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3III; 3IV); wherein each container (3; 3I; 3II; 3III; 3IV) is selected from a group of different containers (3; 3I, 3II, 3III, 3IV).



Description

[0001] The present patent application relates to a separate waste collection set.

[0002] It is known the use of a plurality of different waste containers, depending on the type of waste they have to contain, for collecting separate waste at home. Such containers may be of different shape and size, depending also on the type of waste they have to contain. However, the space available for waste collection within most houses is scarce and, at times, particularly narrow; therefore, said space must be used in the best possible way.

[0003] It is also known the use of a plurality of waste collection containers arranged inside drawers or compartments in the kitchen furniture. In particular, waste collection containers are often arranged below the kitchen sink.

[0004] However, the presence of the sink siphon is a problem for known waste collection systems, since the size of the containers must be compatible with that of the siphon so as not to interact with it. Therefore, this limits the optimized use of the available space in known systems.

[0005] The object of the present invention is to provide a separate waste collection set overcoming the above-mentioned drawbacks, which is simple, inexpensive and suitable for any type of space, thus maximizing the containment capacity of the available space.

[0006] The object of the present invention is to provide a tray that can house a plurality of separate waste collection containers, said containers having different size and being possibly arranged in a plurality of different mutual positions.

[0007] The object of the present invention is to provide a container that can be steadily and safely arranged within a respective tray and can be combined with other similar containers having one or more different dimensions, according to a plurality of different possible combinations.

[0008] The present invention provides a waste collection set as claimed in the appended claims.

[0009] The present invention provides a tray as claimed in the appended claims.

[0010] The present invention provides a container as claimed in the appended claims.

[0011] The invention will now be described with reference to the accompanying drawings showing a non-limiting embodiment, wherein:

- Figures 1 and 2 show in perspective a separate waste collection set according to the present invention in respective different operating configurations;
- Figure 3 is a perspective view of a first component of the separate waste collection set according to the present invention;
- Figure 4 is a plan view of the first component of Figure 3;
- Figure 5 is a perspective view of a second compo-

nent of the separate waste collection set according to the present invention;

- Figure 6 is a perspective view of a third component of the separate waste collection set according to the present invention;
- Figure 7 is a perspective view of a fourth component of the separate waste collection set according to the present invention;
- Figure 8 is a perspective view of a fifth component of the separate waste collection set according to the present invention;
- Figure 9 is a perspective view of a possible variant of the separate waste collection set according to the present invention.

[0012] In Figures 1 and 2, the reference number 1 indicates as a whole a waste collection set comprising a tray 2 and a plurality of waste containers 3 arranged inside the tray 2. According to the example shown in Figures 3 and 4, the tray 2 has a substantially rectangular shape in plan view, with a longitudinal axis X. Advantageously, the tray 2 has a housing 4 configured to house one or more containers 3, as better shown below. Specifically, the housing 4 is delimited in the tray 2 by:

a left edge 5, a rear edge 6, a right edge 7 and a front edge 8.

[0013] The terms "rear" and "front" mean the longitudinal edges of the tray 2 with reference to the arrangement of the set 1 as shown in Figures 1 and 2. The front edge 8 and the rear edge 6 are those of larger size. The left edge 5 and the right edge 7 are transverse, in particular perpendicular, to the rear edge 6 and to the front edge 8.

[0014] In particular, the tray 2 comprises a plurality of dividing elements 9 to divide the housing 4 into a plurality of seats, as further shown hereinafter. In Figures 3 and 4, the dividing elements 9 are abutments.

[0015] In particular, the tray 2 comprises a plurality of rear abutments 10 and a plurality of front abutments 11 protruding inside the housing 4. In particular, the rear abutments 10 protrude inside the housing 4 from the rear edge 6 and, respectively, the front abutments 11 protrude inside the housing 4 from the front edge 8.

[0016] There is a same number of rear and front abutments 10 and 11. The rear and front abutments 10 and 11 are evenly distributed along the longitudinal axis X. The rear and front abutments 10 and 11 are aligned to form pairs of abutments 12. In Figures 3 and 4, the rear and front abutments 10 and 11 are indicated with Roman numbers, wherein the rear and front abutments 10 and 11 marked with the same Roman number form a corresponding pair of abutments 12.

[0017] Advantageously, each pair of abutments 12 is configured to delimit laterally two adjacent seats 13 inside the housing 4. In the example shown in Figures 3 and 4, the rear pair 10 and the front pair 11 of abutments define

five seats 13 inside the housing 4, each of which is indicated in Figures 3 and 4 with a different Roman number.

[0018] In particular, the rear edge 6 and the front edge 8 define:

- the seat 131 together with the left edge 5 and the pair of abutments 121;
- the seat 1311 together with the pair of abutments 121 and 1211;
- the seat 13111 together with the pair of abutments 1211 and 12111;
- the seat 13IV together with the pair of abutments 12111 and 12IV; and
- the seat 13V with the pair of abutments 12IV and the right edge 7.

[0019] Each seat 13 has a substantially rectangular shape, in plan view, whose longer side is transverse to the longitudinal axis X of the tray 2.

[0020] According to the example shown in Figures 3 and 4, each dividing element 9, i.e. a rear abutment 10 or a front abutment 11, is a tooth having a substantially trapezoidal profile.

[0021] As shown in Figures 3 and 4, the tray 2 further includes a pocket 14 beside the housing 4. The pocket 14 is configured to house objects, such as sponges or bags. In particular, the pocket 14 extends along an edge larger than the housing 4; in the shown example, the pocket 14 extends along the rear edge 6 or the front edge 8.

[0022] As shown in Figures 1 and 2, each container 3 is configured to engage one or more seats 13.

[0023] Generally, each container 3 has a parallelepiped shape defined by a support wall 15, a rear wall 16, a right wall 17, a front wall 18 and a left wall 19. The support wall 15 has a shape, in plan view, complementary to a seat 13 or to more adjacent seats 13.

[0024] The rear wall 16 and the front wall 18 are configured to be arranged close to the rear edge 6 and, respectively, to the front edge 8. The container 3 has an inner cavity 20 configured to house the waste and an opening 21, which is substantially opposed to the support wall 15 and which connects the inner cavity 20 with the outside, namely is configured to allow the insertion of the waste in the inner cavity 20 of the container 3.

[0025] According to the shown example, the front wall 18 and the rear wall 16 of each container 3 are parallel and opposed to each other. Analogously, the right wall 17 and the left wall 19 are parallel and opposed to each other. The front wall 18 and the rear wall 16 each have an extension that is an integer multiple of the extension of a seat 13 along the longitudinal axis X of the tray 2.

[0026] The dimensions of each container 3 are hereinafter defined according to a reference system X'Y'Z', in which: the axis X' is coplanar to the support wall 15 and, in use, is substantially parallel to the front wall 18 and to the rear wall 16; the axis Y' is coplanar to the support wall 15 and is perpendicular to the axis X' (in

particular the axis Y' is parallel to the right wall 17 and to the left wall 19); the axis Z' is perpendicular to the support wall 15.

[0027] In particular, each container 3 has:

a width 1, corresponding to the extension of the rear wall 16 or of the front wall 18 along the axis X';
a thickness s, corresponding to the extension of the right wall 17 or of the left wall 19 along the axis Y'; and
a height h, corresponding to the extension of the side walls of the container, namely the rear wall 16 or the front wall 18 or the right wall 17 or the left wall 19, along the axis Z'.

[0028] The right wall 17 and the left wall 19 of the container 3 are configured to be arranged near the right edge 7 or the left edge 5 of the housing 4.

[0029] As shown in Figures 1, 2 and 9, the tray 2 can house a plurality of containers 3 selected within a group of different containers 3.

[0030] For example, the containers 3 may differ at least for one or more of the following dimensions: width 1, thickness s, height h.

[0031] Some examples of containers 3 that can be housed in the tray 2 are shown hereinafter.

[0032] In Figure 5, 3I indicates an example of a container 3 having a width 1I corresponding to the extension of two adjacent seats 13, a thickness sI corresponding to the extension of the left edge 5 or of the right edge 7 of the tray 2, and a height hI.

[0033] In Figure 6, 311 indicates a further example of the container 3. The width 11I of the container 311 is equal to the width 1I of the container 31, namely the width 11I is equal to the extension of two adjacent seats 13. The height h11I of the container 311 is lower than the height hI of the container 31.

[0034] In Figure 7, 3111 indicates a further example of a container. The container 3111 has a width 111I corresponding to the extension of a single seat 13, and a height h111I.

[0035] In Figure 8, 3IV indicates a further example of a container. The container 3IV has a width 1IV equal to the container 3111, namely a width 1IV equal to the extension of a single seat 13, and a height hIV lower than the height h111I of the container 3111.

[0036] As shown in the figures, each container 3 has one or more grooves 22, each of which is configured to engage with an abutment 9 of the tray 2. As shown in the figures, the abutments 9 of the tray 2 are equal to each other and have a trapezoidal profile with a conical shape pointing upwards, i.e. the larger base of the trapezoidal profile substantially lies on the support plane n. Each groove 22 is complementary to the abutments 9 of the tray 2.

[0037] As shown in Figures 6 and 8, the containers 311 or 3IV having a lower height h11I or hIV also show a section or volume increase. In particular, the side walls (i.e. the rear wall 16, the right wall 17, the front wall 18 and the

left wall 19) of the container 311 or 3IV have an outward-sloping section 30, this sloping section 30 allowing an increase of the volume, namely of the containment capacity of the container 311 or 3IV.

[0038] Advantageously, the sloping section 30 allows adapting the groove 22 to the abutment 9 while maintaining an aesthetic/dimensional uniformity between the grooves 22 of the containers 3 arranged inside the tray 2. Therefore, although containers 3 of different heights are arranged inside the tray 2, the width and sloping of the respective grooves 22 are substantially uniform in all containers 3.

[0039] Moreover, the sloping of the grooves 22 substantially resembles the contour formed between two adjacent containers. In this way, the same visual impact is advantageously maintained, whatever the type and the mutual arrangement of the containers 3.

[0040] As shown in the drawings, the containers 3 and 311 shown in Figures 5 and 6 have a groove 22 on both the rear wall 16 and the front wall 18. The groove 22 is substantially arranged in the middle of a respective wall, namely at the passage, in use, between two adjacent seats 13. The groove 22 is substantially parallel to the axis Z' of the container 3.

[0041] As shown in Figures 5 to 8, each container 3 advantageously has a groove 23 formed on the right wall 17 and on the left wall 19 and substantially parallel to the axis Z'. Such groove 23 allows applying a retractable handle 24 to the container 3, namely each groove 23 provides inside the container a continuous and smooth thickness to which the handle 24 is fastened. In this way, the container 3 is free from inner protrusions (generally present in containers of known types) which may break the bag in use or during the extraction. In other words, the groove 23 provides inside the container 3 a sliding surface on which the waste bag can slide without stumbling in use. At the same time, the groove 23 provides a sufficient thickness to fasten the handle 24 to the container 3. Therefore, advantageously, each groove 23 allows a retractable connection between the handle 24 and the container 3.

[0042] As shown in Figure 1, in use a user lays a tray 2 on a support plane n with its housing 4 facing upwards.

[0043] Then she/he arranges in the tray 2 one or more containers 3 selected within a group of different containers 3. In particular, the containers 3 may differ for their: width l, thickness s or height h.

[0044] The containers 3 are selected according to the available space in which the waste collection set 1 may be placed. For example, the type and the arrangement of the containers 3 may be chosen depending on the size and position of the siphon of a sink.

[0045] The containers 3 are inserted in the tray 2 and are kept in a predetermined position by form coupling, i. e. by the way they fit together, occurring between each container 3 and the respective seats 13 of the tray 2.

[0046] Figure 1 shows a first waste collection set comprising a tray 2, a container 311, two containers 3111

and a container 3IV. In the example shown in Figure 1:

- a container of type 311 is inserted in the seat 131;
- a container of type 3IV is inserted in the seat 1311;
- a container of type 311 occupies the seats 13111 and 13IV; and
- a container of type 3111 occupies the seat 13V.

[0047] Figure 2 shows the same set 1 of Figure 1 in which the containers 3 are arranged in a different order. In particular:

- a container of type 3111 occupies the seat 131;
- a container of type 3111 occupies the seat 1311;
- a container of type 311 occupies the seats 13111 and 13IV; and
- a container of type 3V occupies the seat 13V.

[0048] Figure 9 indicates with the reference number 101 a variant of the separate waste collection set 1 according to the present invention.

[0049] In the example shown in FIG. 9, the composition of the selected containers 3 is different. In particular, in the set 101 shown in Figure 9:

- a container of type 31 occupies the seats 131 and 1311;
- a container of type 3111 occupies the seat 13111;
- a container of type 31 occupies the seats 13IV and 13V. The waste collection set 101 may obviously have a plurality of different configurations depending on the type and position of each container 3.

[0050] For example, the waste collection set 1 shown in Figures 1 and 2 may implement the following alternative combinations of containers:

- 3111, 311, 3111, 3IV;
- 3111, 3111, 3IV, 311;
- 3IV, 3111, 3111, 311;
- 3IV, 3111, 311, 3111;
- 311, 3111, 3IV, 311.

[0051] Analogously, the waste collection set 101 shown in Figure 9 may implement the following alternative combinations of containers:

- 31, 31, 311;
- 311, 31, 31.

[0052] A plurality of waste collection sets, different by number, type and arrangement of the containers 3, may obviously be provided.

[0053] Moreover, a plurality of waste collection sets, different by the number of the seats 13 of the tray 2 (and consequently by the number and arrangement of the containers), may be provided.

[0054] The waste collection set of the type described

above has the advantage of being extremely flexible and allowing the best possible combination to optimize the available collection space. In particular, in the case where the waste collection set 1 is arranged below the sink, containers 3 with a lower height h may be arranged only below the siphon in order to optimize the available waste collection space.

[0055] Furthermore, the waste collection set of the type described above allows having an ordered and coordinated array of containers 3 and, therefore, makes the set of separate waste collection containers 3 aesthetically pleasing to the user's eye.

[0056] Moreover, the possibility of using containers 3 having at least one different dimension, selected among width 1, height h and thickness s, allows the user to choose the space of each container 3 depending on her/his needs. For example, she/he may provide a container 3 for plastic waste larger than a container 3 for organic waste. Finally, the use of dimensionally different containers 3 enables the user to find the correct container 3 in a faster and more intuitive way.

[0057] Furthermore, the possibility of using trays 2 with different number of seats 13 allows a greater choice of sets suitable for any type of drawer or compartment.

Claims

1. Separate waste collection set (1; 101) comprising a plurality of containers (3; 31; 311; 3111; 3IV), a tray (2) configured to house said containers (3; 3I; 3II; 3III; 3IV); wherein each container (3; 31; 311; 3111; 3IV) is selected in a group of different containers (3; 3I; 3II; 3III; 3IV).
2. A set (1; 101) according to claim 1, wherein the tray (2) has a plurality of seats (13) delimited by one or more dividing elements (9; 10, 11); wherein each container (3; 31; 311; 3111; 3IV) is a cup-shaped body having an inner cavity (20) and a substantially rectangular parallelepiped shape, wherein each container (3; 3I; 3II; 3111; 3IV) has a support wall (15) complementary to one or more seats (13).
3. Set (1; 101) according to any one of the preceding claims and comprising a plurality of containers (3I, 3II; 3111; 3IV), wherein at least one container (3; 31; 311; 3III; 3IV) has a height (h), namely an extension along an axis perpendicular to a support plane (n) for the tray (2), lower than the height (h) of the other containers (3; 3I; 311; 3111; 3IV).
4. A set (1; 101) according to any one of the preceding claims, wherein each container (3; 3I; 3II; 3III; 3IV) has the following dimensions: a width (1), a thickness (s) and a height (h); wherein two containers (3; 31; 311; 3111; 3IV) differ for at least one of the following dimensions: width (1) or height (h).
5. Set (1; 101) according to any one of the preceding claims, wherein a container (3; 31; 311; 3111; 3IV) is configured to engage a plurality of seats (13); wherein the container (3; 31; 311; 3111; 3IV) has one or more reference elements (22), each of which is configured to cooperate with a respective dividing element (9; 10, 11) of the tray (2) in order to fasten said container (3; 31; 311; 3111; 3IV) inside said tray (2).
6. Tray for a set (1; 101) according to any one of the preceding claims, wherein the tray (2) has a housing (4) for containers (31; 311; 3111; 3IV); wherein the dividing elements (9; 10, 11) divide said housing (4) into a plurality of seats (13); wherein the dividing elements (9; 10, 11) are abutments (10, 11) at least partially protruding inside a housing (4) of the tray (2).
7. A tray according to Claim 6, comprising: a rear edge (6), a front edge (8), a right edge (7) and a left edge (5) for laterally delimiting said housing (4); wherein each abutment (10, 11) protrudes from a respective edge (6, 8) inside the housing (4).
8. A tray according to claim 7, wherein each abutment (10, 11) has a substantially trapezoidal profile.
9. A container for a set according to any one of claims 1 to 5, having a cup-shaped body with an inner cavity (20) and a substantially rectangular parallelepiped shape; wherein each container (3; 3I; 3II; 3III; 3IV) has a base complementary to one or more seats (13) of said tray (2) and is configured to engage, in use, one or more seats (13) of said tray (2); wherein the container (3; 31; 311; 3111; 3IV) has one or more reference elements (22) configured to cooperate, in use, with a respective dividing element (9; 10, 11) in order to fasten said container (3; 31; 311; 3111; 3IV) inside the tray (2).
10. A container according to claim 9, wherein the reference element (22) is a groove with a trapezoidal profile.
11. A container according to claim 9 or 10, wherein if the height (hII; hIV) of the container (311; 3IIV) is lower than a predetermined value, said container (311; 3IIV) has a volume increase; in particular, the side walls (16, 17, 18, 19) of the container (311; 3IIV) have an outward-sloping section (30) in order to increase the volume of said container (311 or 3IV).
12. A container (3; 31; 311; 3111; 3IV) according to any one of Claims 9 to 11 and having a further groove (23), which at least partially protrudes in the inner cavity (20) of the container (3; 31; 311; 3111; 3IV) and forms a smooth sliding surface on which, in use, a waste bag can slide without stumbling; wherein the

container (3; 31; 311; 3111; 3IV) comprises a handle (24) attached to a wall (16, 17) of said container (3; 31; 311; 3111; 3IV) at a respective further groove (23).

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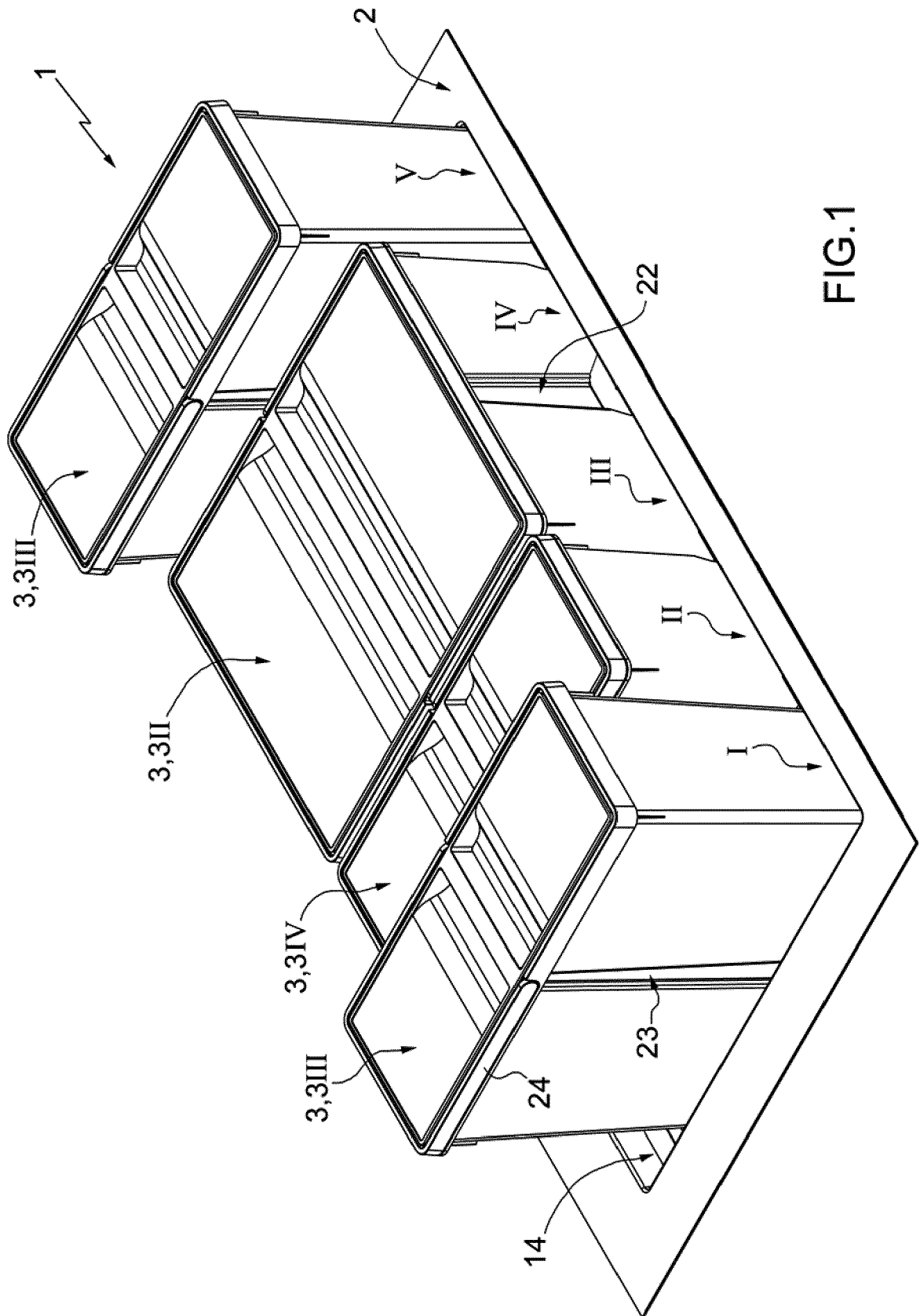


FIG.1

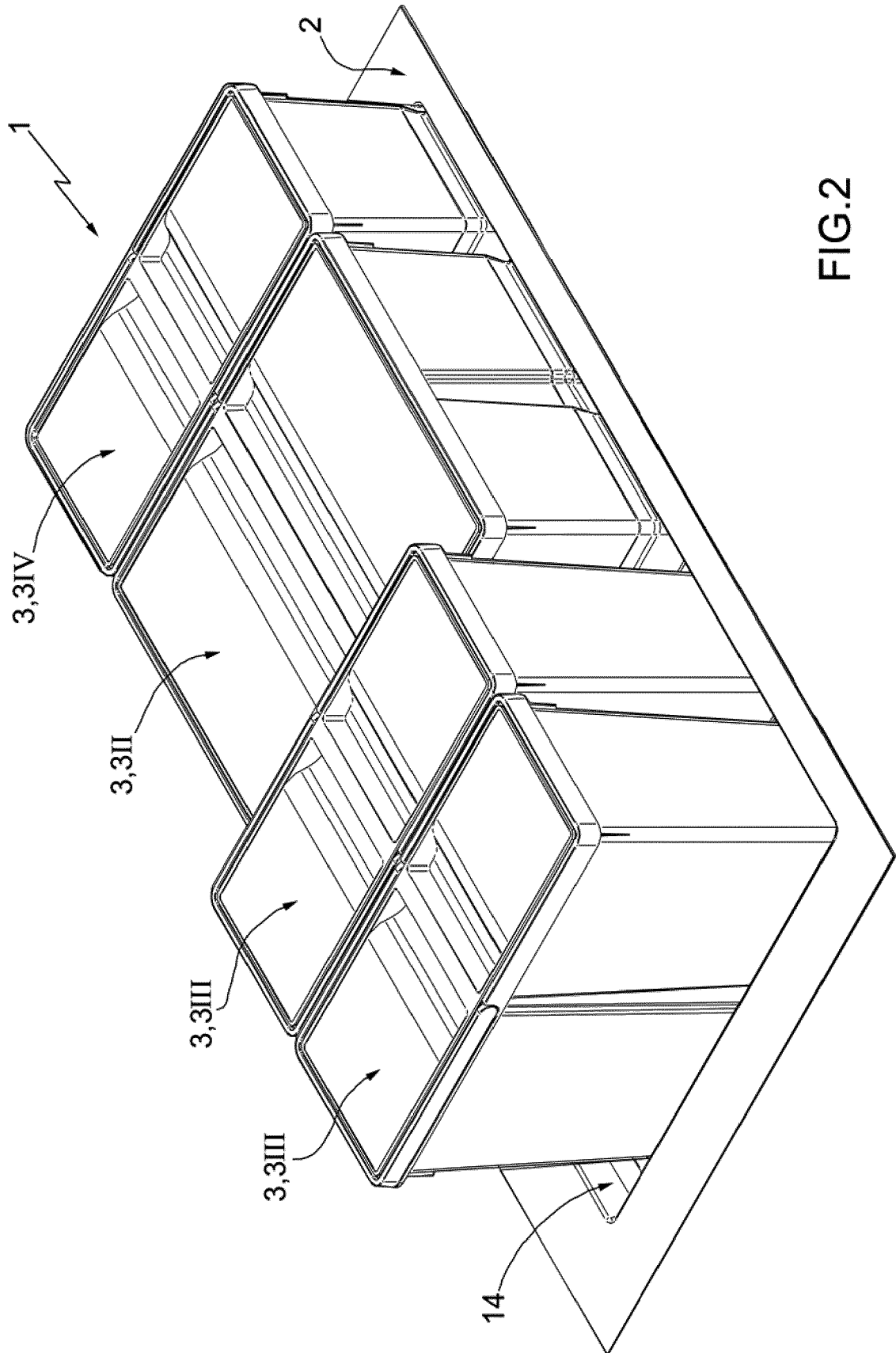


FIG.2

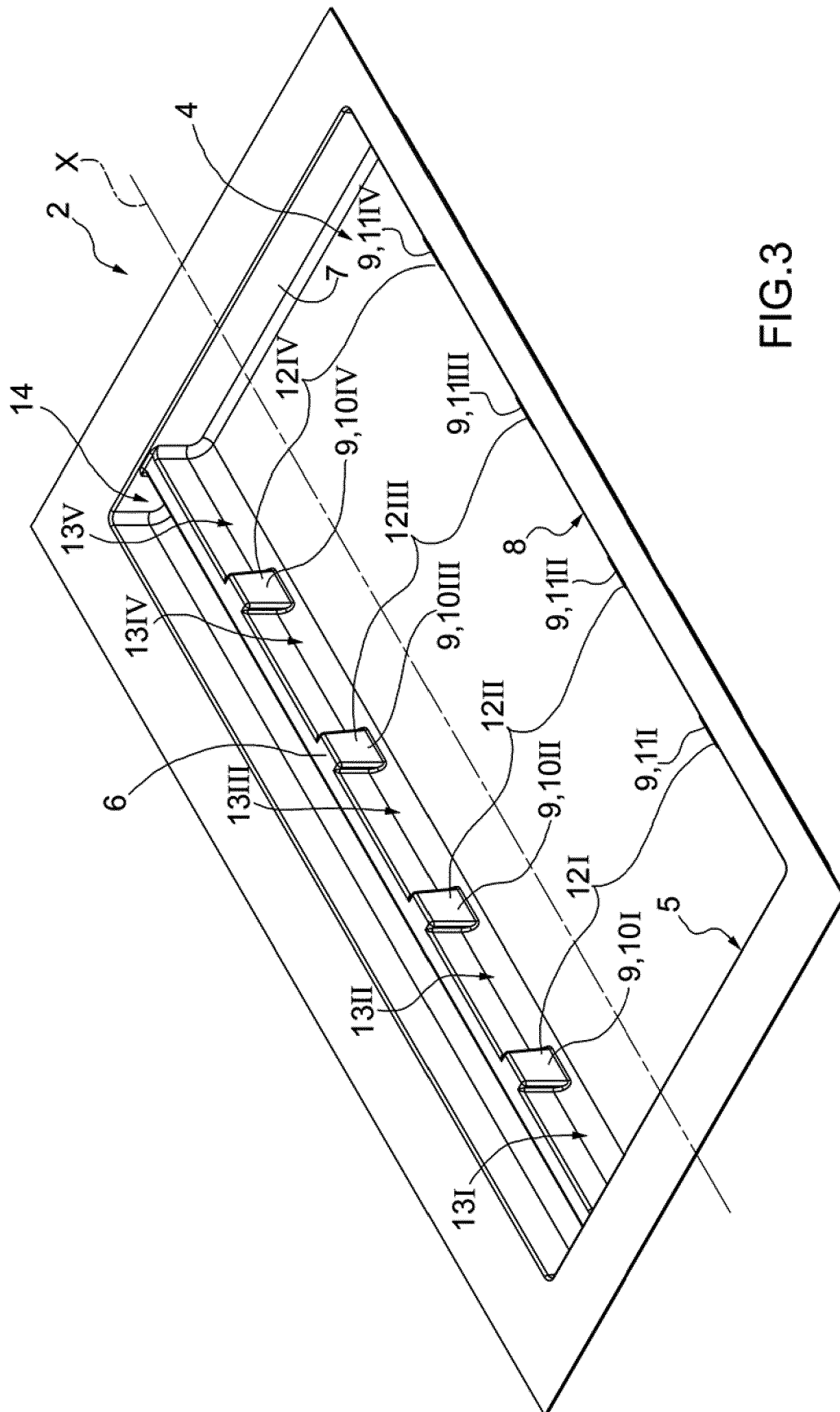


FIG.3

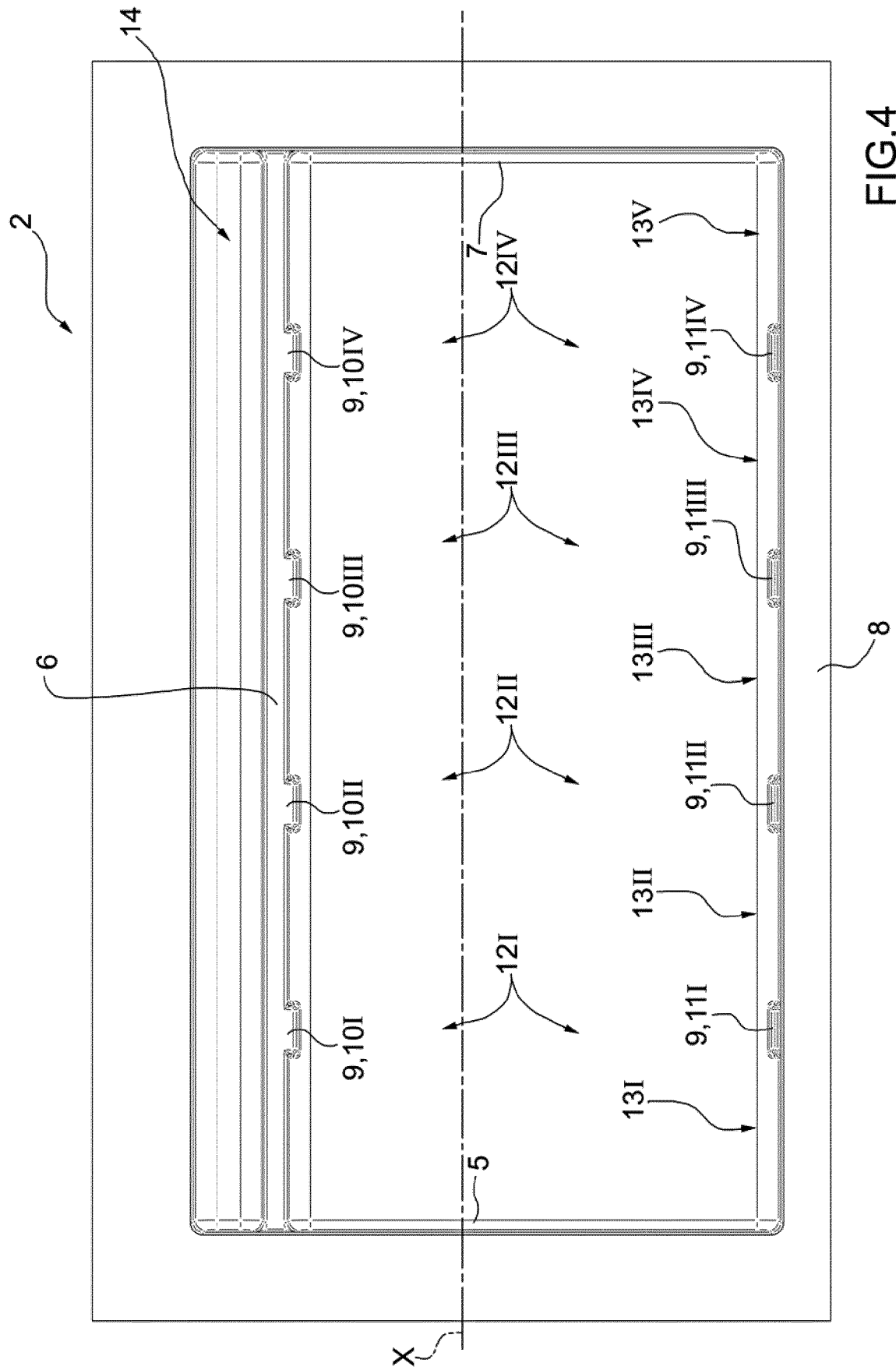


FIG.4

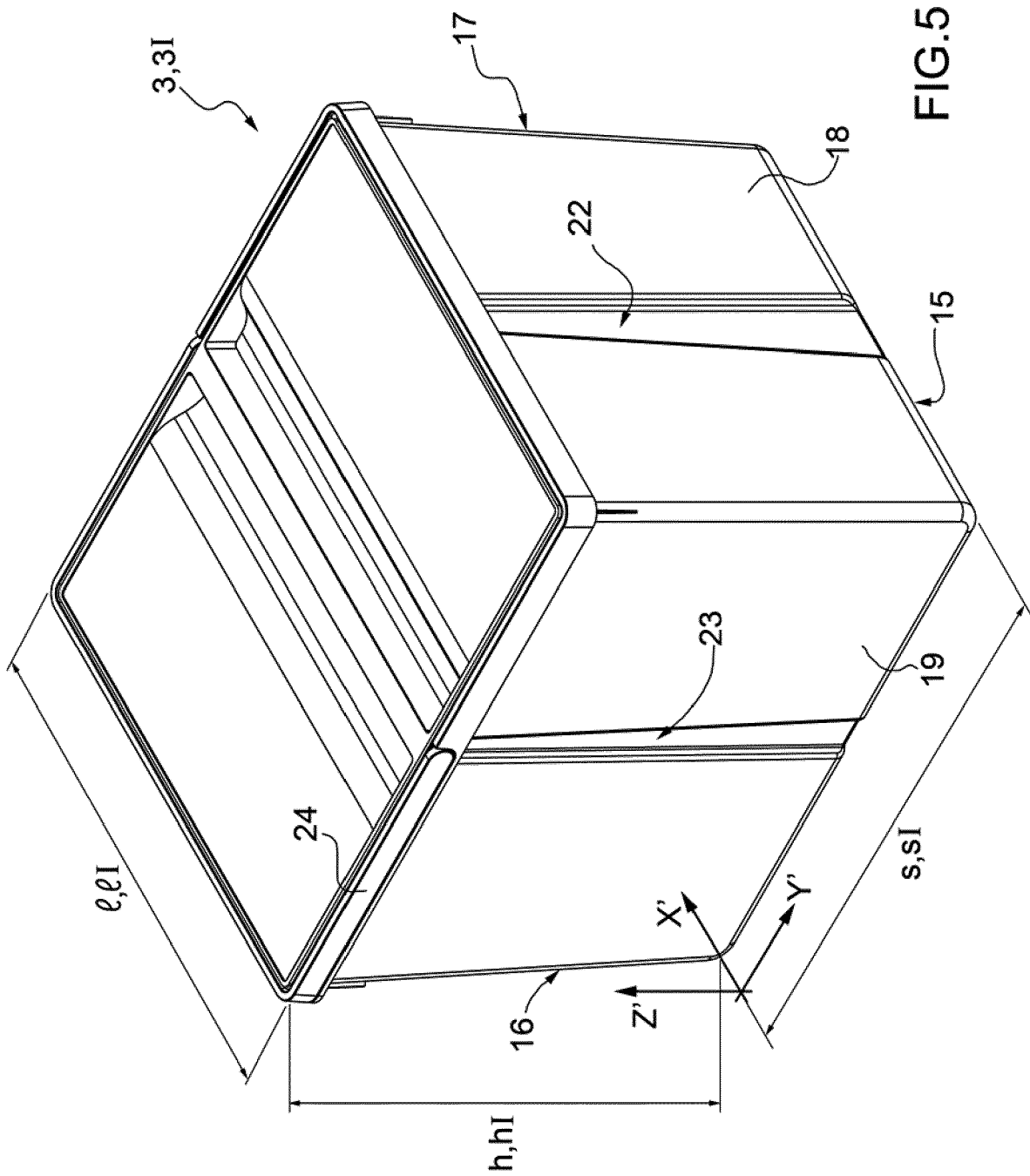
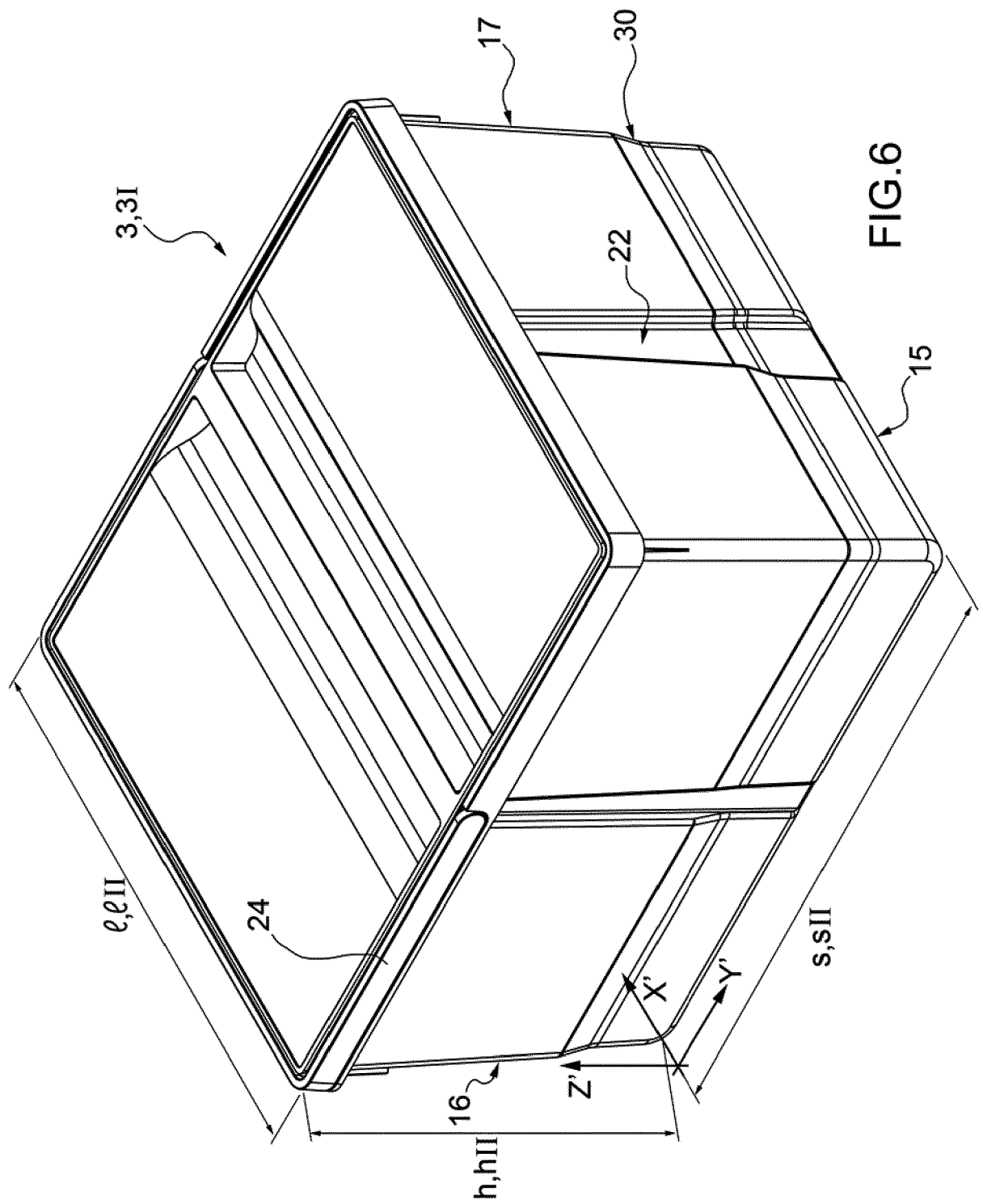
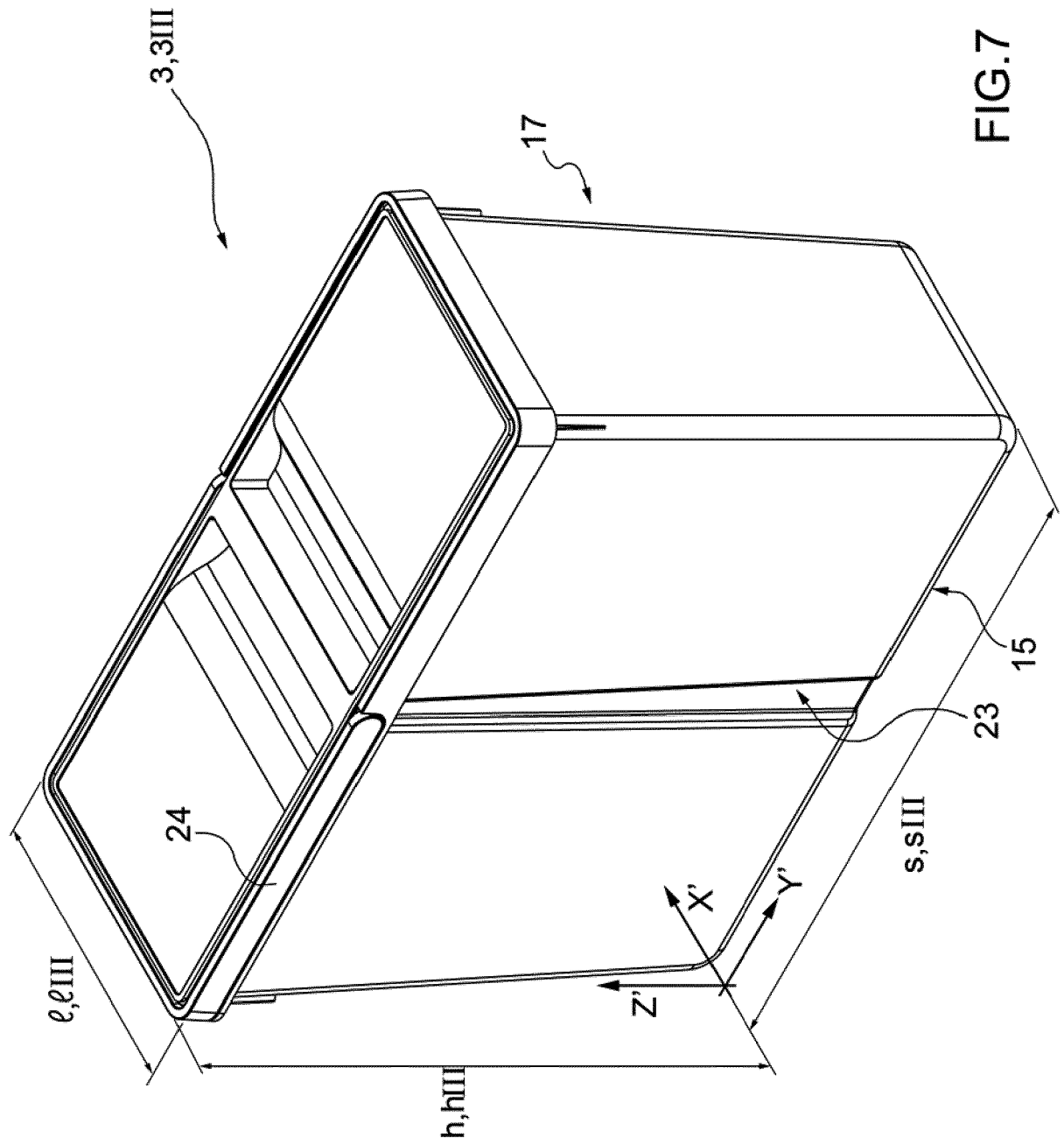


FIG. 5





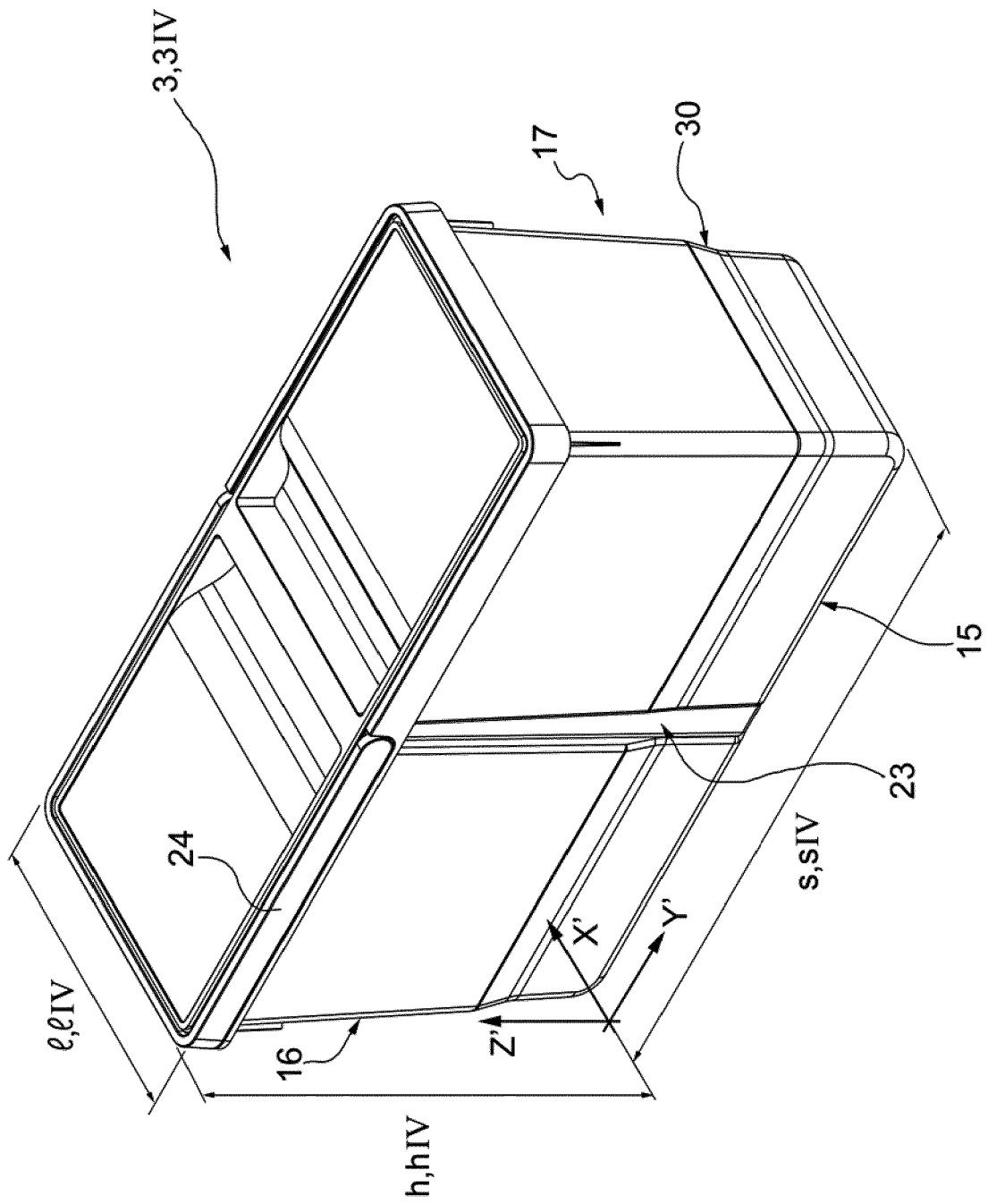


FIG.8

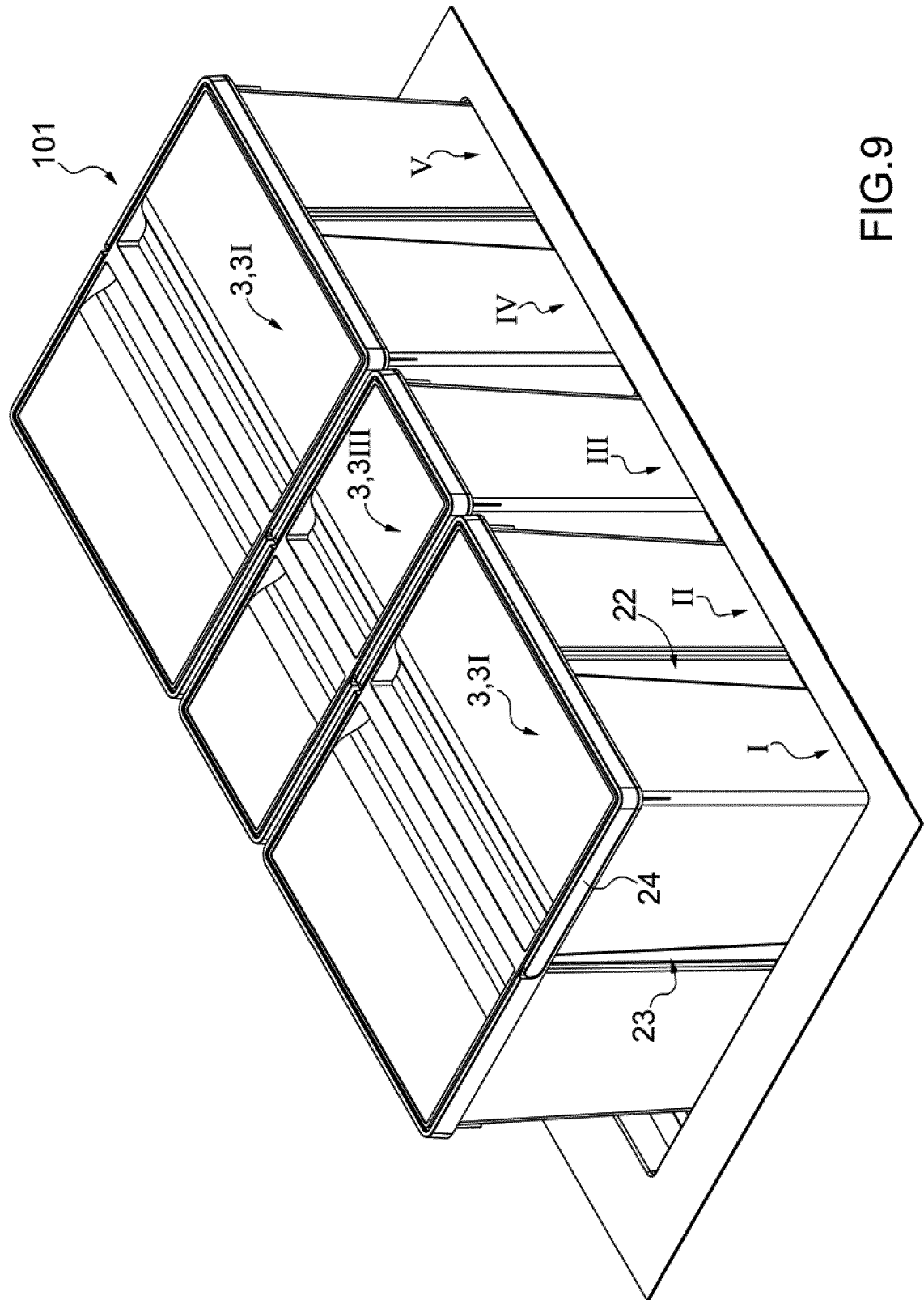


FIG.9



EUROPEAN SEARCH REPORT

Application Number
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 15 November 2017	Examiner Smolders, Rob
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