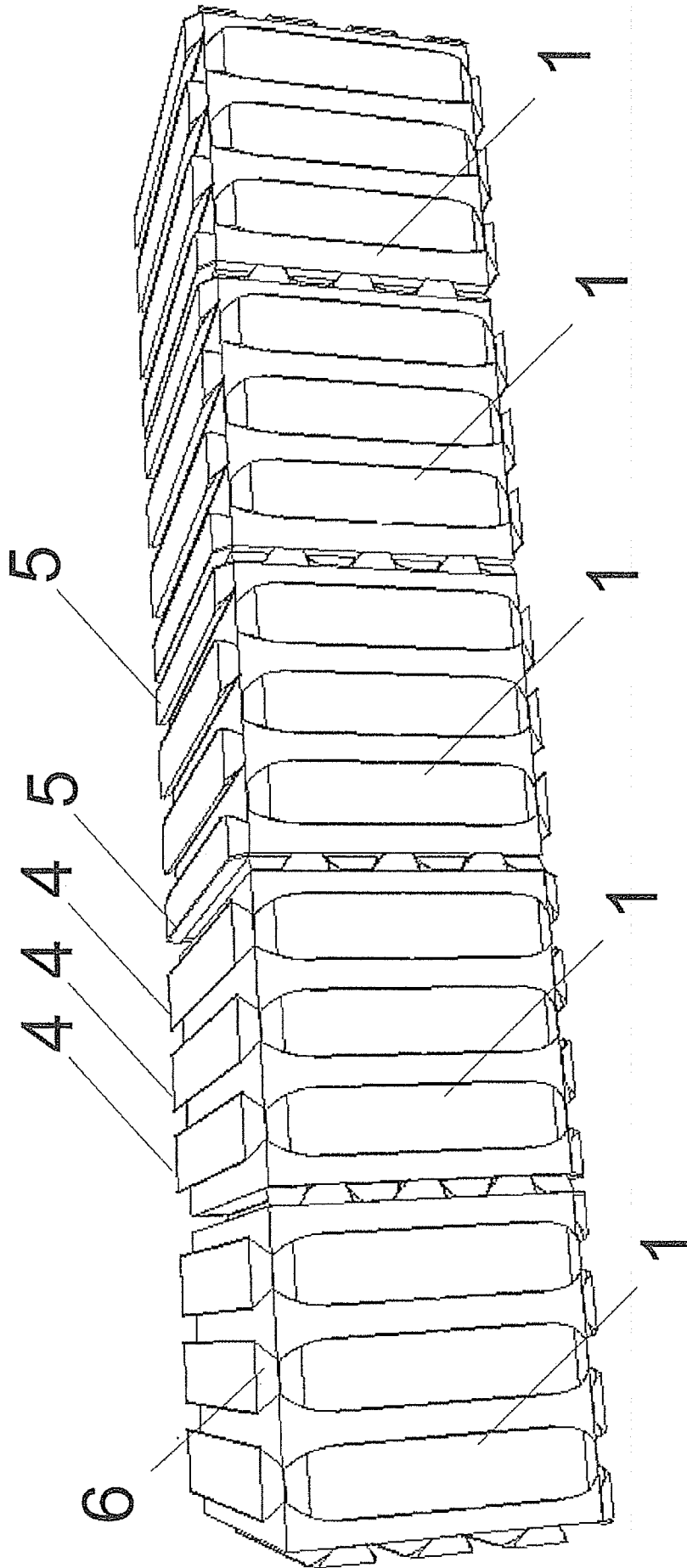


Fig. 11

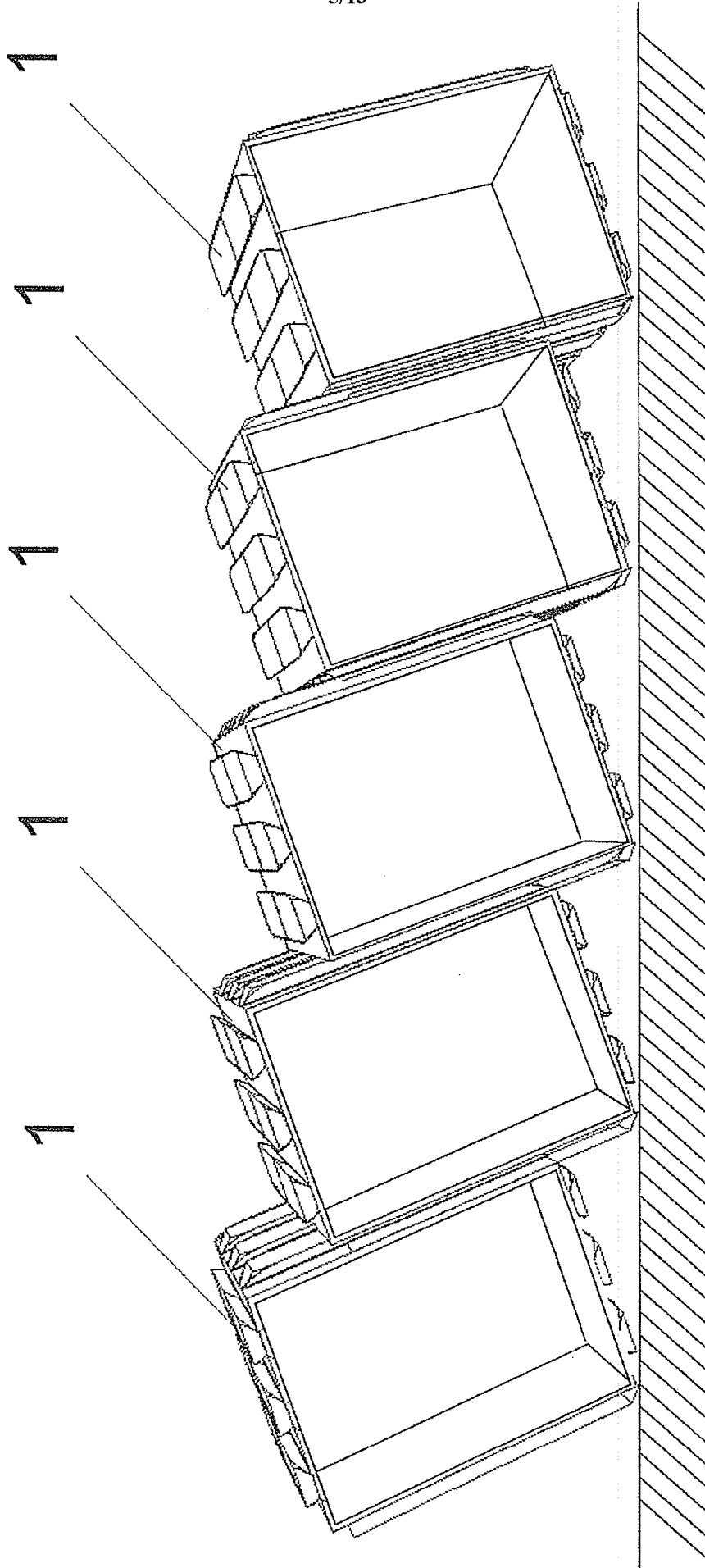


Fig.12

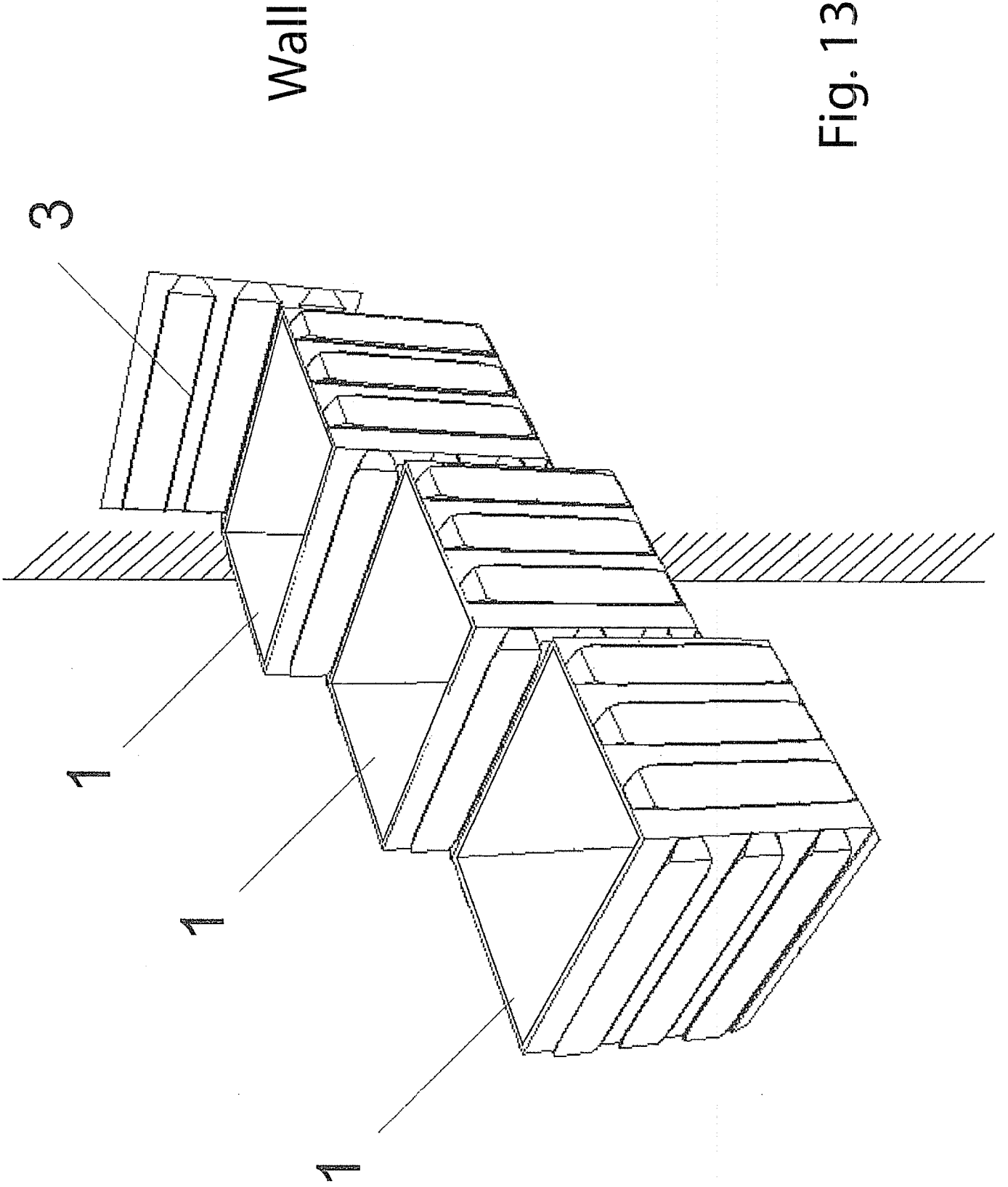


Fig. 13

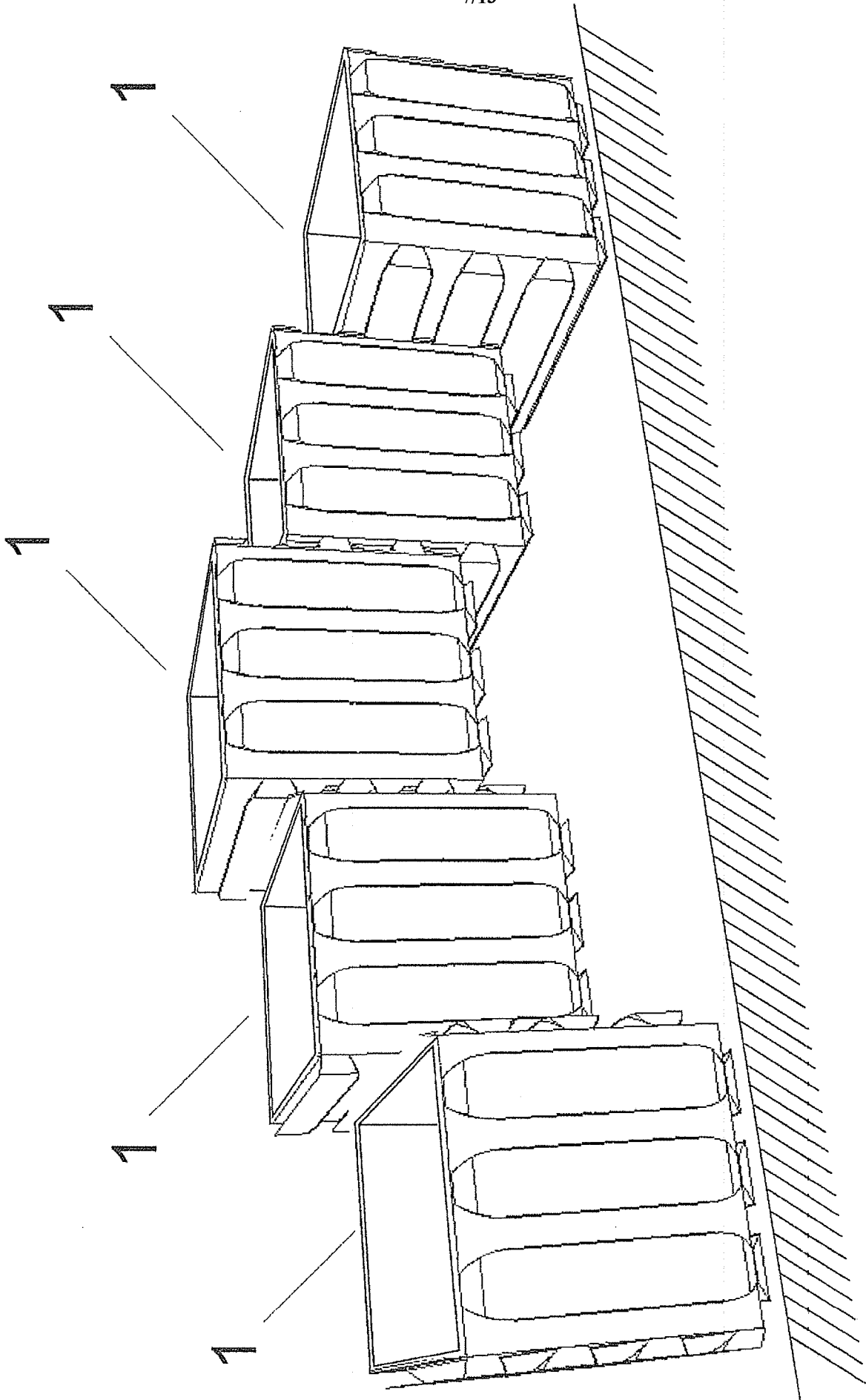


Fig. 14

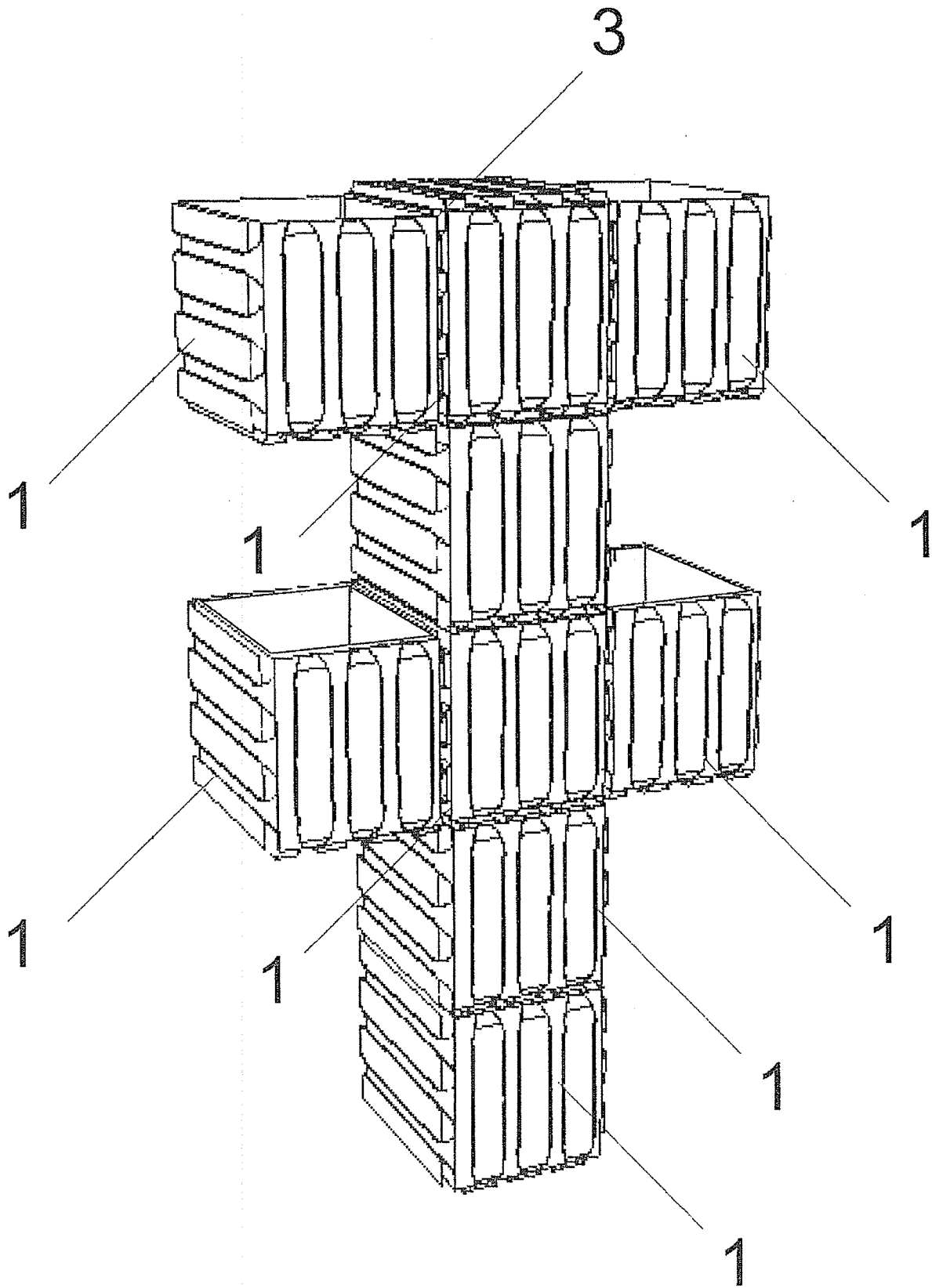


Fig. 15



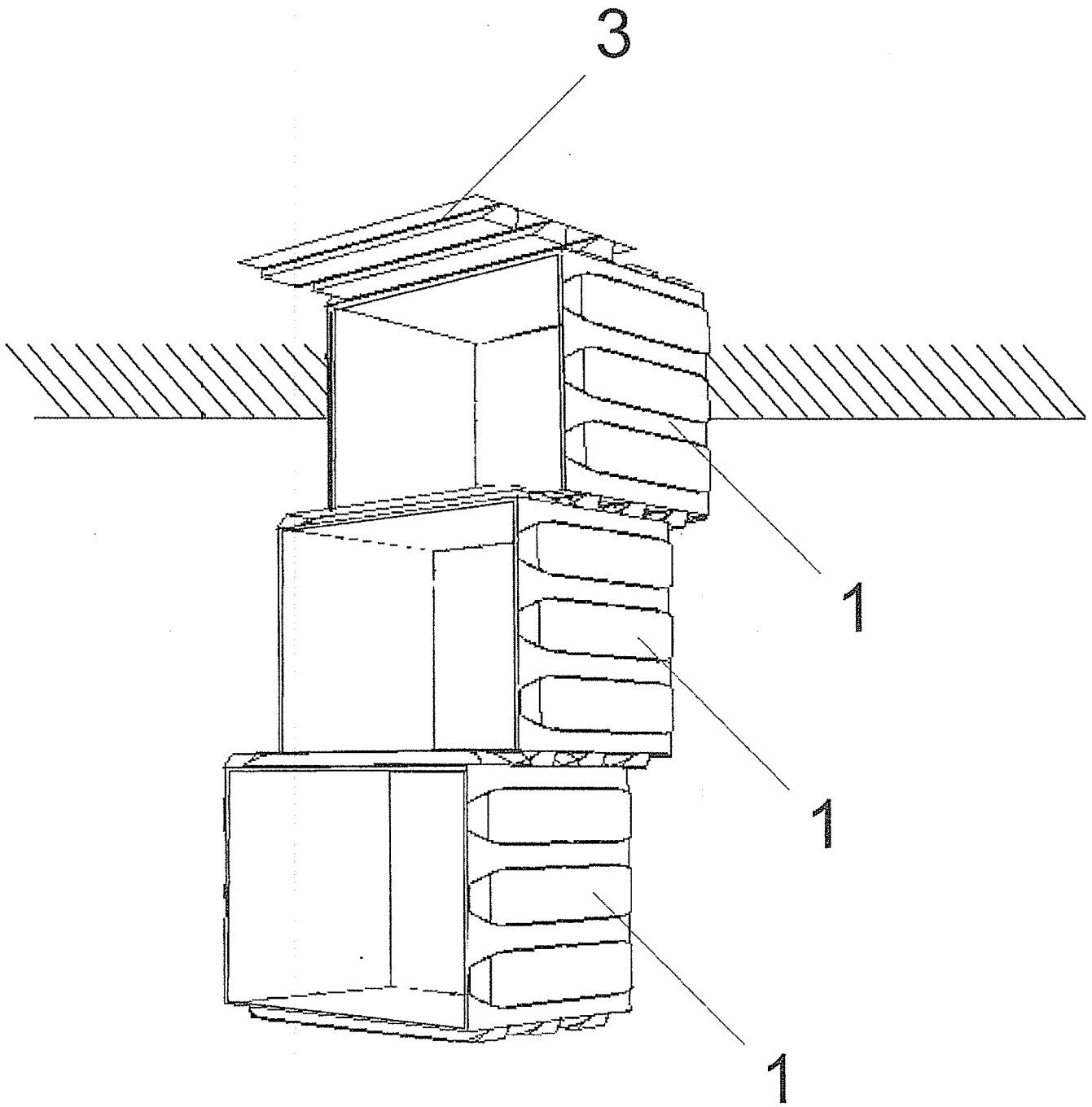


Fig. 16

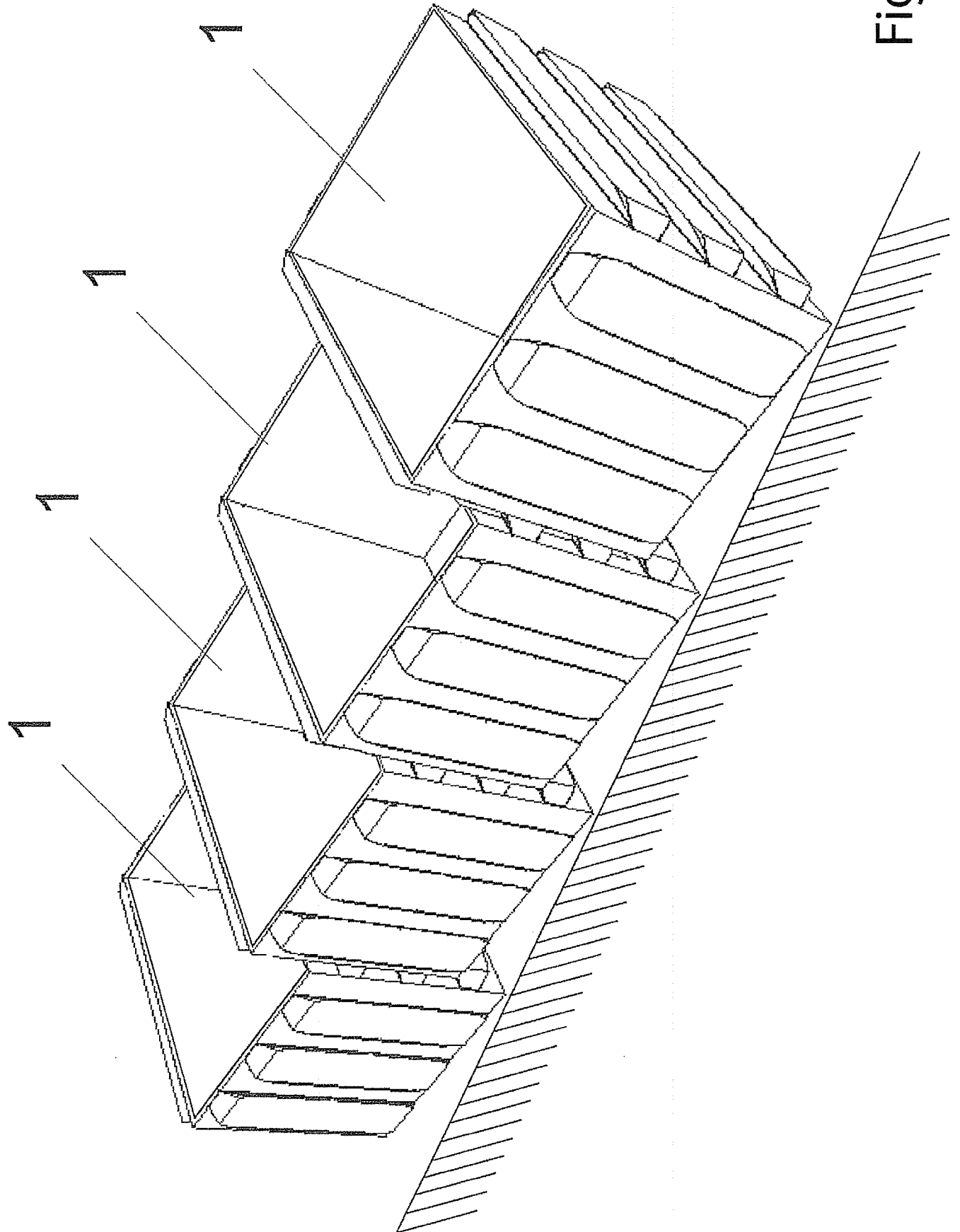


Fig. 17

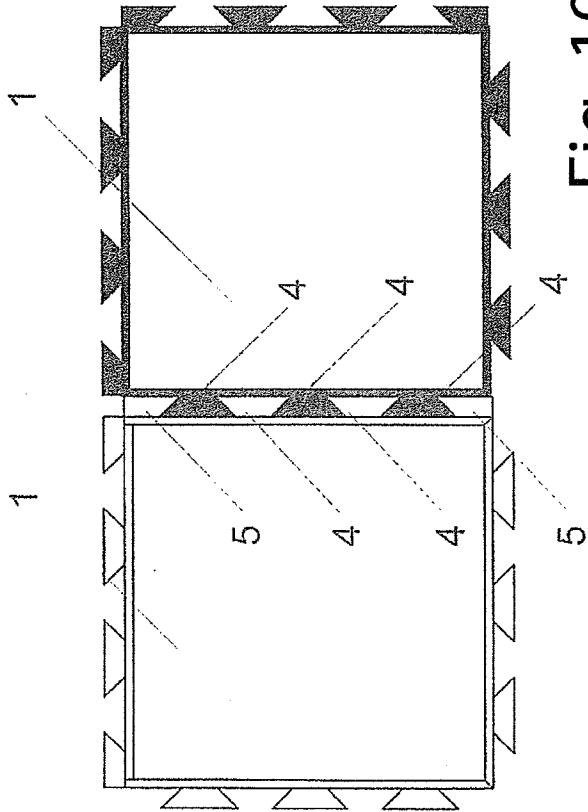


Fig. 19

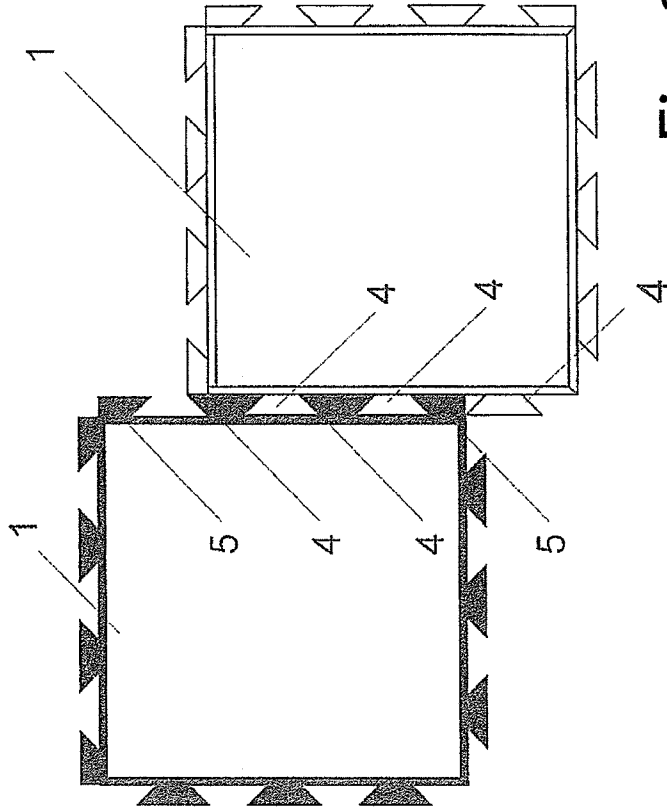


Fig. 20

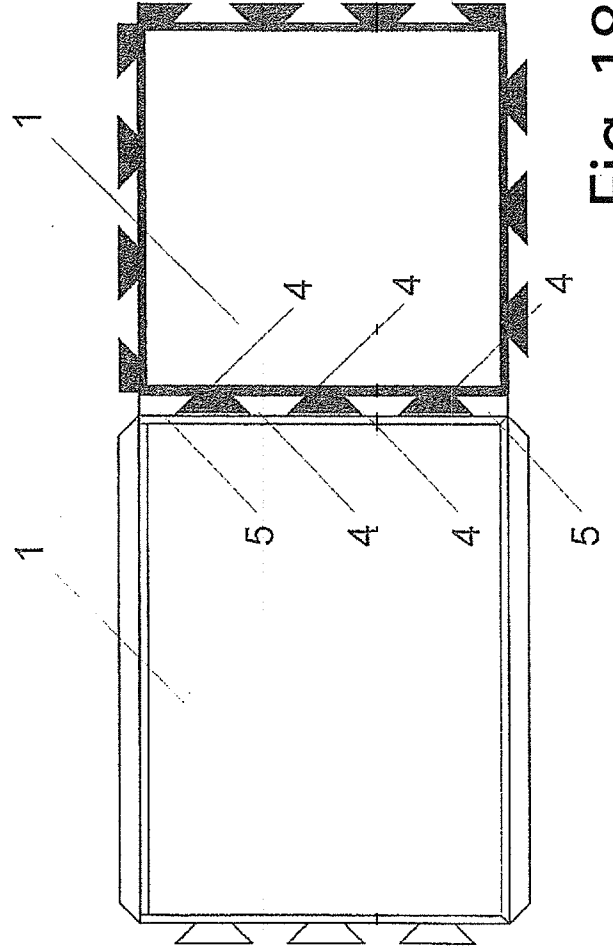


Fig. 18

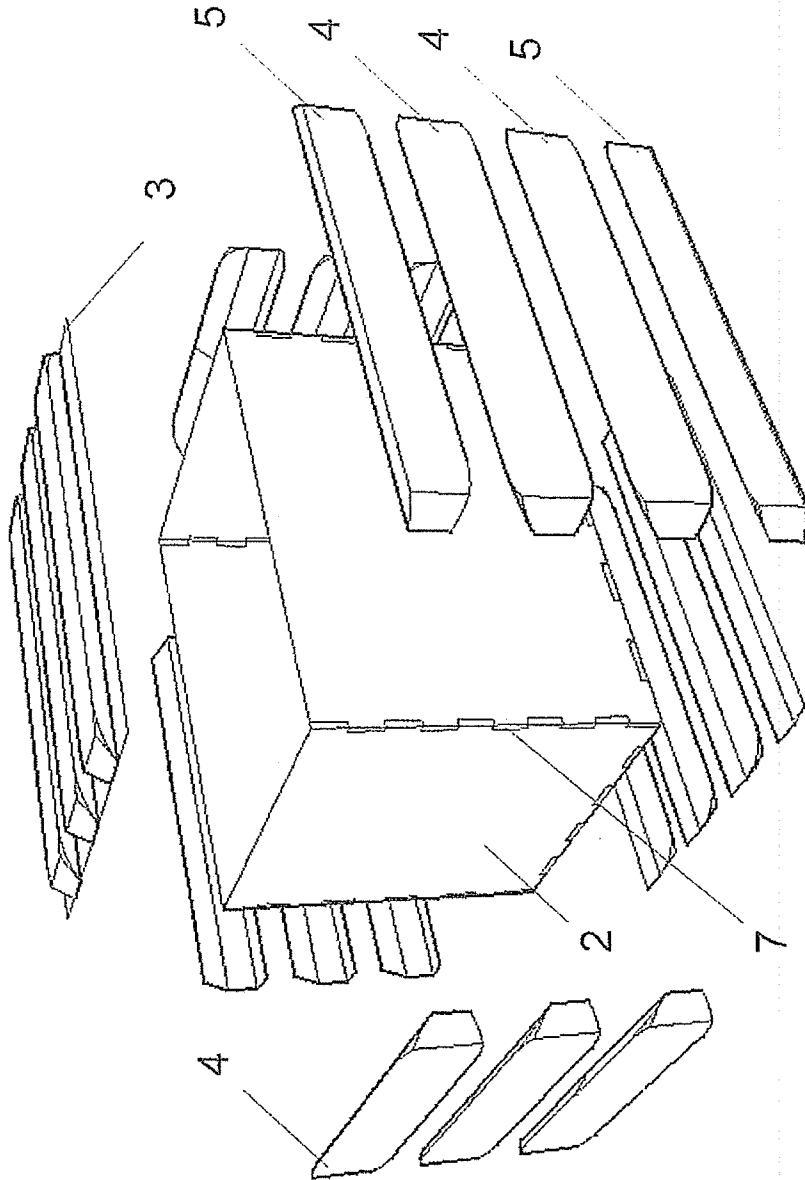
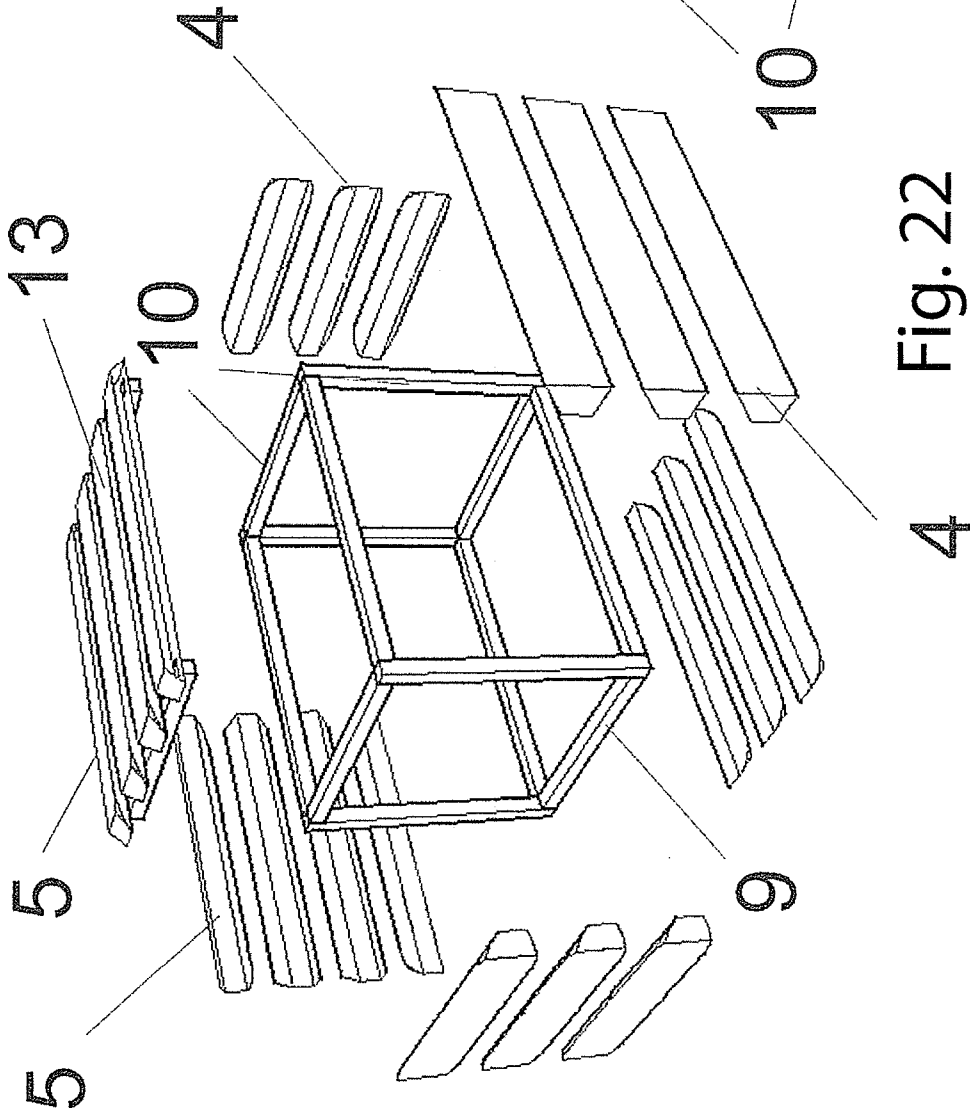


Fig. 21



4 Fig. 22

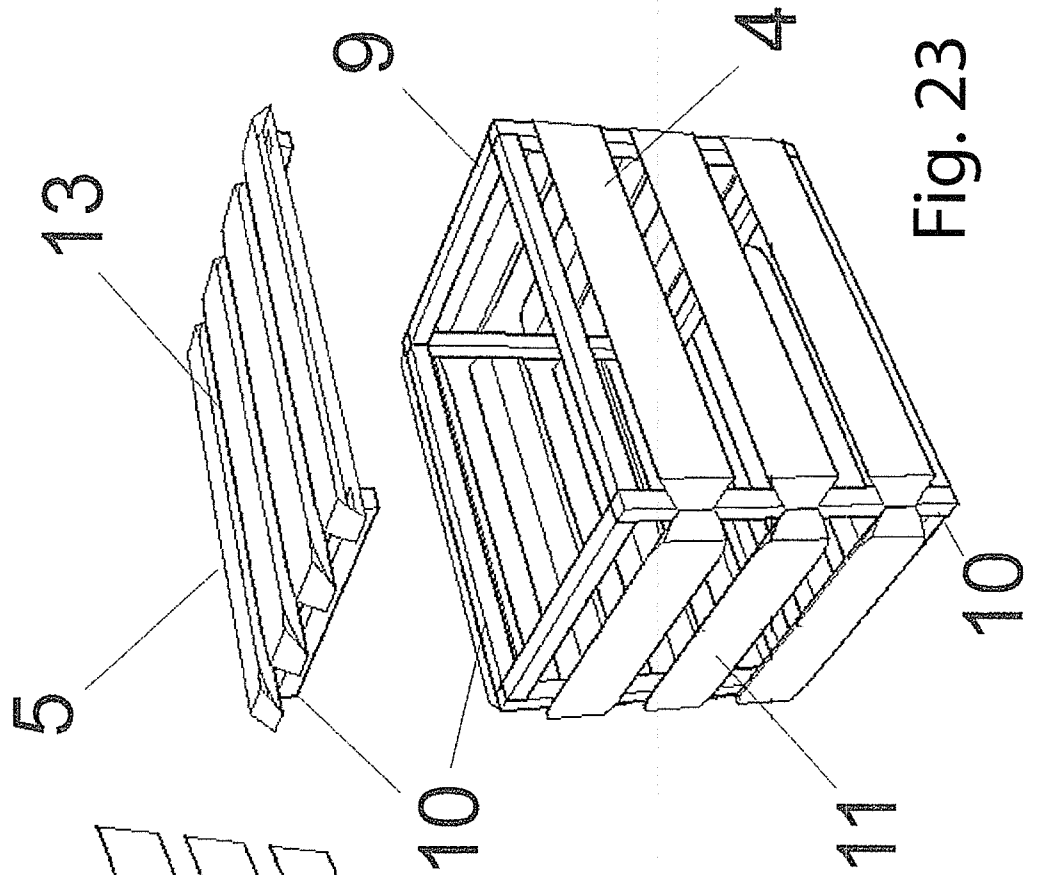


Fig. 23

INTERNATIONAL SEARCH REPORT

International application No  
PCT/RS2018/000006

A. CLASSIFICATION OF SUBJECT MATTER  
INV. B65D6/02 B65D21/02  
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

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

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2 461 722 A (BLAIR CHRISTOPHER DOUGLAS [GB]) 13 January 2010 (2010-01-13) page 7 - page 8; figures 1-3 -----	1-7
A	US 2013/015183 A1 (FREDETTE DAVID [US] ET AL) 17 January 2013 (2013-01-17) paragraph [0026] - paragraph [0028]; figures 1, 3, 4 -----	1-3
A	GB 2 204 566 A (TRONDEX LTD) 16 November 1988 (1988-11-16) abstract; figures 1-3 -----	1
A	WO 2007/093777 A2 (MOTTO DESIGN LTD [GB]; PEARSON MATTHEW A [GB]; AMBROSE PAUL K [GB]) 23 August 2007 (2007-08-23) the whole document ----- -/--	1

Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search  18 October 2018	Date of mailing of the international search report  25/10/2018
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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  Mans-Kamerbeek, M
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# INTERNATIONAL SEARCH REPORT

International application No  
PCT/RS2018/000006

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 1 539 870 A (NAGATA T) 7 February 1979 (1979-02-07) the whole document -----	1

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/RS2018/000006
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