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(54) **WASTE COLLECTION CONTAINER**

(57) The waste collection container comprises a framework including a quadrangular structural frame (7) defining an open base (4) on which there are installed hinged discharge flaps (5a, 5b); two facing structural arches (8), each of which has an upper cross-piece (8a) from which two legs (8b) extend that are connected to respective corners of said structural frame (7); and a structural bridge (9) connected at its ends to said

cross-pieces (8a) and on which an upper actuation and grip element (6) is installed, said element being used to grip and lift the container and to actuate an opening and closing mechanism for opening and closing the discharge flaps (5a, 5b). A plurality of panels fixed to the framework form an upper wall (1), front and rear walls (2a, 2b) and side walls (2c, 2d). In one embodiment, the structural frame defines a trapezoidal base.

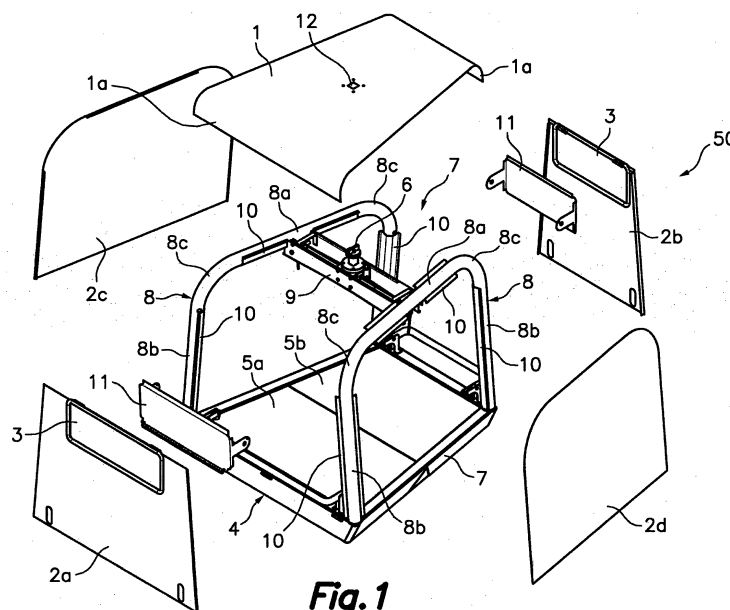


Fig. 1

Description

Technical Field

[0001] The present invention generally relates to a waste collection container, and more particularly to a waste collection container for being installed in a public thoroughfare for the selective collection of different types of recyclable waste.

Background of the Invention

[0002] Waste collection containers envisaged for being installed in a public thoroughfare for the selective collection of different types of recyclable waste are well-known, said containers essentially comprising an upper wall, side walls provided with at least one loading opening, an open base in which there are installed one or more hinged discharge flaps, an opening and closing mechanism for opening and closing said discharge flaps, and an actuation and grip element projecting from said upper wall, which can be gripped and actuated by a head of a mechanical arm installed in a collection truck for lifting the container and actuating said opening and closing mechanism for opening and closing the discharge flaps.

[0003] Patent document ES 1055948 U describes a selective urban waste collection container of the type discussed above, which is manufactured using glass fiber-reinforced polyester and has a rectangular base, a curved upper wall, and side walls the corners of which are configured in the form of columns. The side walls have ribs providing structural rigidity. One drawback of this container is that the upper and side walls are made of a single piece of glass fiber-reinforced polyester and are attached in a non-detachable manner to the corners in the form of a column, making it impossible to replace a damaged wall and making the repair thereof difficult. Furthermore, the monolithic construction of this container does not allow a modular design by means of which different container models can be made from different combinations of common basic pieces.

[0004] On the other hand, surface containers with a trapezoidal or triangular geometry are known that are conceived for being grouped together in an ordered manner, such as in patent document WO2007007023, for example, which describes a container with its faces sides arranged at a 45° angle with respect to a front face of the container, where the dumping opening is located, such that four of these containers can be grouped around a center, leaving larger front faces on the outside of the group. They can also be grouped forming a linear assembly, arranging the containers with their side walls adjacent to and facing one another, but alternating containers with a first orientation with containers with a second opposite orientation.

[0005] The container described in the mentioned patent document WO2007007023 only has one dumping opening that is accessible only from the front face, such

that a rectilinear group only allows accessing, from one of its fronts, the dumping openings of half the containers. Furthermore, it is impossible to group more than four containers around a center such that they are all still accessible, and with fewer than four containers an aesthetically incomplete group is formed.

[0006] Other patent documents describe containers similar to the container described above which are based on the same idea but use different geometries, such as FR2718722 which uses containers with two perpendicular faces attached by a third semicircular face, such that four containers can be grouped together, leaving said semicircular faces on the outside of the group. This solution suffers the same problems as those described in the preceding case.

Description of the Invention

[0007] The present invention helps to overcome the preceding and other drawbacks by providing a waste collection container of the type envisaged for being installed in a public thoroughfare for the selective collection of different types of recyclable waste, which comprises an inner framework and upper and side walls formed by a plurality of panels detachably fixed to said framework. The framework includes a quadrangular structural frame, for example a rectangular or trapezoidal structural frame, defining an open base in which there are installed one or more hinged discharge flaps; two facing structural arches, each of which has an upper cross-piece from which two legs extend that are connected to respective corners of said structural frame; and a structural bridge connected at its ends to middle areas of said cross-pieces. An upper actuation and grip element is installed in said structural bridge, said element being used to grip and lift the container. The container includes an opening and closing mechanism for opening and closing said discharge flaps which is actuated by means of said actuation and grip element.

[0008] This construction provides an extraordinarily strong and resistant structure while at the same time allows the panels forming the upper and side walls to be individually disassembled for repair or replacement, which prolongs the service life of the container. The particular construction of the container of the present invention furthermore allows a modular design by means of which a variety of different container models can be made from a combination of pieces, including common basic pieces.

[0009] In a preferred embodiment, each of said structural arches of the framework is formed by a single bent tubular element defining the cross-piece and said two legs. Preferably, each structural arch furthermore includes curved sections connecting the cross-piece and the legs, in which case the panel forming the upper wall has curved end sections adapting to said curved sections.

[0010] Each of the cross-pieces and each of the legs

has fixed thereto at least one support element made of a bent plate, which defines securing tabs where the mentioned panels forming the upper wall, the front and rear walls, and the side walls are secured in a detachable manner, for example by means of rivets. In one particular embodiment, each of said support elements has two of said securing tabs arranged on different sides of the cross-piece or leg of the framework, and two respective panels of those forming the upper wall, the front and rear walls, and the side walls are secured in these two tabs.

[0011] The tubular elements forming the structural arches of the framework are preferably metallic elements, for example of iron, stainless steel, or aluminum. When the tubular elements are made of iron, the plates forming the support elements can also be made of iron and be welded directly to the tubular elements. When the tubular elements are made of stainless steel or aluminum, the support elements will preferably be attached to the tubular elements by means of rivets or adhesive, avoiding welding.

[0012] The container of the present invention can have a square, rectangular or trapezoidal base, and in any case it can comprise a single loading opening located in one of the front or rear walls, or can comprise two of the mentioned loading openings located on the opposite front and rear side walls. Optionally, each of the loading openings has a swinging or hinged door.

[0013] In a specific embodiment in which the modular container of the present invention has a trapezoidal base, the container comprises a front wall and a rear wall, both parallel to one another in plan view, one being longer than the other, and two side walls joining the front wall with the rear wall, said side walls being located in two converging planes, such that the rear ends of the side walls are closer to one another than the front ends thereof.

[0014] These walls demarcate the container forming a trapezoid in plan view, these walls being able to be connected to one another by means of ridges, rounded planes or small beveled planes.

[0015] The container also has a plurality of loading openings allowing users to dump waste into the container through said openings. These loading openings are accessible from two loading areas located on opposite faces of the container, a first loading area annexed to the front wall, and a second loading area annexed to the rear wall.

[0016] This configuration of the container having a trapezoidal base makes it possible to group a plurality of similar or analogous containers together, situating them with their side walls facing and adjacent to one another, thereby obtaining a group in which at least one of the loading openings of each of the containers is still accessible, which allows dumping waste into all the containers from one and the same front of the group.

[0017] The angle seen in plan view formed by the side walls with respect to the front wall is less than 90° to thus be able to group containers together forming an arch,

and greater than the 45° for being able to make arched groups consisting of more than four containers. This range of inclination also allows the difference in length between the rear wall and the front wall to not be excessive.

Brief description of the Drawings

[0018] The foregoing and other features and advantages will become more evident from the following detailed description of an embodiment in reference to the attached drawings, in which:

Figure 1 is an exploded perspective view of a waste collection container according to one embodiment of the present invention;

Figure 2 is a partial cross-section view illustrating the securing of panels forming walls to a framework of the container of Figure 1;

Figure 3 is a partial cross-section view illustrating the securing of the panels forming the walls to the framework according to an alternative embodiment of the container of the present invention;

Figure 4 is a front elevational view of a rectilinear group of five containers, including containers having a narrow rectangular, a wide rectangular base and a square base;

Figure 5 is a plan view of the group of containers of Figure 4;

Figure 6A is a side view of a container of a first type according to one embodiment of the present invention;

Figure 6B is a rear elevational view of the container of the first type;

Figure 6C is a front elevational view of the container of the first type;

Figure 6D is a top plan view of the container of the first type;

Figure 7A is a side view of a container of a second type according to another embodiment of the present invention;

Figure 7B is a rear elevational view of the container of the second type;

Figure 7C is a front elevational view of the container of the second type;

Figure 7D is a top plan view of the container of the second type;

Figure 8 is a plan view of a rectilinear group of five containers, alternating containers of the first type with containers of the second type;

Figure 9 is a plan view of an arched group of five containers, alternating containers of the first type with containers of the second type; and

Figure 10 is a plan view of a compact group of six containers, alternating containers of the first type with containers of the second type.

Detailed Description of an Embodiment

[0019] First in reference to Figure 1, reference number 50 designates a waste collection container according to one embodiment of the present invention, which comprises an inner framework including a trapezoidal structural frame 7 defining an open base 4 in which there are installed a pair of hinged discharge flaps 5a, 5b, two facing structural arches 8, each of which has an upper cross-piece 8a from which two legs 8b extend that are connected to respective corners of said structural frame 7, and a structural bridge 9 connected at its ends to middle areas of said cross-pieces 8a. An actuation and grip element 6 associated with a conventional opening and closing mechanism is installed in said structural bridge 9 for gripping and lifting the container 50 and for opening and closing said discharge flaps 5a, 5b.

[0020] Each of said structural arches 8 includes curved sections 8c connecting the cross-piece 8a and the legs 8b, and is formed by a single bent tubular element defining the cross-piece 8a and said two legs 8b and said curved sections 8c. In the illustrated embodiment, the tubular element forming each structural arch is a stainless steel tube having a circular cross-section, although the tube can optionally be made of other preferably metallic materials, such as iron or aluminum, and it can have other cross-section shapes. Furthermore, although in the illustrated embodiment the structural frame 7 has a trapezoidal shape, it could alternatively have any other quadrangular shape, for example a rectangular shape, without altering the principles of the present invention.

[0021] The container 50 further comprises an upper wall 1 and front and rear walls 2a, 2b and side walls 2c, 2d formed by respective panels fixed in a detachable manner to the framework, such that any of them can be disassembled and re-assembled or readily replaced. The panel forming the upper wall 1 has curved end sections 1a that adapt to the mentioned curved sections 8c of the structural arches 8 of the framework and a hole 12 through which the mentioned actuation and grip element 6 is arranged. In the panels forming two of the opposite side walls 2a, 2b, there are respective loading openings 3 and each loading opening 3 is associated with a swinging or hinged door 11.

[0022] The panels forming the upper wall 1, the front and rear walls 2a, 2b and the side walls 2c, 2d can be made from a range of materials, such as sheet metal, plastic, and glass fiber-reinforced polyester, among others.

[0023] To detachably secure the panels forming the upper wall 1, the front and rear walls 2a, 2b and the side walls 2c, 2d to the framework, each of the cross-pieces 8a and each of the legs 8b of the structural arches 8 has fixed thereto one or more support elements 10 which have securing tabs 10a where the panels forming the upper wall 1, the front and rear walls 2a, 2b and the side walls 2c, 2d are secured.

[0024] Figure 2 shows in detail one of said support el-

ements 10 according to one embodiment in which said support element 10 is made of a metal plate, preferably a stainless steel plate, suitably bend to define a concave section which is arranged such that it internally encompasses a portion of the tubular element forming the cross-piece 8a or a leg 8b of the structural arch 8, and two of said securing tabs 10a extending from different sides of the framework in directions perpendicular to one another, when the structural frame 7 is rectangular or square, or in directions close to perpendicular when the structural frame 7 is trapezoidal, as is the case of the container 50 illustrated in Figure 1.

[0025] The mentioned concave section of the support element 10 and the cross-piece 8a or leg 8b of the structural arch 8 have respective facing holes through which rivets 13 fixing the support element 10 to the structural arch 8 are installed. Alternatively, the support element 10 can be fixed to the structural arch 8 by welding or adhesive. The use of rivets is particularly suitable when the structural arch 8 and the support elements 10 are made of stainless steel or aluminum to prevent possible wear that the welding can cause in the material.

[0026] Two of the panels forming the upper wall 1, the front and rear walls 2a, 2b and the side walls 2c, 2d are fixed to the two securing tabs 10a of each support element 10. To that end, the panels have bends 14 on their edges that externally overlap the securing tabs 10a of the support element 10 and are fixed by means of rivets 15 installed through respective facing holes. Therefore, in the area of the bends 14 where the rivets 15 are installed, the panels forming the upper wall 1, the front and rear walls 2a, 2b and the side walls 2c, 2d are reinforced since they have twice the thickness.

[0027] Figure 3 shows an alternative way to attach the panels forming the upper wall 1, the front and rear walls 2a, 2b and the side walls 2c, 2d to the inner framework in the container of the present invention. Here, each of the panels forming the upper wall 1, the front and rear walls 2a, 2b and the side walls 2c, 2d have bends 16 on their edges that go around an inner portion of the tubular element forming the cross-piece 8a or leg 8b of the structural arch 8 of the inner framework. The mentioned bends 16 have end portions overlapping one another in a position adjacent to the tubular element forming the cross-piece 8a or leg 8b and fixed to the tubular element forming the cross-piece 8a or leg 8b by means of rivets 17 installed through respective facing holes. Therefore, in this embodiment the support element 10 shown in Figure 2 is omitted.

[0028] As is conventional, the actuation and grip element 6 of the container 50 of the present invention is configured such that it can be gripped and lifted together with the container 50 by a head of a mechanical arm installed in a collection truck, and said opening and closing mechanism for opening and closing the discharge flaps 5a, 5b can be actuated by the same head by means of the actuation and grip element 6 to empty the container 50.

[0029] Figures 4 and 5 show a front elevational view of a rectilinear group of five containers built as described in relation to Figures 1 to 3. This rectilinear group includes containers 53 having a narrow rectangular base, containers 54 having a wide rectangular base and containers 55 having a square base provided with different types of loading openings 3 for different kinds of waste.

[0030] All the containers 53, 54, 55 have loading openings 3 on opposite sides thereof. The containers 53 having a narrow rectangular base have loading openings 3 on both short sides of the rectangular base, whereas containers 54 having a wide rectangular base have loading openings 3 on both long sides of the rectangular base. In that sense, the rectilinear formation has two opposite main fronts and their loading openings 3 are accessible from both fronts.

[0031] Figures 6A, 6B, 6C and 6D show a container of a first type 51 according to one embodiment of the present invention, and Figures 7A, 7B, 7C and 7D show a container of a second type 52 according to another embodiment of the present invention. In both cases, the container 51, 52 comprises a bottom 4, an upper wall 1, a front wall 2a, a rear wall 2b and two side walls 2c, 2d.

[0032] The front and rear walls 2a, 2b are parallel to one another and located on opposite sides of the container 51, 52, whereas the side walls 2c, 2d are convergent and located on other opposite sides of the container 51, 52. The front wall 2a has a longer length than the rear wall 2b.

[0033] Both the container 51 of the first type and the container 52 of the second type has a loading opening 3 accessible from a first loading area located adjacent to the front wall 2a, and another loading opening 3 accessible from a second loading area located adjacent to the rear wall 2b, such that the container 51, 52 can be used from any of these two opposite, parallel faces.

[0034] The front wall 2a and the rear wall 2b are spaced from and connected to one another by the two side walls 2c, 2d, which are not parallel to one another and are located in two symmetrical converging planes with respect to the axis of the container 51, 52, such that the rear ends of the side walls 2c, 2d are closer to one another than the front ends.

[0035] The connection between said side walls 2c, 2d and said front wall 2a and rear wall 2b is performed, for example, by means of a small curved plane which can be a ridge or a small bevel.

[0036] Preferably, the base of the container 51 of the first type and of the container 52 of the second type includes discharge flaps 5a, 5b (not shown), and an actuation and grip element 6 associated with an opening and closing mechanism 6 is located in the upper wall 1, which allows gripping and lifting the container and opening and closing the discharge flaps 5a, 5b. Though not essential, the container 51 of the first type and the container 52 of the second type can have an inner framework such as the inner framework described above in relation to Figures 1, 2 and 3.

[0037] The container 51 of the first type has a larger capacity than the container 52 of the second type, since both front and rear walls 2a, 2b of the container 51 of the first type are longer than those of the container 52 of the second type. Nevertheless, both in the container 51 of the first type and in the container 52 of the second type, the angle formed in plan view by the side walls 2c, 2d with respect to the front wall 2a is, in this embodiment and in a non-limiting manner, about 80°.

[0038] All these features give the container 51, 52 a trapezoidal base. This geometry allows grouping a plurality of containers 51, 52 in an ordered manner in a plurality of possible configurations and with a variable number of containers 51, 52.

[0039] A first preferred arrangement shown in Figure 8 comprises a rectilinear group 20 formed by a plurality of containers of the first type 51 and a plurality of containers of the second type 52 alternating with one another, located with their respective side walls 2c, 2d facing and adjacent to one another, such that they have first and second opposite, main fronts 21, 22 in which the front wall 2a and rear wall 2b of the containers of the first type 51 and of the second type 52 are alternated. By means of a rectilinear group 20, all the containers 51, 52 and their loading openings 3 are accessible from the first and second fronts 21, 22 thereof.

[0040] A second preferred arrangement shown in Figure 9 comprises an arched group 30 formed by a plurality of containers of the first type 51 and a plurality of containers of the second type 52 alternating with one another, located with their respective side walls 2c, 2d facing and adjacent to one another, such that they have a first front 21 in which the front walls 2a of all the containers 51, 52 are located, and a second opposite front 21 in which the rear walls 2b of all the containers 51, 52 are located. By means of this arched group 30, all the containers 51, 52 and their loading openings 3 are accessible from the first and second fronts 21, 22 thereof.

[0041] A third preferred arrangement shown in Figure 10 comprises a compact group 40 formed by two rectilinear groups 20 similar to that described above in relation to Figure 8, arranged parallel to one another, each with their respective side walls 2c, 2d facing and adjacent to one another, and with the second fronts 22 of both rectilinear groups 20 located facing and adjacent to one another such that the first fronts 21 of both rectilinear groups 20 are accessible on opposite sides of the compact group 40. By means of this compact group 40, all the containers 51, 52 of the first rectilinear group 20 are accessible only from their first front 21, and all the containers 51, 52 of the second rectilinear group 20 are accessible only from their first front 21 located on the opposite side of the compact group 40.

[0042] In the embodiments shown in Figure 8, 6 and 7, containers of the first type 51 (shown in Figures 6A-6D) are alternated with containers of the second type 52 (shown in Figures 7A-7D), but it is obvious for the skilled person that different combinations of containers 51 of the

first type and containers 52 of the second type are possible, as is the use of containers of a single type, or even the use of containers of a third type or subsequent types having the same inclination of their side walls 2c, 2d, which would not entail any remarkable change in the groups 20, 30 and 40. Likewise, it would be perfectly feasible to change the number of containers 51, 52 forming each group.

[0043] The scope of the present invention is defined by the attached claims.

Claims

1. A waste collection container envisaged for being installed in a public thoroughfare for the selective collection of different types of recyclable waste, comprising an upper wall (1), front and rear walls (2a, 2b) and side walls (2c, 2d) provided with at least one loading opening (3), an open base (4) in which there are installed one or more hinged discharge flaps (5a, 5b), an opening and closing mechanism for opening and closing said discharge flaps (5a, 5b) and an upper actuation and grip element (6) by means of which the container is gripped and lifted and said opening and closing mechanism is actuated, **characterized by** comprising a framework including a quadrangular structural frame (7) defining said base (4), two facing structural arches (8), each of which has an upper cross-piece (8a) from which two legs (8b) extend that are connected to respective corners of said structural frame (7), and a structural bridge (9) connected at its ends to middle areas of said cross-pieces (8a), where said actuation and grip element (6) is installed on said structural bridge (9), and where said upper wall (1) and said front and rear walls (2a, 2b) and said side walls (2c, 2d) are formed by a plurality of panels detachably fixed to said framework.
2. The container according to claim 1, **characterized in that** each of said structural arches (8) is formed by a single bent tubular element defining the cross-piece (8a) and said two legs (8b).
3. The container according to claim 2, **characterized in that** each of the cross-pieces (8a) and legs (8b) has fixed thereto at least one support element (10) made of a bent plate defining securing tabs (10a) where said panels forming the upper wall (1), the front and rear walls (2a, 2b) and the side walls (2c, 2d) are secured.
4. The container according to claim 3, **characterized in that** each of said support elements (10) has two of said securing tabs (10a) on different sides of the framework where two respective panels of those forming the upper wall (1), the front and rear walls (2a, 2b) and the side walls (2c, 2d) are secured.
5. The container according to claim 2, **characterized in that** said panels forming the upper wall (1), the front and rear walls (2a, 2b) and the side walls (2c, 2d) have bends (16) on their edges that go around an inner portion of the tubular element forming the cross-piece (8a) or leg (8b) of the structural arch (8), and said bends (16) have end portions overlapping one another and fixed to the tubular element forming the cross-piece (8a) or leg (8b) by means of rivets (17) installed through respective facing holes.
6. The container according to any one of claims 2 to 5, **characterized in that** each of said structural arches (8) includes curved sections (8c) connecting the cross-piece (8a) and the legs (8b), and the panel forming the upper wall (1) has curved end sections (1a) that are adapted to said curved sections (8c).
7. The container according to any one of the preceding claims, **characterized by** comprising two of said loading openings (3), each located in one of the front and rear walls (2a, 2b), opposite one another.
8. The container according to any one of claims 1 to 6, **characterized in that** said loading opening (3) is located in one of the front and rear walls (2a, 2b).
9. The container according to claim 7 or 8, **characterized in that** each loading opening (3) has associated a swinging or hinged door (11).
10. The container according to any one of the preceding claims, **characterized by** having a rectangular, square or trapezoidal base.
11. The container according to any one of claims 1 to 7, **characterized in that** the front wall (2a) and the rear wall (2b) are parallel to one another, spaced from one another and connected by means of the side walls (2c, 2d), where the front wall (2a) has a longer length than the rear wall (2b), and where the side walls (2c, 2d) are in converging planes, the front wall (2a) is annexed to a first loading area and the rear wall (2b) is annexed to a second loading area, at least one loading opening (3) is accessible from said first loading area and at least another loading opening (3) is accessible from said second loading area, and said side walls (2c, 2d) are configured for being able to be located such that they are facing and adjacent to side walls (2c, 2d) of other similar containers (51, 52) forming different groups, which allows accessing the first or the second loading area of all the containers (51, 52) from one and the same first front (21) and/or from one and the same second front (22).
12. The container according to claim 11, **characterized by** having a symmetrical trapezoidal base.

13. The container according to claim 11 or 12, **characterized in that** the side walls (2c, 2d) form in a plan view an angle greater than 45° and less than 90° with respect to the front wall (2a). 5
14. The container according to claim 11 or 12, **characterized by** being grouped with other similar containers (51, 52) forming a rectilinear group (20) in which the containers (51, 52) are located laterally adjacent to one another such that in each of the first and second fronts (21, 22) of said rectilinear group the front walls (2a) and rear walls (2b) of the containers (51, 52) are alternated, and in which the loading openings (3) of all the containers (51, 52) are accessible from both the first and second fronts (21, 22). 10 15
15. The container according to claim 11 or 12, **characterized by** being grouped with other similar containers (51, 52) forming a arched group (30) in which the containers (50, 51) are situated laterally adjacent to one another such that the front walls (2a) of all the containers (51, 52) are located in the first front (21) of the group and the rear walls (2b) of all the containers (51, 52) are located in the second front (22) of the group, and in which the loading openings (3) of all the containers (51, 52) are accessible from both the first and second fronts (21, 22). 20 25
16. The container according to claim 15, **characterized by** being grouped with other similar containers (51, 52) forming a compact group (40) made up of two of said rectilinear groups (20) of containers (51, 52) arranged parallel to one another with their second fronts (22) facing and adjacent to one another and with their first fronts (21) located on opposite sides of said compact group (40), in which the loading openings (3) of half of the containers (51, 52) are accessible from one of the first opposite fronts (21) of the compact group (40) and the loading openings (3) of the other half of the containers (51, 52) are accessible from the other one of the first opposite fronts (21) of the compact group (40). 30 35 40
17. The container according to any one of claims 14, 15 or 16, **characterized in that** said rectilinear group (20), said arched group (30), or said compact group (40) comprises containers (51, 52) of different types provided with different widths to adapt the capacity of each container (51, 52) to the type of waste intended to be collected. 45 50

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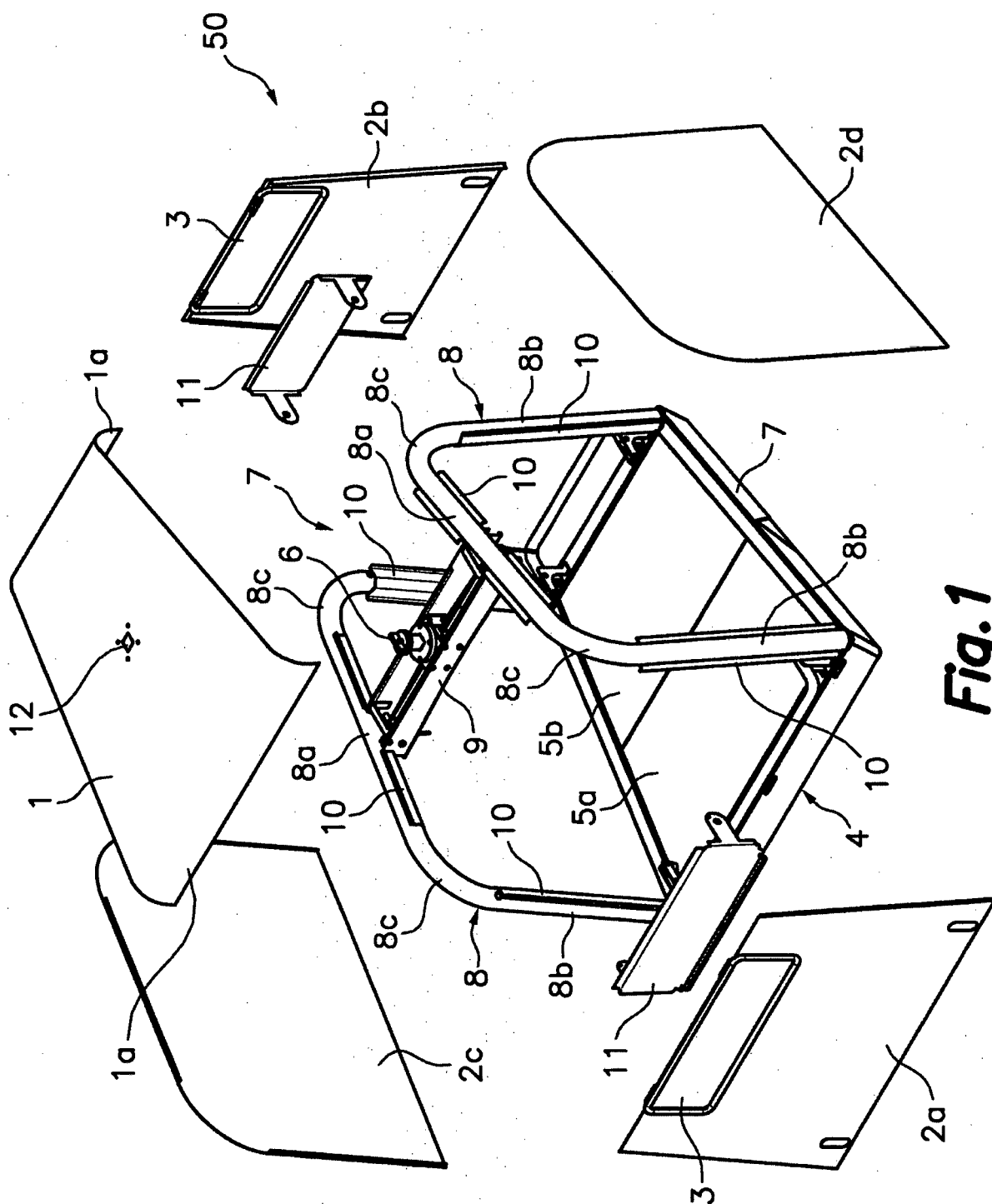


Fig. 1

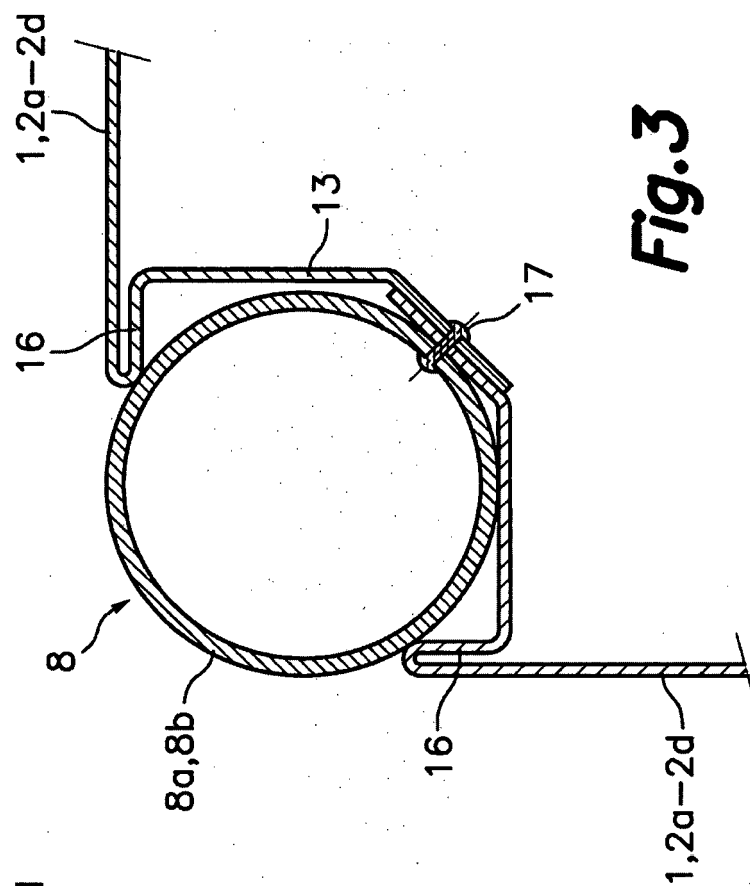


Fig. 2

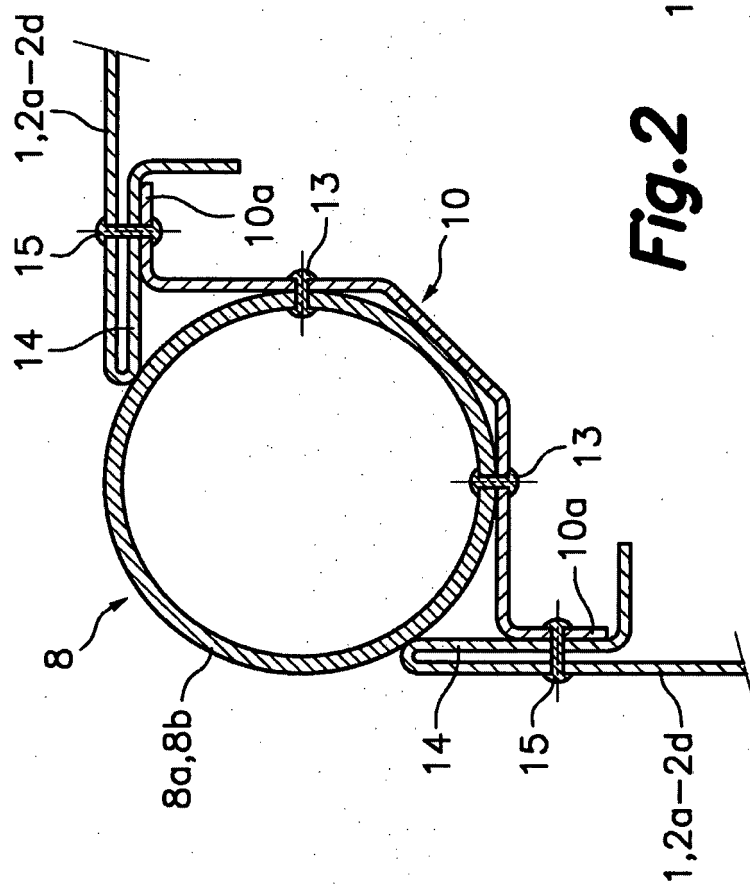
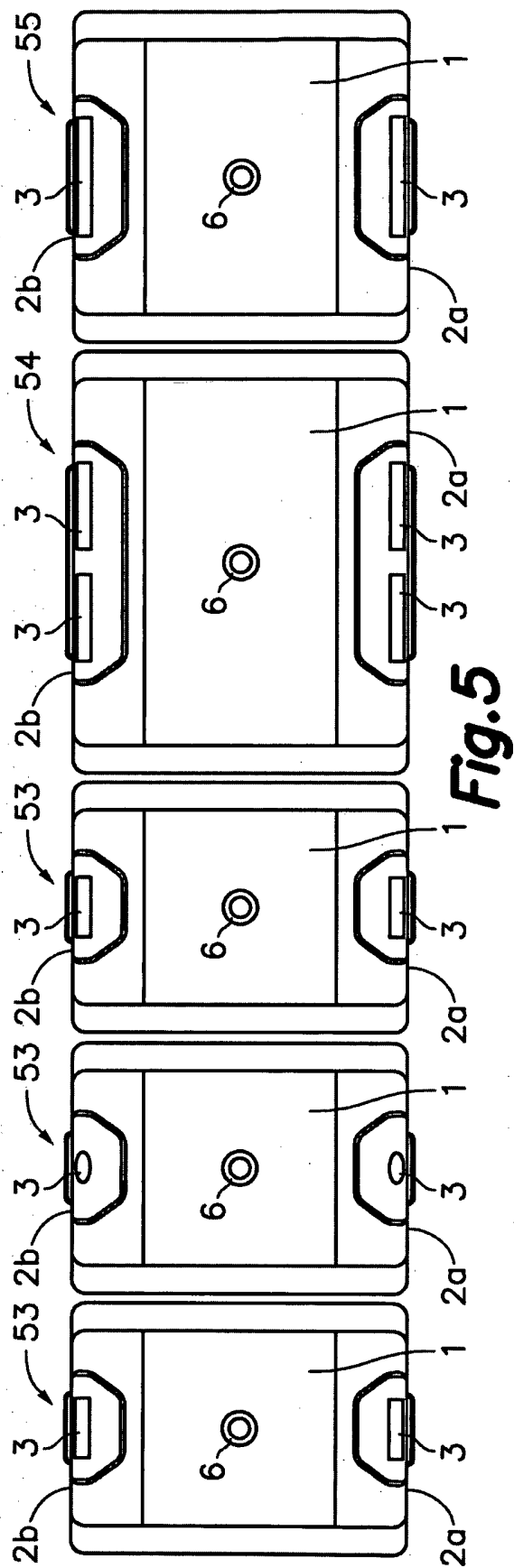
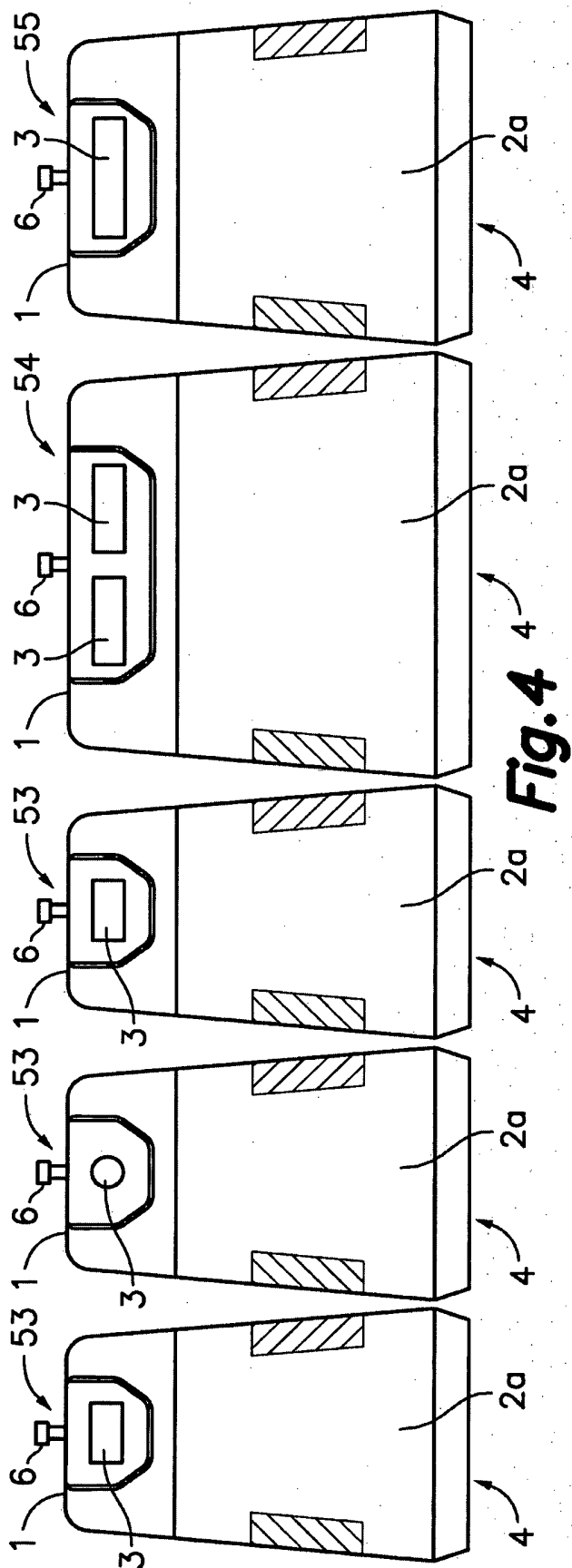
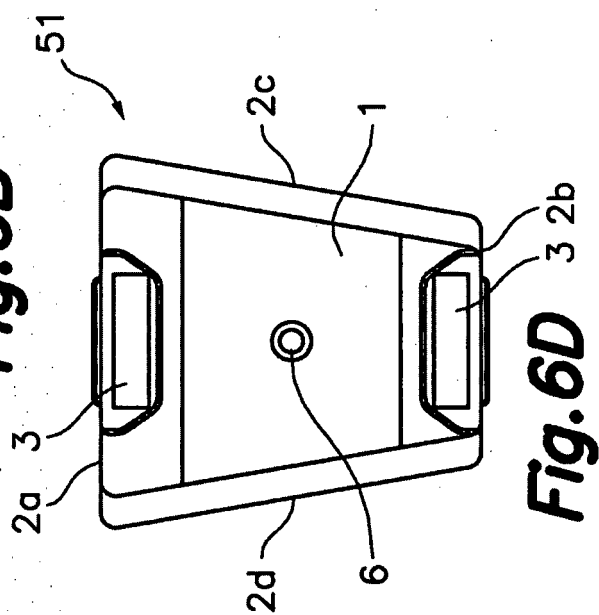
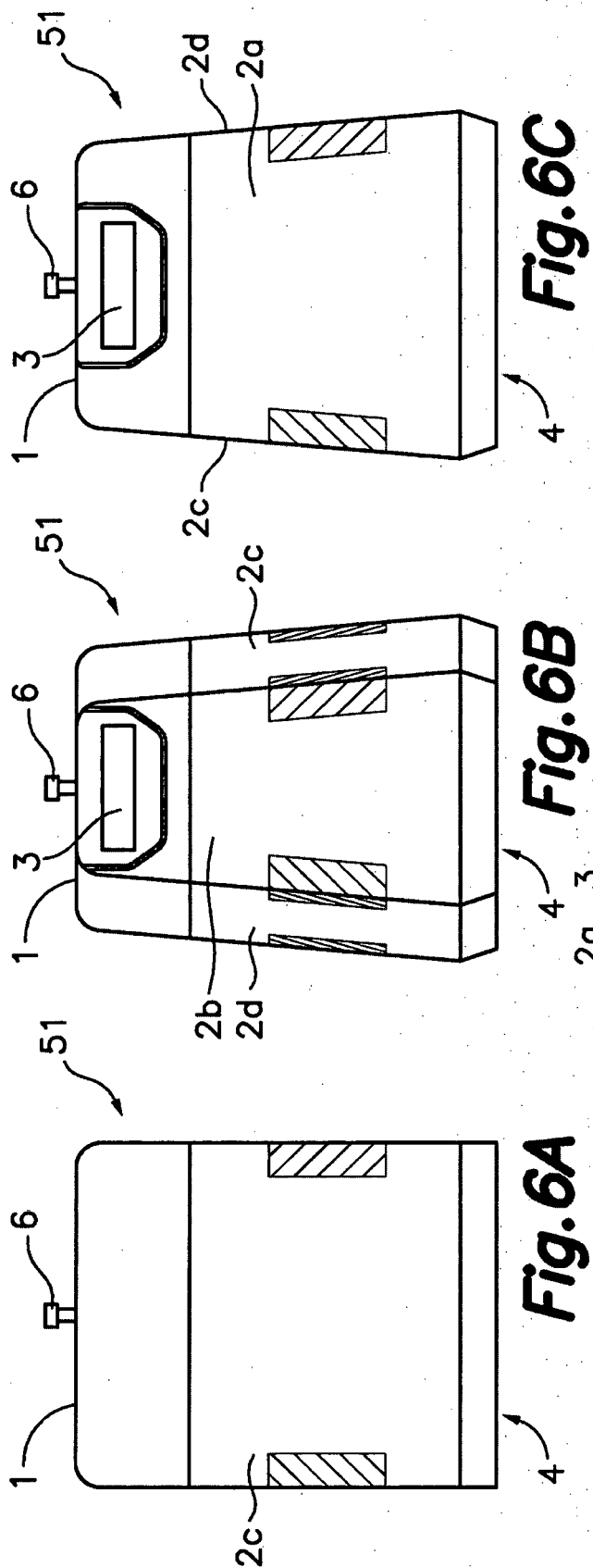
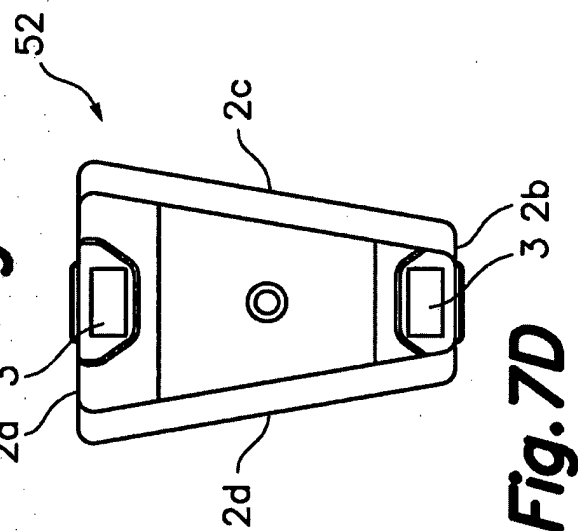
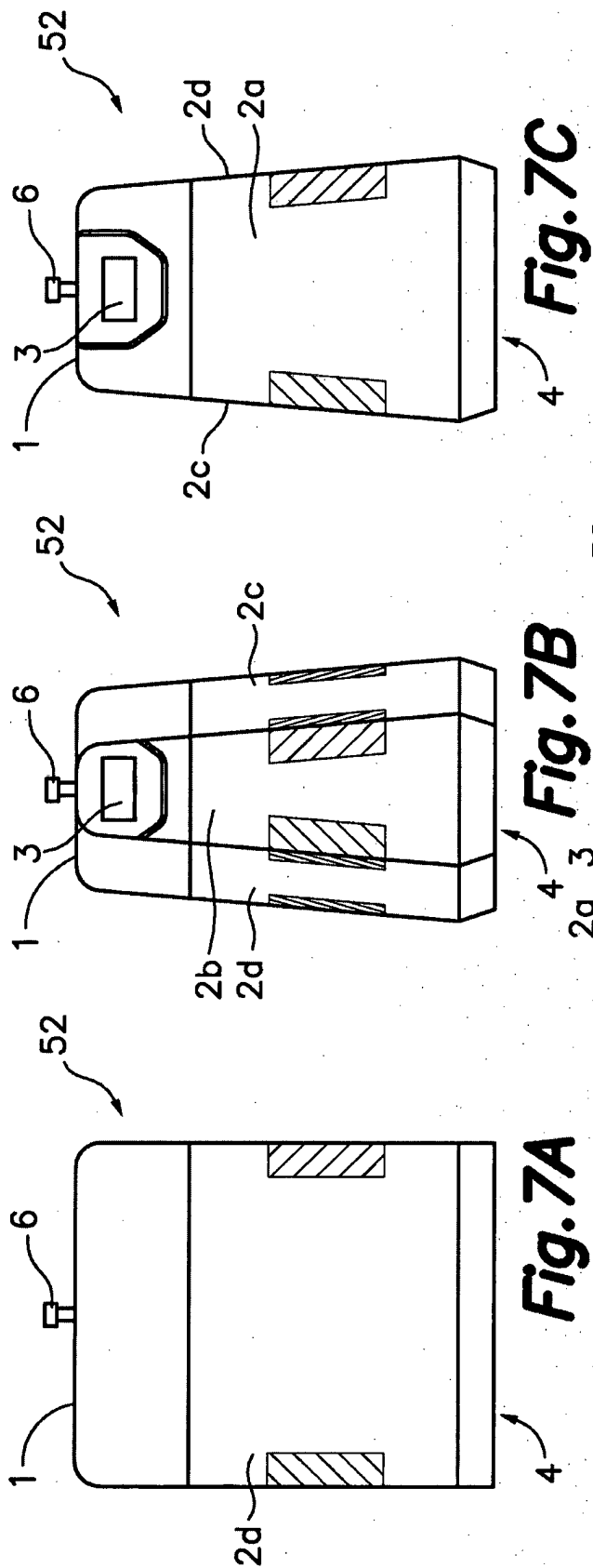


Fig. 3







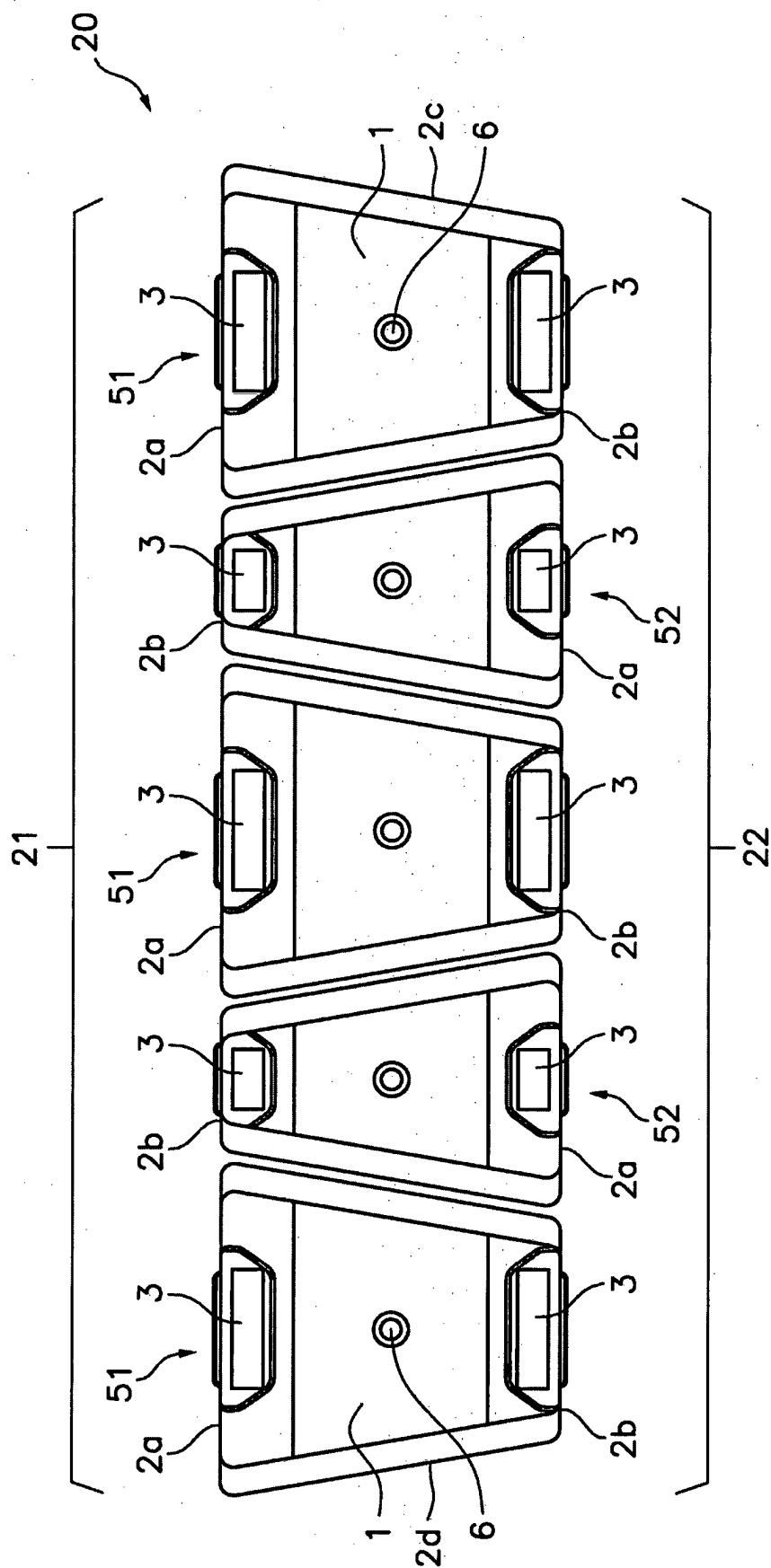


Fig. 8

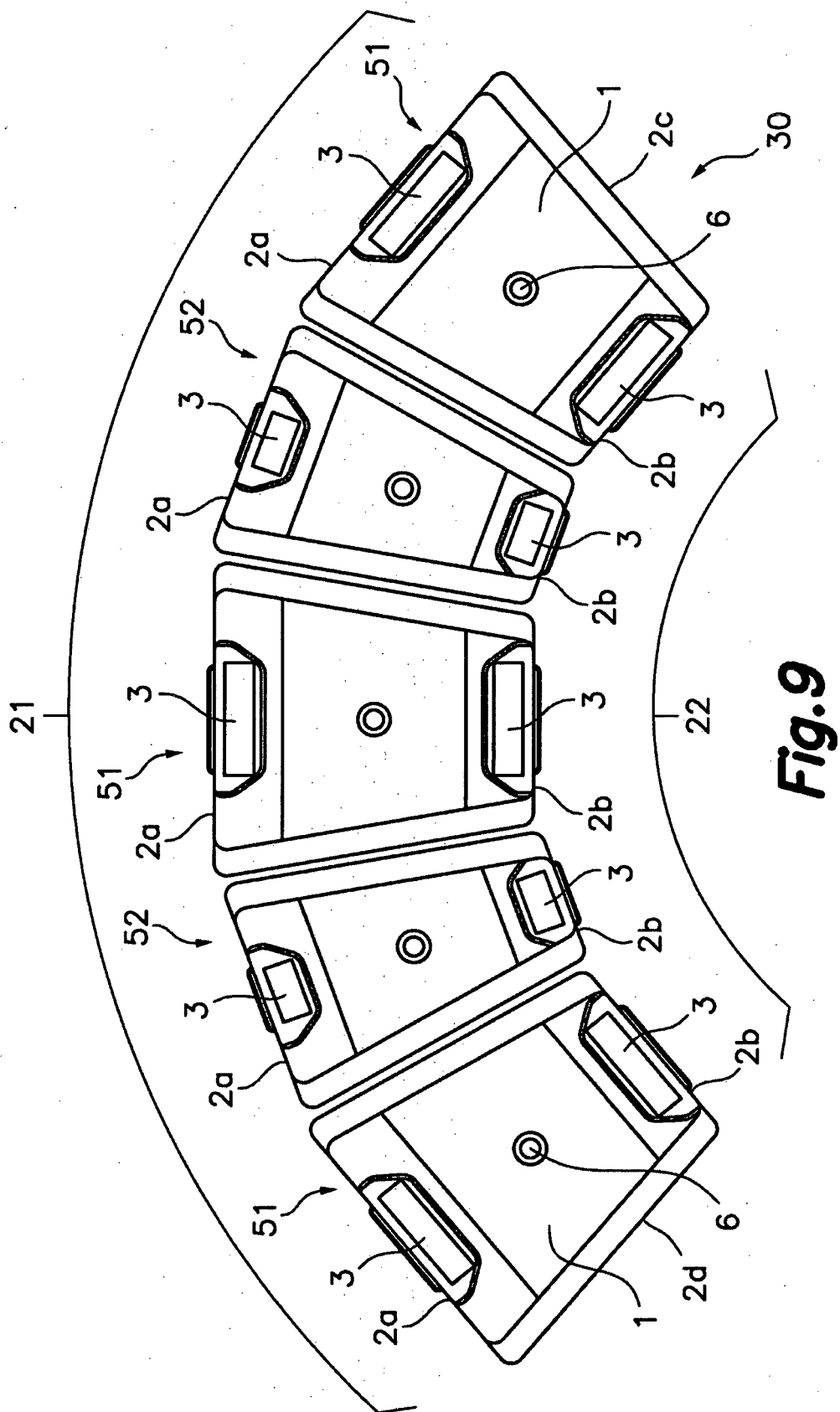


Fig. 9

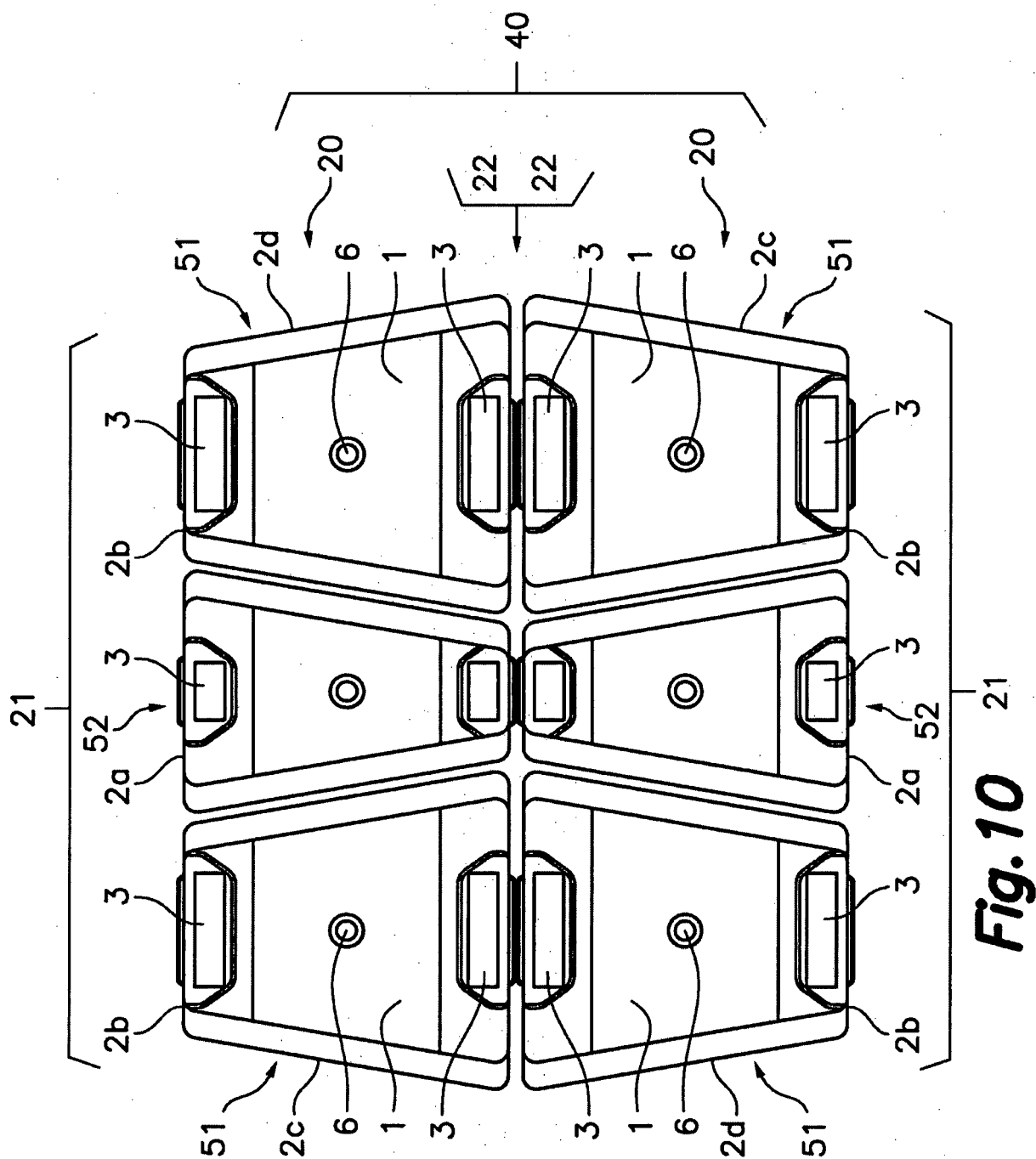


Fig. 10

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2014/000075

A. CLASSIFICATION OF SUBJECT MATTER

B65F1/00 (2006.01)

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)

B65F

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)

EPODOC, INVENES, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR 2718722 A1 (MORISOT DANIEL) 20/10/1995, the whole document.	1-17
A	GB 2426692 A (TAYLOR EGBERT H & COMPANY LTD) 06/12/2006, page 6, line 10 - page 10, line 11; images.	1-17
A	DE 9102304U U1 16/05/1991, the whole document.	1
A	DE 3625995 A1 (RUEHLAND LOTHAR) 11/02/1988, the whole document.	1

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

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Date of the actual completion of the international search
24/06/2014

Date of mailing of the international search report
(25/06/2014)

Name and mailing address of the ISA/

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EP 2 995 578 A1

INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES2014/000075

Information on patent family members

Patent document cited in the search report	Publication date	Patent family member(s)	Publication date
FR2718722 A1	20.10.1995	NONE	
GB2426692 A	06.12.2006	WO2007007023 A1 EP1885629 A1 CN101184679 A	18.01.2007 13.02.2008 21.05.2008
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Form PCT/ISA/210 (patent family annex) (July 2009)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- ES 1055948 U [0003]
- WO 2007007023 A [0004] [0005]
- FR 2718722 [0006]