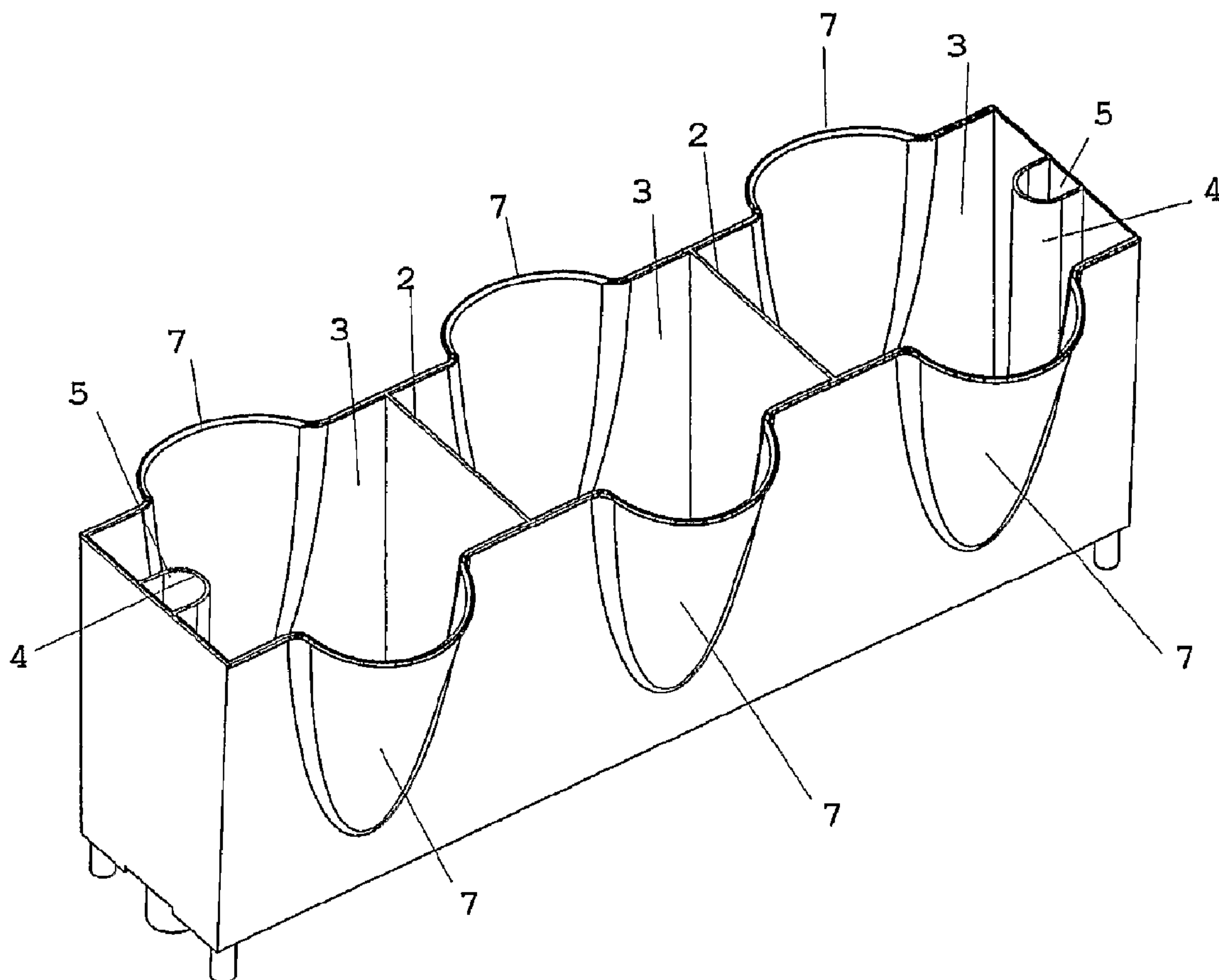




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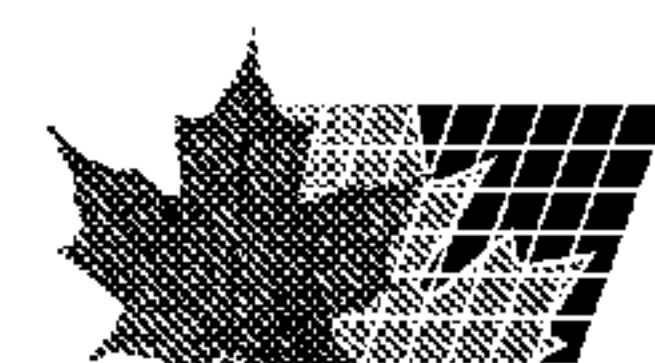
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(54) Titre : SYSTÈME DE RECIPIENTS MODULAIRES
(54) Title: MODULAR CONTAINER SYSTEM



(57) Abrégé/Abstract:

The present invention relates to a modular container system for use in agriculture, gardening and construction, characterised in that it comprises a parallelepiped container 1 with two partition walls 2 forming three chambers 3, its top ends each having a sleeve



(57) **Abrégé(suite)/Abstract(continued):**

4 which forms a vertical channel 5, the lower end 6 of the said sleeve extending beyond the bottom of the container but with slightly smaller dimensions and having a groove 10 around its whole periphery; connectors 9 which join adjacent containers in a horizontal plane; a base 11 which allows the containers to rest on the ground; and a lateral support 13 exactly identical to the top end of the container 1.

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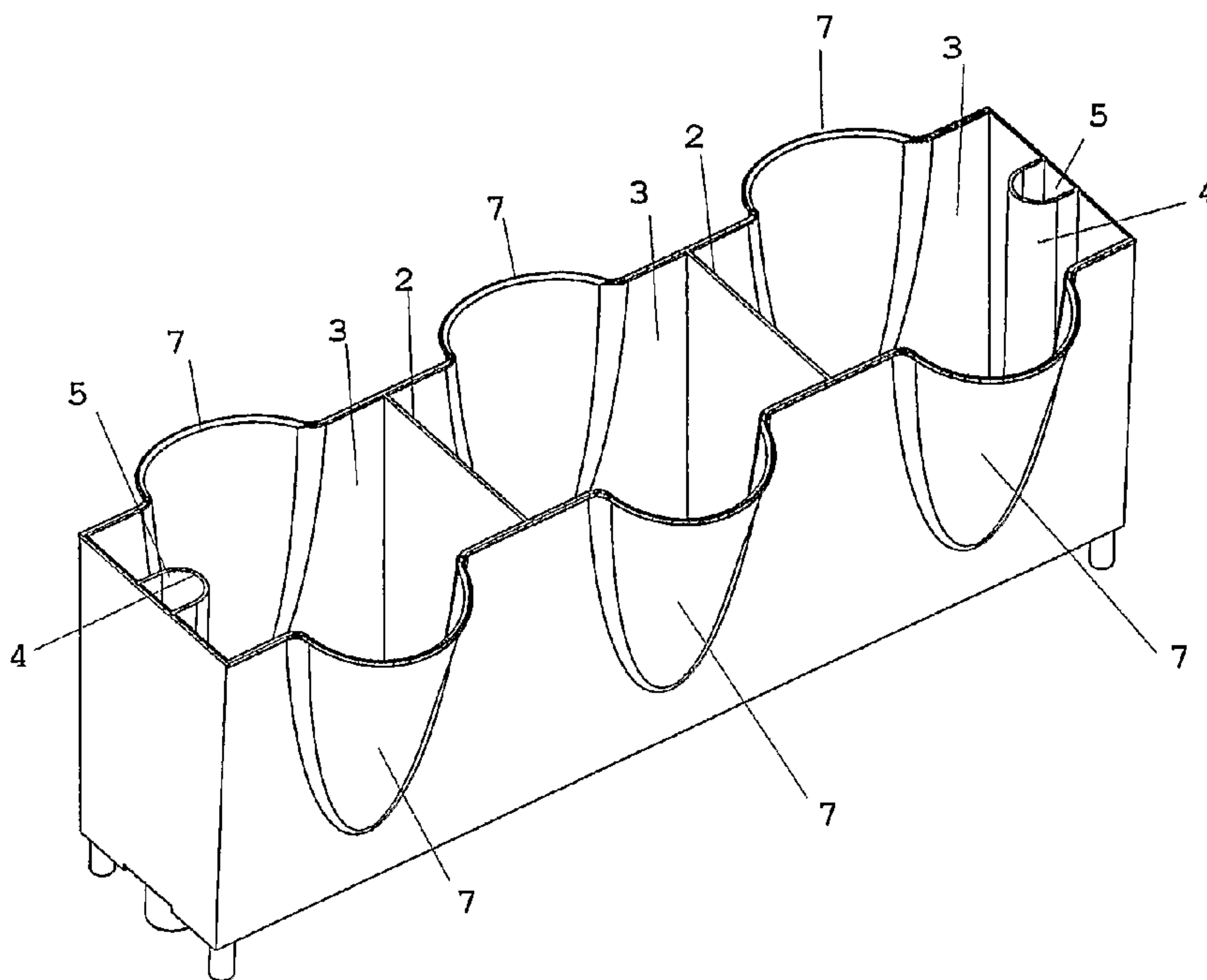
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: MODULAR CONTAINER SYSTEM



(57) Abstract: The present invention relates to a modular container system for use in agriculture, gardening and construction, characterised in that it comprises a parallelepiped container 1 with two partition walls 2 forming three chambers 3, its top ends each having a sleeve 4 which forms a vertical channel 5, the lower end 6 of the said sleeve extending beyond the bottom of the container but with slightly smaller dimensions and having a groove 10 around its whole periphery; connectors 9 which join adjacent containers in a horizontal plane; a base 11 which allows the containers to rest on the ground; and a lateral support 13 exactly identical to the top end of the container 1.

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DESCRIPTION**"MODULAR CONTAINER SYSTEM"**

5

The present invention relates to a modular container system, more specifically a system of plant pots which can be joined together by connectors and by stacking, allowing the creation of modular structures with various formats. The system can be used in agriculture, floriculture, construction of partitions, walls and pathways in open spaces, being especially suitable for use inside rooms, shopping centres and offices. In agriculture it can be used as a plant pot for growing outdoors or inside a greenhouse. It is particularly useful for growing crops using the technique of hydropony where the pots are filled with substrate instead of soil. In gardening it can be used as a pot for growing ornamental plants and in the construction industry it can be used as a decorative feature for outdoor or indoor areas, with or without plants, for forming walls, partitions or simple flower pots.

25

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Of the known containers or pots, the applicant would like to mention those forming the subject matter of patents US 5511342, DE 29720843U and DE 20014244U.

5 Patent US 5511342 relates to flower pots forming a self-supporting modular structure comprising a plurality of flower pots each comprising first container elements united together through at least one channel and suited to contain ornamental plants, co-axially matchable through the
10 fixed joint formed by their matching profiles. Each of the mentioned flower pots can be co-axially matched with a second container element through the fixed joint formed by their matching profiles. Moreover, each of the said container elements fits co-axially inside an underpot tray.

15

Patent DE 29720843U relates to a modular construction for flower pots, boxes, trays, etc. in which each of the construction modules is diamond shaped, comprising two triangular elements and being truncated at
20 each of the four corners. Two projections formed by three parts are segmented into two triangular sections and one rectangular section. These projections are situated at the centre of the two front edges of the diamond-shaped portion on the longitudinal axis of the profile when viewed from
25 the side.

Patent DE 20014244U relates to a modular receptacle in the shape of a column for house or garden plants, which comprises a series of tubular sections and

- 3 -

separating panels with holes, and an underpot for collecting drained-off water. The various sections of the column, with a circular cross-section, can be joined together by means of a screwing connection system, possibly
5 using screwed separation panels. The side openings for the plants can be positioned in various directions by rotating the sections. The column can be used as a simple receptacle for plants or as an architectural element suited to support loads, or for forming a partition between compartments. The
10 receptacle of the invention consists of modular parts that are easy to assemble on top of each other, in order to constitute a receptacle for plants or a flower pot.

As may be observed, none of the documents are
15 similar to the subject matter of this invention.

Summary of the invention

The present invention relates to a modular
20 container with a parallelepiped configuration having two partitions that form three compartments, which are joined together, its top ends each having a sleeve forming a channel, the lower end of which ends in a projecting tubular tip. The lateral walls along the longer sides of
25 the container can have projecting bellies.

Brief description of the figures

The description that follows is based on the

- 4 -

drawings attached hereto, which represent without any restrictive character:

in figures 1 to 4, an embodiment of the container of the invention being, respectively, a perspective view, a
5 main elevation, a side elevation and a plan view;

in figures 5 to 8, another container being a second embodiment of the invention;

in figures 9 to 12, another container being a third embodiment of the invention;

10 in figures 13 to 16, another container being a fourth embodiment of the invention;

in figures 17 to 20, another embodiment of the invention;

in figures 21, 22 and 23, a and b respectively, an
15 elevation and plan view of the container connectors;

in figures 24 a, b and c, a base for the container being, respectively, a plan view, a main elevation and a side elevation;

in figures 25 a, b and c, a view of the lateral
20 support being, respectively, a main elevation, a side elevation and a plan view;

in figure 26, a perspective view of the supporting element;

in figure 27, a and b respectively, a perspective view
25 from above and from below of a grill to be placed inside the container;

in figure 28, a perspective view of a tray for collecting drained water;

in figure 29, a perspective view of a suspension

- 5 -

element;

in figure 30, a possible set of modular pots; and

in figure 31, another set of modular pots.

5 Detailed description of the invention

As can be seen from the figures, the modular pot of the invention consists essentially of a parallelepiped container 1 with two partition walls 2 which form three
10 chambers 3. The top ends of the container each have a sleeve 4 which forms a vertical channel 5, the lower end 6 of the said sleeve extending beyond the bottom of the container but having slightly smaller dimensions. The dimensions of this lower end 6 enable the container to be
15 fitted onto the upper end of the said channels 5, which makes it possible to stack the containers 1 on top of each other.

This tubular structure formed by the channels 5
20 joins the containers together when they are stacked vertically, and the vertical channel created by the succession of containers can be used as a drainage channel for infiltrated or irrigation water and as a guide for the insertion of a vertical tube in order to increase the
25 stability of the whole structure. A supporting element 16 (figure 26) can be inserted into this channel 5 and the said supporting element can receive a tube suited to support a profile 17 (figure 29) for suspending and supporting a shading net or film, a protective plastic

- 6 -

covering for creating a greenhouse and/or for installing an air irrigation system.

The containers represented in figures 5 to 15 have the same characteristics and are simply provided with conical projections in the longer lateral walls. These projections form "bellies" which extend outwards and can be formed on one side of the container 1 or on both sides.

10 In figures 5 to 8 the container 1 has conical projections 7, one on each chamber 3, but only on one side of the container 1. In figures 9 to 12 the container 1 has the same conical projections 7 but on both sides.

15 Figures 13 to 16 and 17 to 19 represent other embodiments of the invention. As may be observed, in figures 13 to 16 the container 1 has only one projection 8 with a configuration substantially similar to that of the conical projections 7, which extends across all the
20 chambers 3. In figures 17 to 20, the container 1 has a projection 8 on both sides, which extends across the three chambers 3. In the latter two embodiments, the partition wall 2 which forms the chambers 3 extends right up to the wall of the projection 8.

25

The system also includes the connectors 9 represented in figures 21 to 23, which have the function of joining adjacent containers in a horizontal plane. In figure 21 the connector 9 is formed by a ring element with

- 7 -

two circular holes, in figure 22 the connector 9 is formed by an element with three arms, each of which contains a circular hole, and in figure 23 the connector 9 is formed by a cross-shaped element with four arms, each of which
5 contains a circular hole. As may be understood, these connectors make it possible, respectively, to join two containers side-by-side, three containers in the form of a triangle and four containers in four directions defined by the sides of the connector. All of the connectors 9 are
10 placed inside the groove 10 provided for this purpose on the inside of the container 1.

All of the abovementioned containers have to be placed on the base figure 24), which allows the containers
15 to rest on the ground. They are positioned by fitting the lower end 6 into the tubular projection 12 provided on the base.

The lateral supports 13 (represented in
20 figures 25 a, b and c), which are exactly identical to the top end of the container 1, make it possible, in more complex structures, to create spaces without containers and configure the side walls of such structures.

25 Inside the chambers 3 a drainage grill 14 can be fitted (figure 27), which is intended to create a humidity deposit at the bottom of the pot and allow radicular aeration through the channel 5 created when the containers are assembled. This element has the configuration of a tray

- 8 -

with feet distributed across its inside surface for supporting the bottom of the container 1, and a grill for aeration.

5 The drained, rain or irrigation water can be collected by a tray 15 which is placed at the bottom of the container and has an appropriate configuration, as shown in figure 28.

10 As well as the numerous construction solutions resulting from the multiple assembly combinations offered by the containers, connectors and supporting parts, this system also provides an innovative crop-growing solution, which makes it possible to grow at a height and in a
15 vertical direction by stacking the containers on top of each other (figures 30 and 31). This solution is particularly appropriate for decorative and intensive agriculture and gardening. As an example, we would point out the advantages of using this technique for growing
20 strawberries, which include the possibility of growing the fruit without any contact with the ground, easy harvesting and, most importantly, a yield per m² of occupied area six times higher (in the case of flower pots stacked in six rows) than the traditional solution.

25

CLAIMS

1. Modular container system for use in agriculture, gardening and construction, characterised in
5 that it comprises:

- a parallelepiped container (1) with two partition walls (2) forming three chambers (3), in which side lateral ends of said container each have a sleeve (4) which forms a vertical channel (5), a lower end (6) of the sleeve
10 extending beyond a bottom of the container but with a smaller diameter than an upper end of the channel and having a groove (10) around a whole periphery;
- connectors (9) which join adjacent containers in a horizontal plane;
- 15 - a base which allows the containers to rest on the ground;
- a lateral support (13) exactly identical to the side lateral end of the container (1);
- a grill (14) intended to create a humidity deposit at the bottom of the container and allow radicular aeration;
- 20 - a tray (15) for collecting drained water;
- a supporting element (16) and a profile (17) for suspending and supporting a shading net or film, a protective plastic covering for creating a greenhouse and/or for installing an air irrigation system.

25

2. Modular container system, according to claim 1, characterised in that longitudinal walls of the container each have conical projections forming "bellies" (7,8) which extend outwards and can be formed on one side

30

- 10 -

of the container (1) or on both sides.

3. Modular container system, according to claim 2, characterised in that the conical projections can extend
5 across all the chambers (3), forming a single projecting belly (8), or can be provided in each of the chambers forming three projecting bellies (7).

4. Modular container system, according to claim
10 3, characterised in that in the case of the conical projection (8) which extends across all three chambers, the partition wall (2) of the chambers (3) extends right up to a wall of the projection.

15 5. Modular container system, according to claim 1, characterised in that the lower ends (6) enable the container to be fitted onto a upper end of the channels 5, making it possible to stack the containers (1) on top of each other.

20

6. Modular container system, according to claim 1, characterised in that the connectors (9) which join adjacent containers in a horizontal plane have the configuration of a ring element with two holes, of an
25 element with three arms each containing a hole and of a cross with four holes, being intended, respectively, for joining the containers side-by-side, in the form of a triangle or in the form of a cross.

30

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7. Modular container system, according to any one of claims 1 and 6, characterised in that the connectors are placed inside the groove (10) provided for this purpose on the inside of the container (1).

5

8. Modular container system, according to claim 1, characterised in that a tubular structure formed by the channels (5) joins the containers together when they are stacked vertically, and the vertical channel created by the succession of containers can be used as a drainage channel for infiltrated or irrigation water and as a guide for the insertion of a vertical tube in order to increase the stability of a whole structure.

15

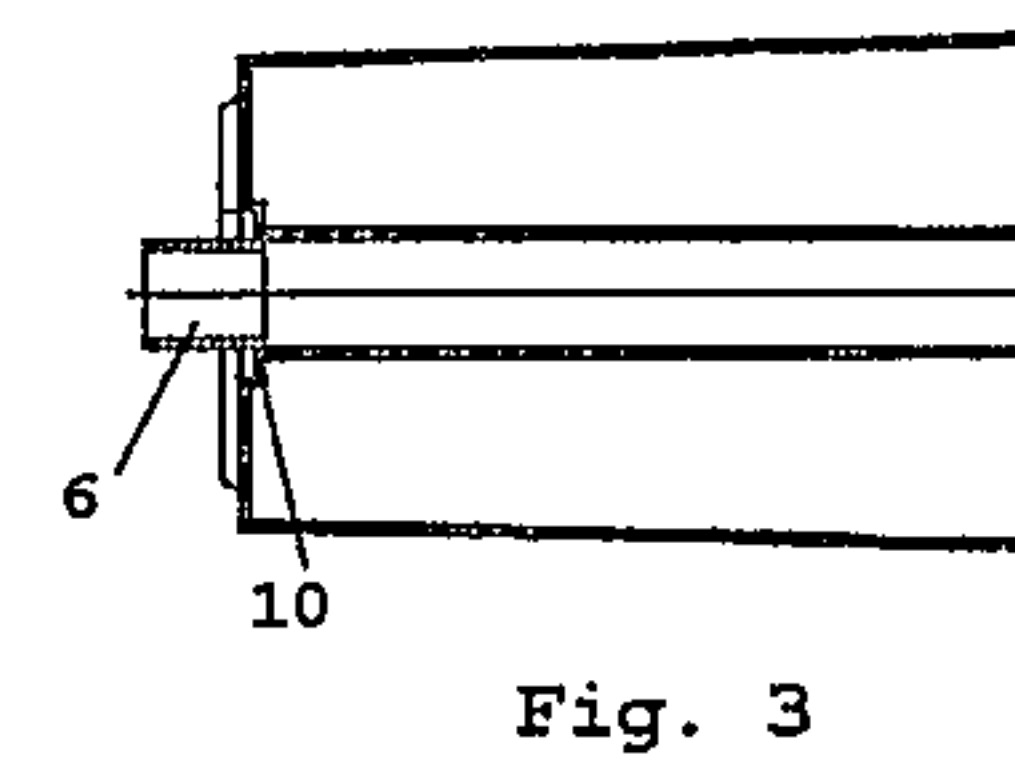
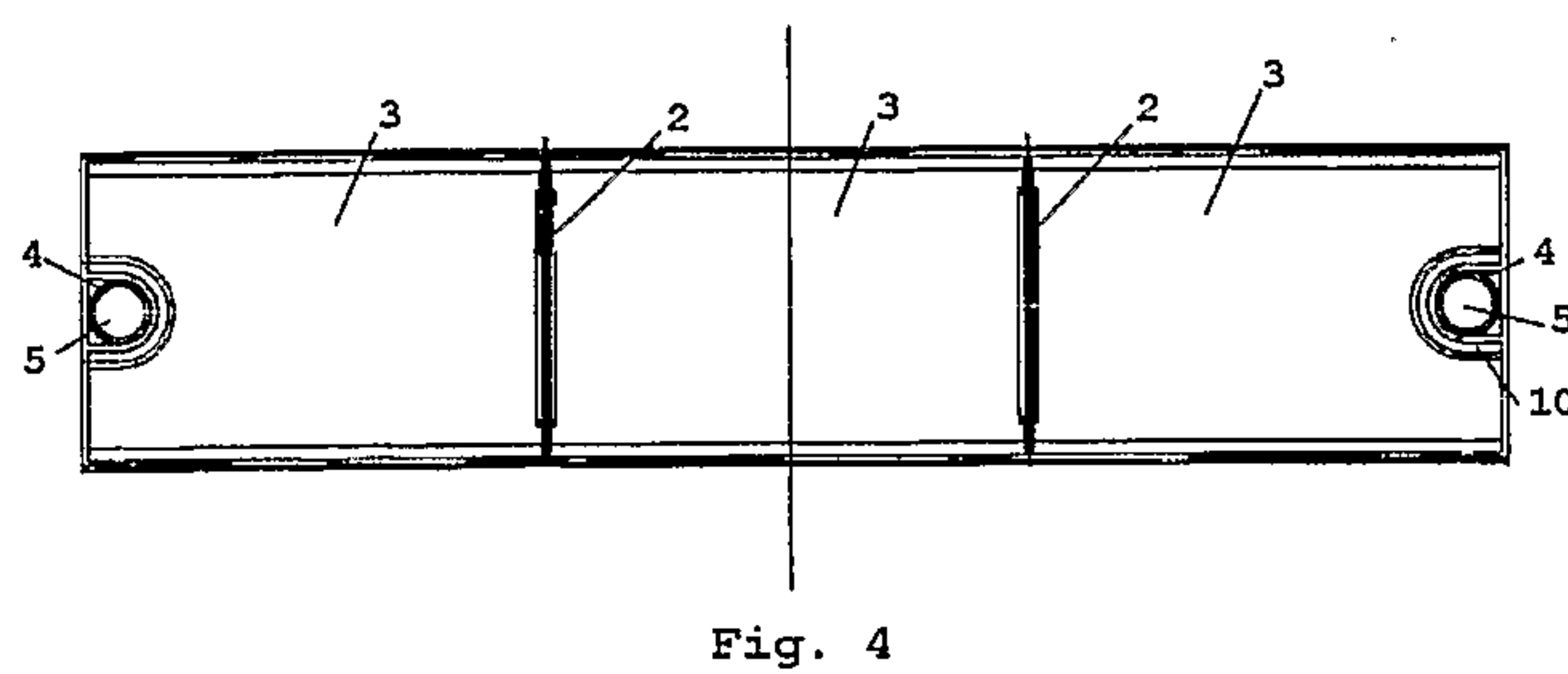
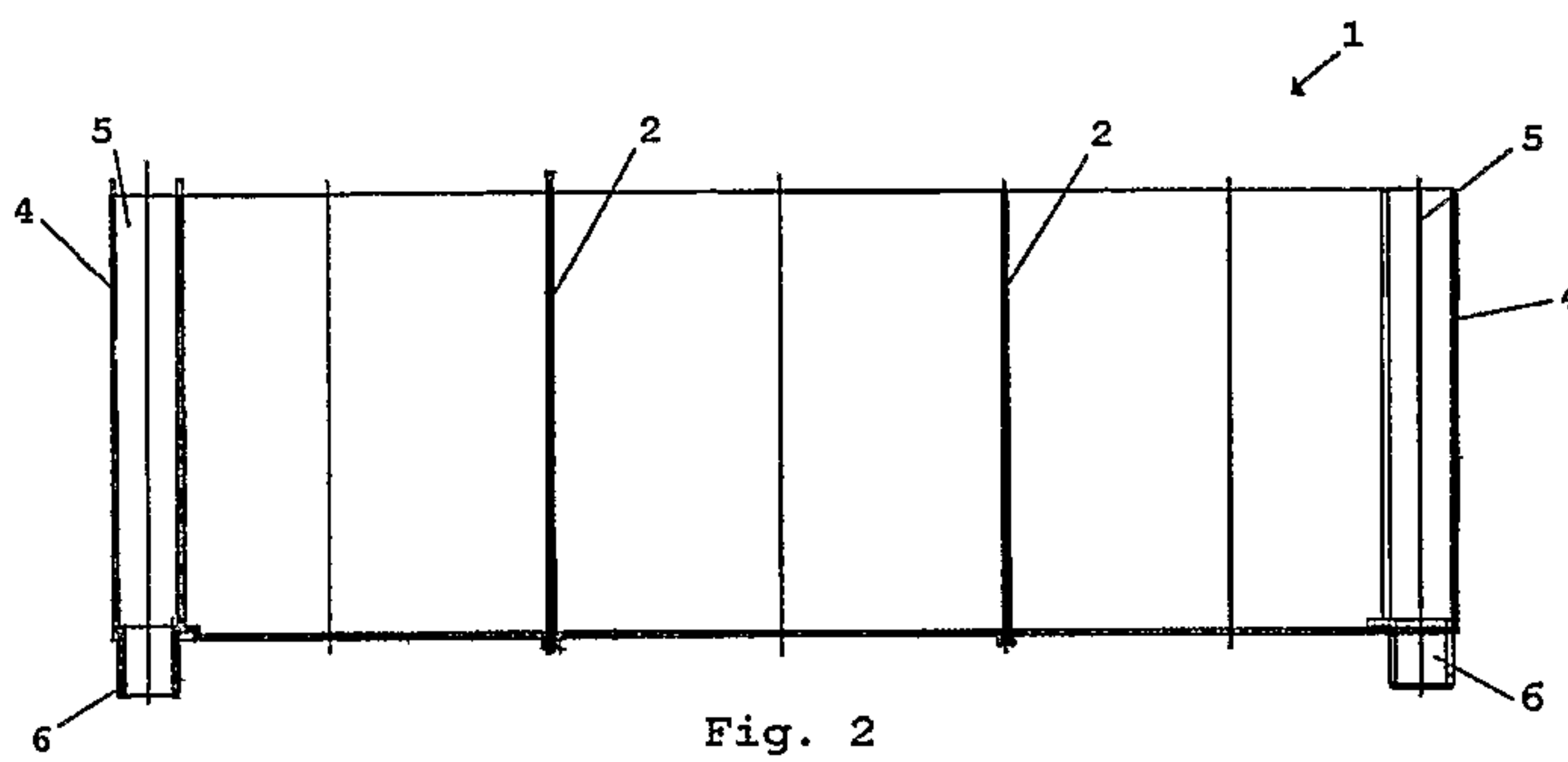
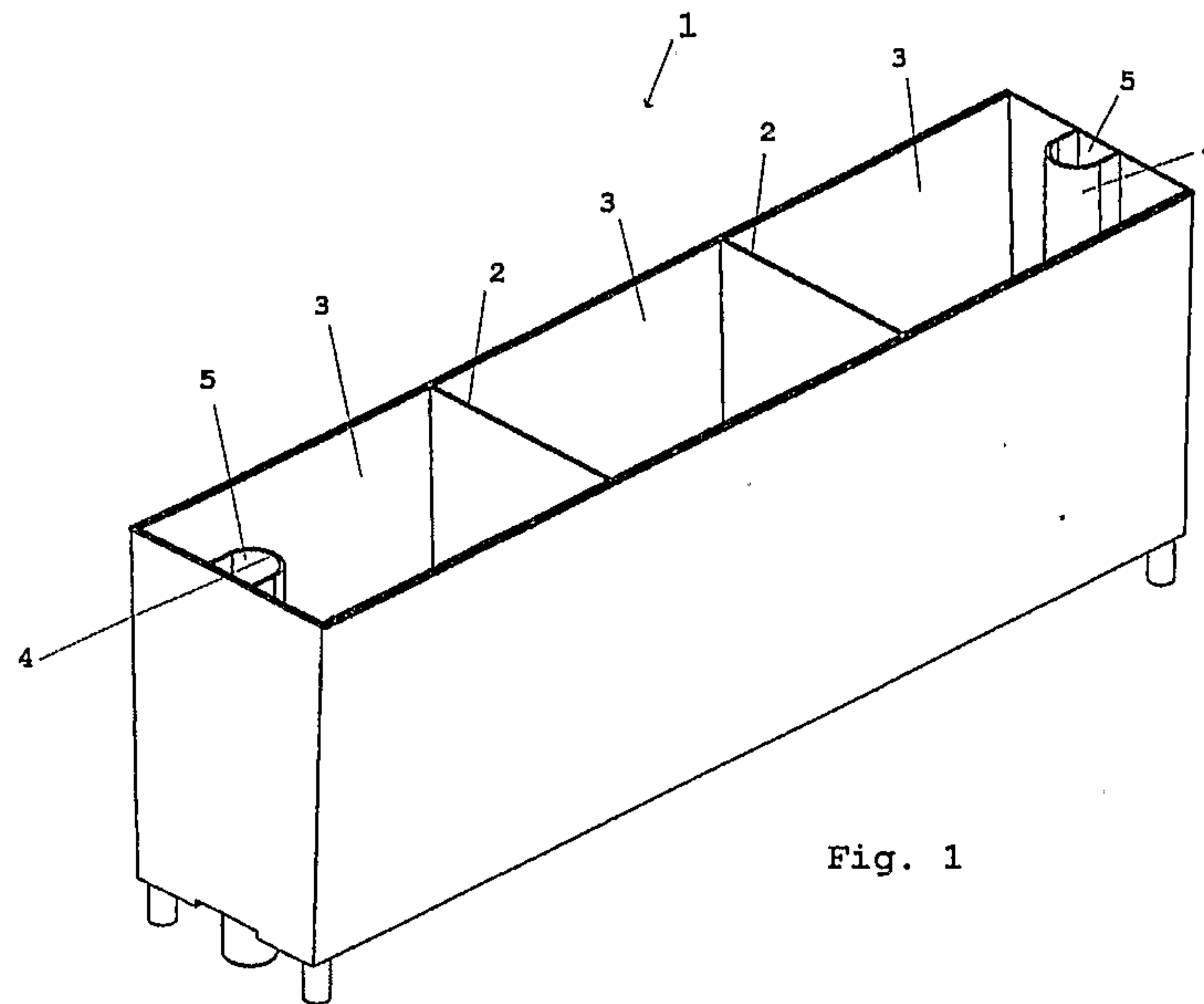
9. Modular container system, according to claim 1, characterised in that inside the chambers (3), the grill (14) can be fitted, which is intended to create a humidity deposit at the bottom of the container and allow radicular aeration through the channel (5) created when the containers are assembled, the grill having the configuration of the tray with feet distributed across an inside surface of said grill for supporting the bottom of the container (1), and an actual grill portion for aeration.

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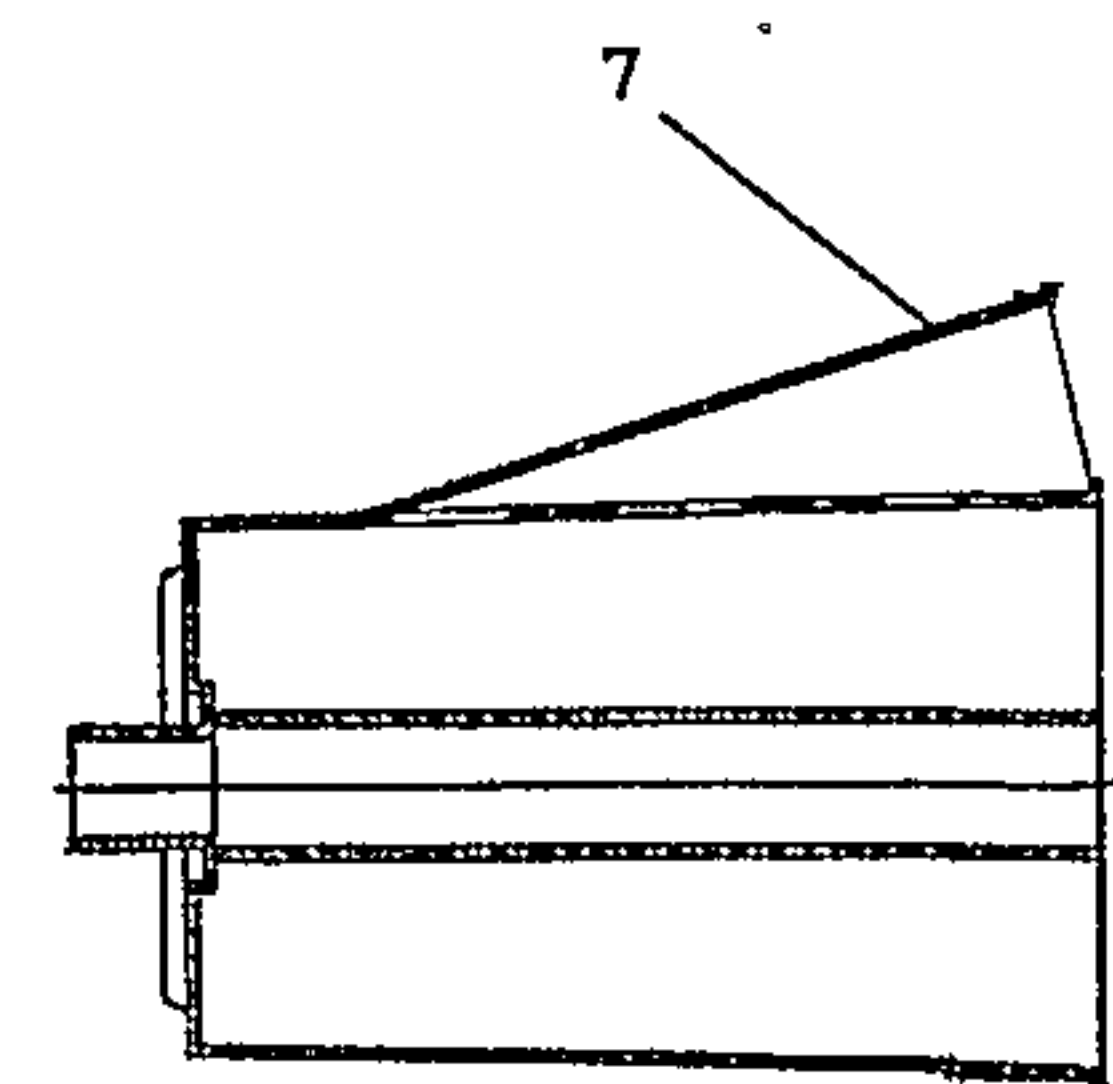
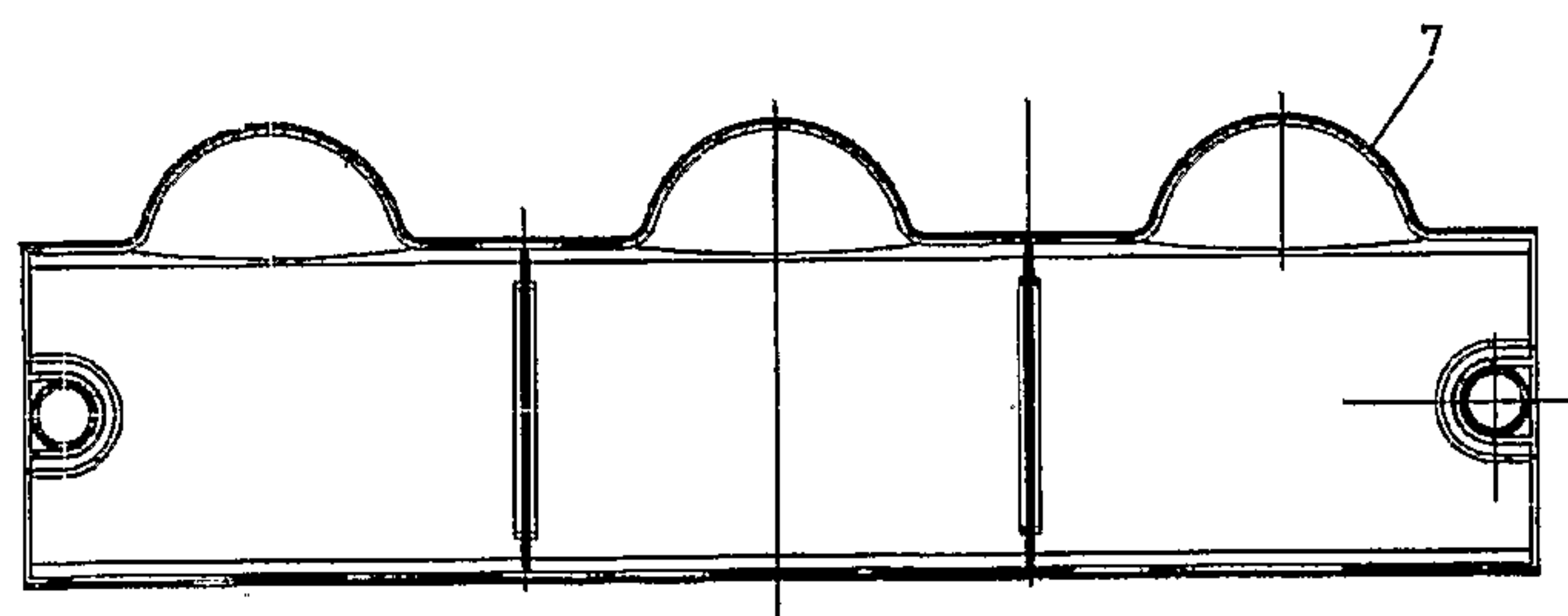
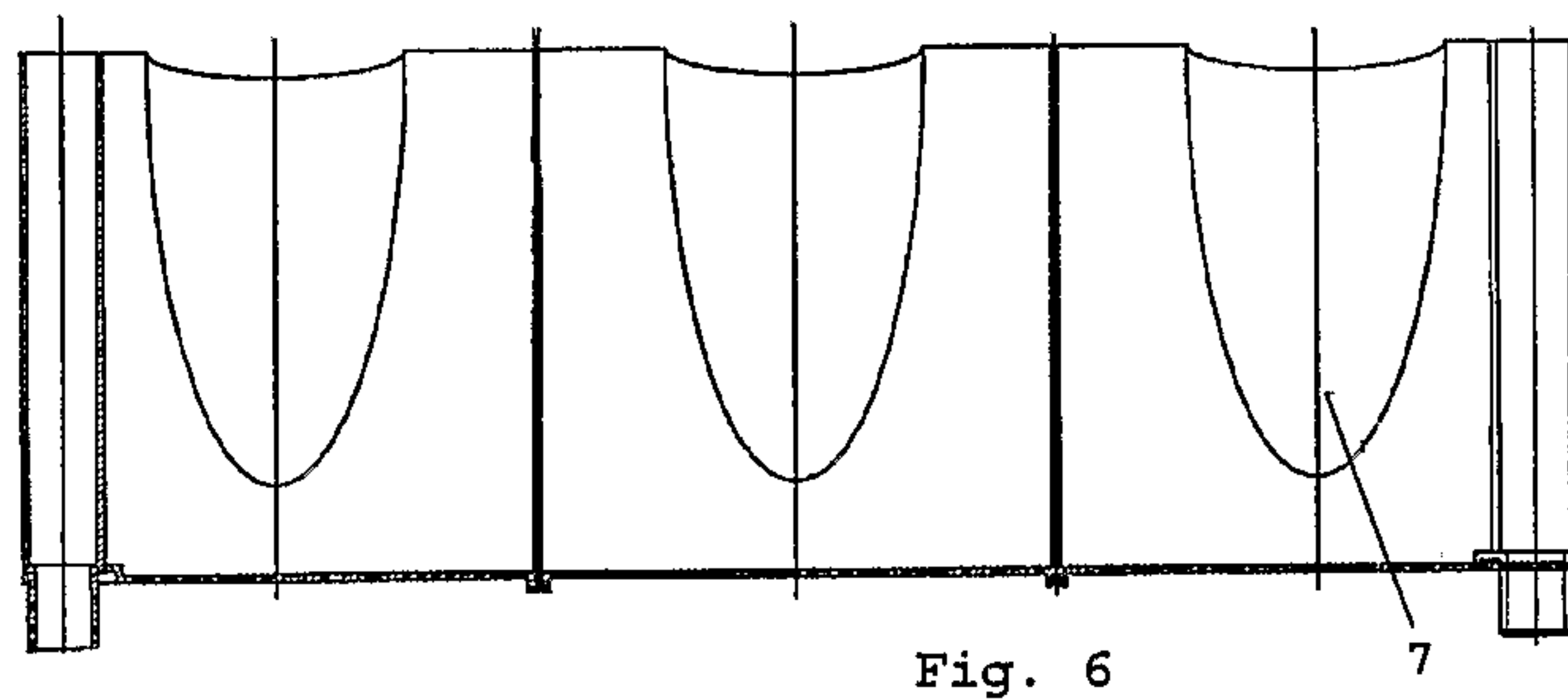
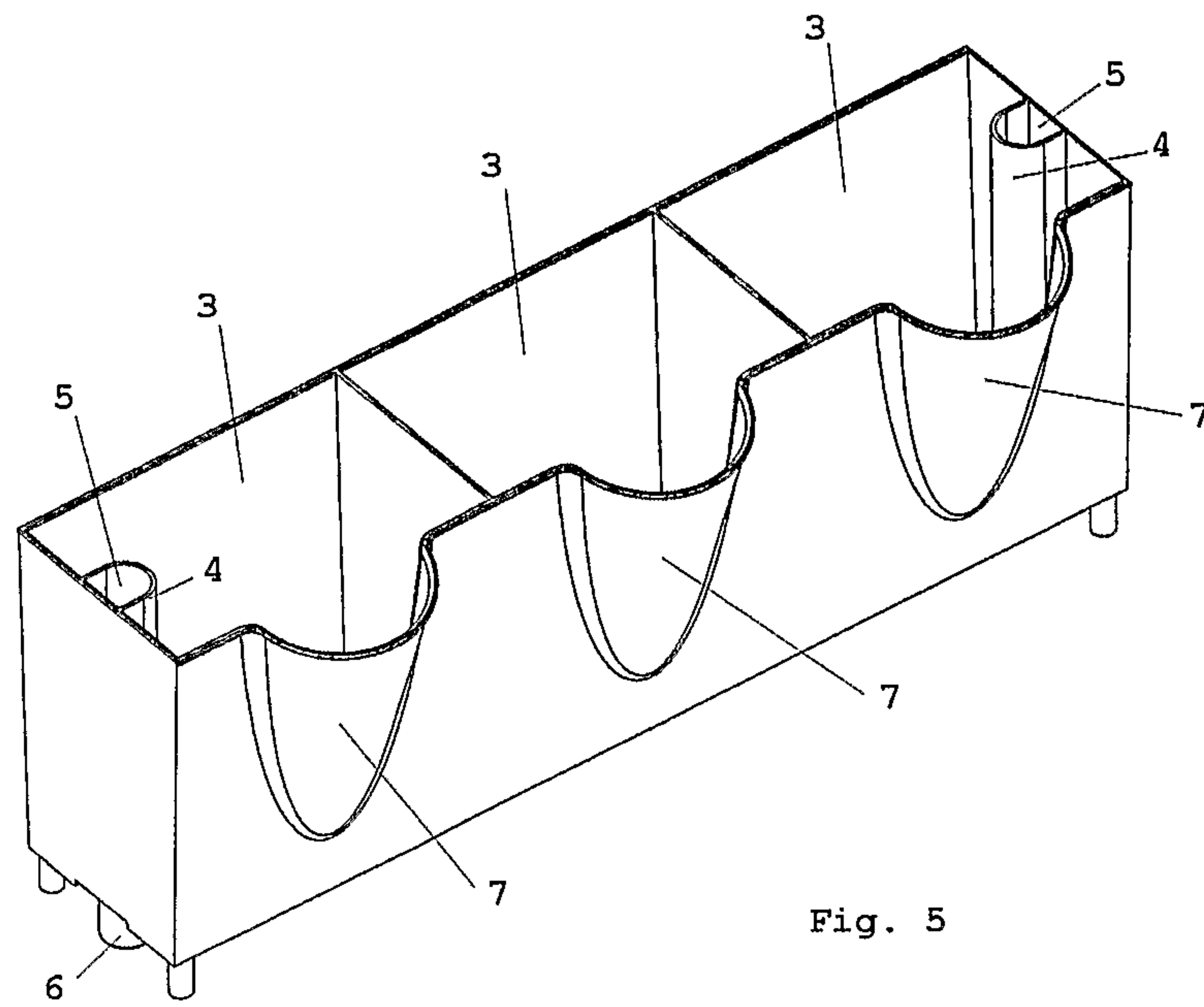
10. Modular container system, according to claim 1, characterised in that the lateral supports (13) make it possible, in more complex structures, to create spaces without containers and configure side walls of such structures.

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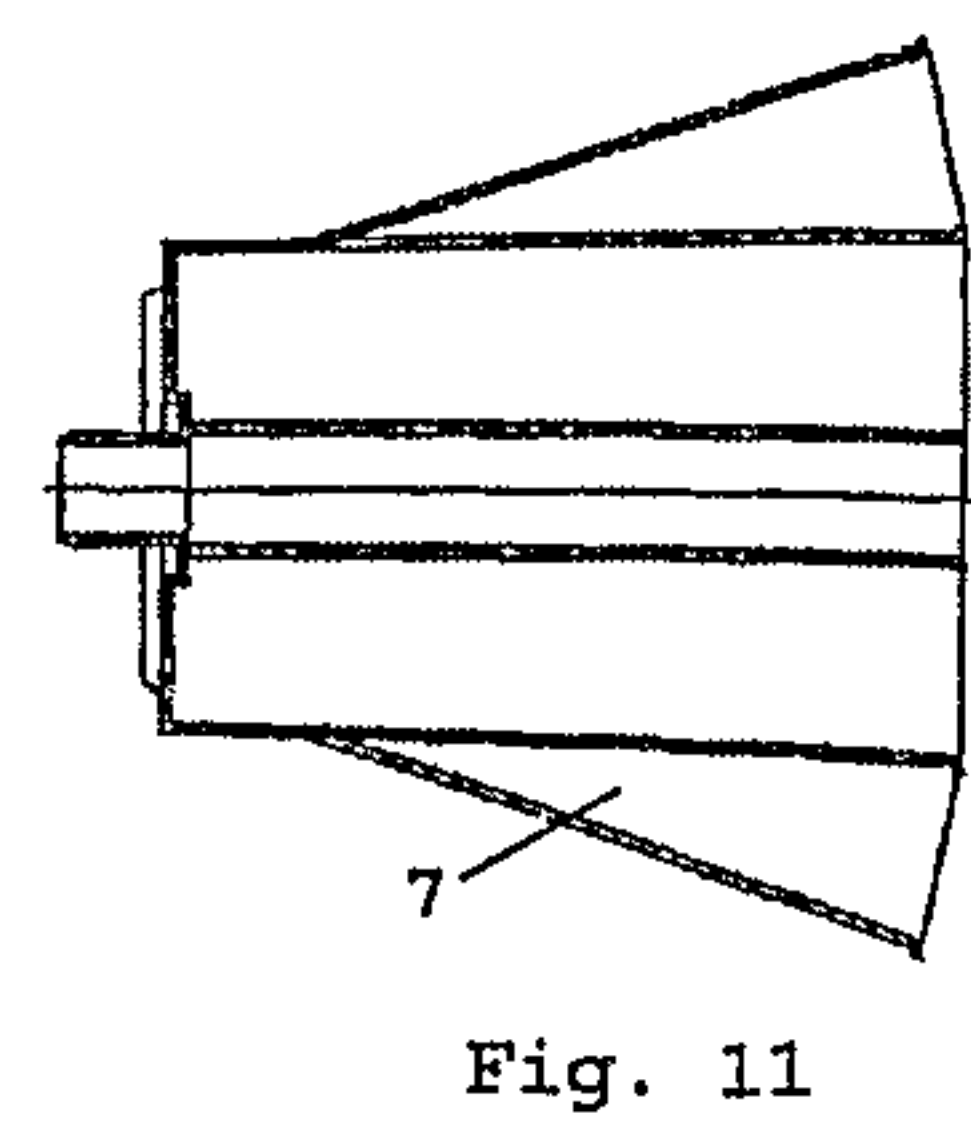
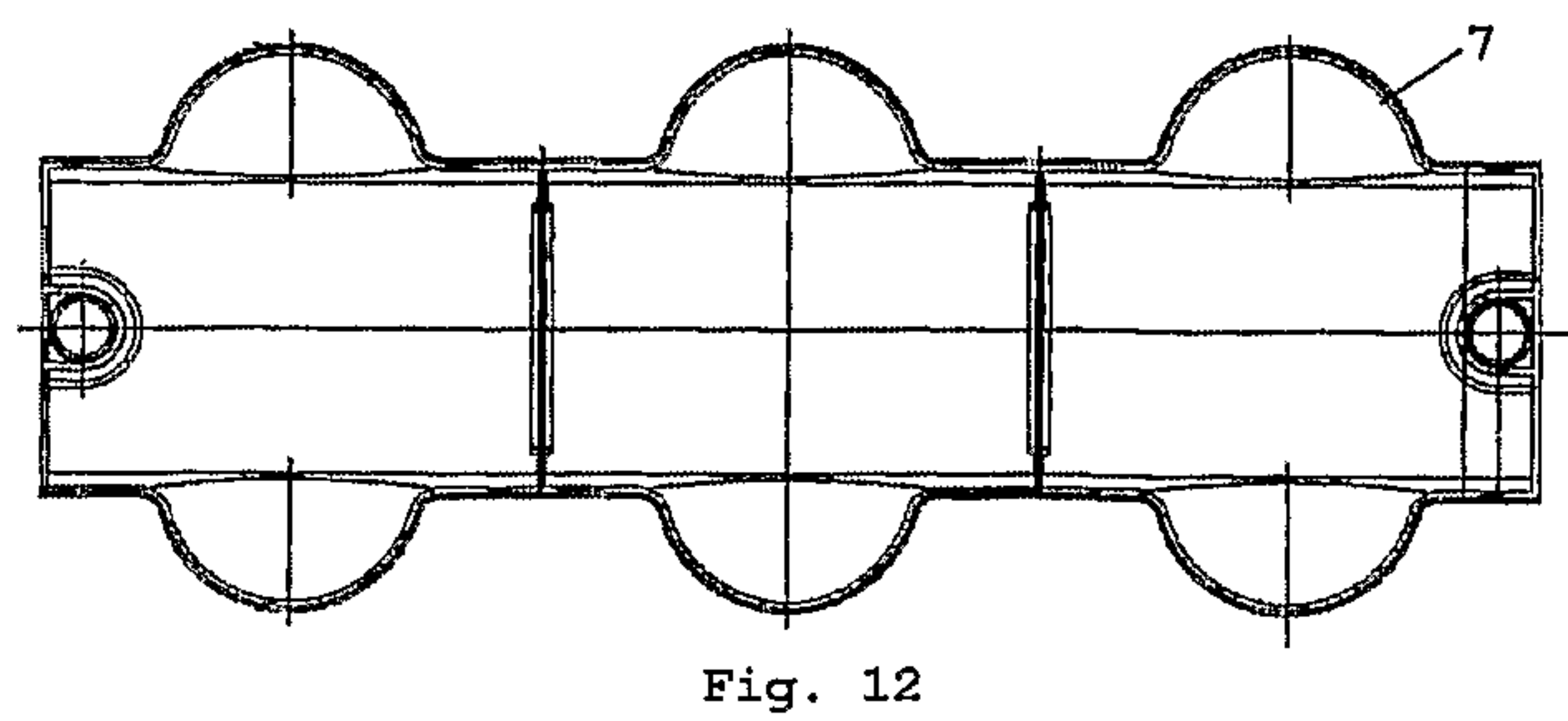
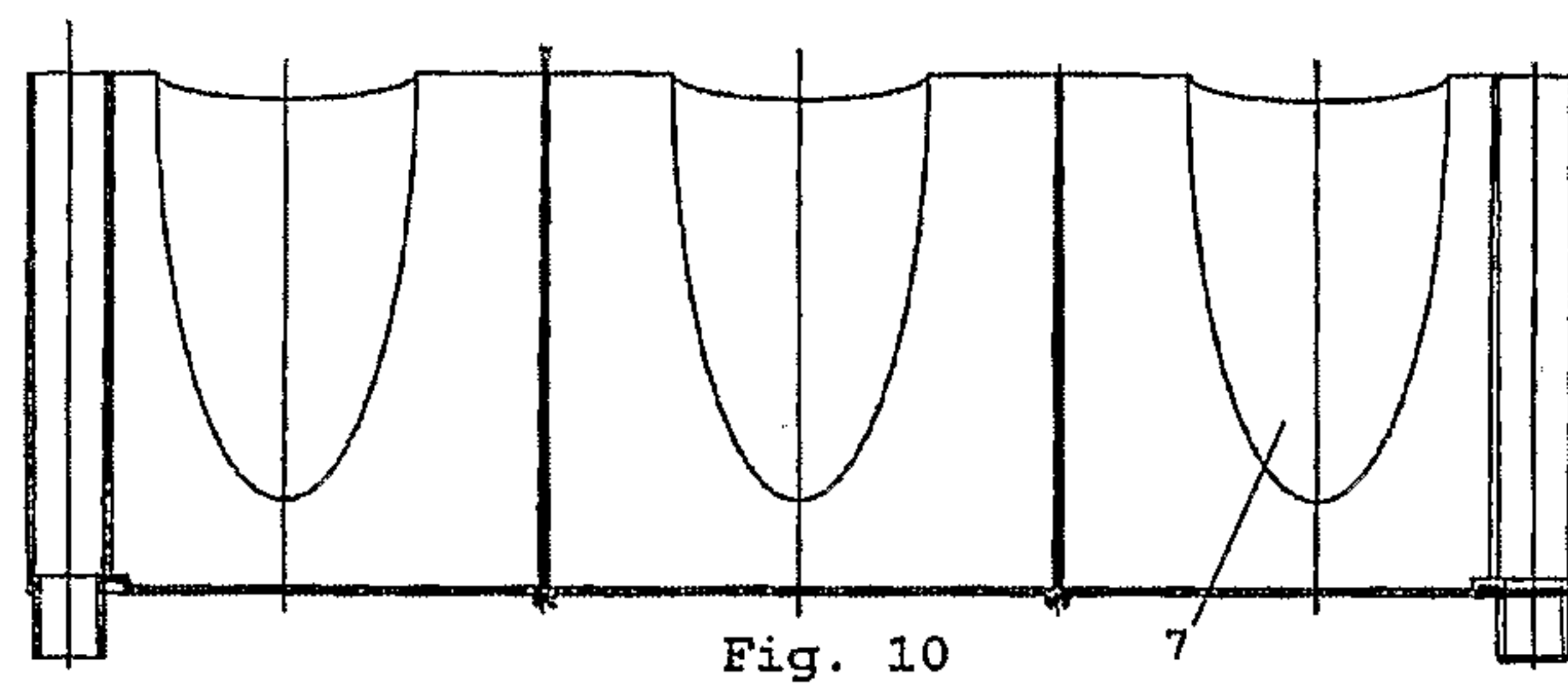
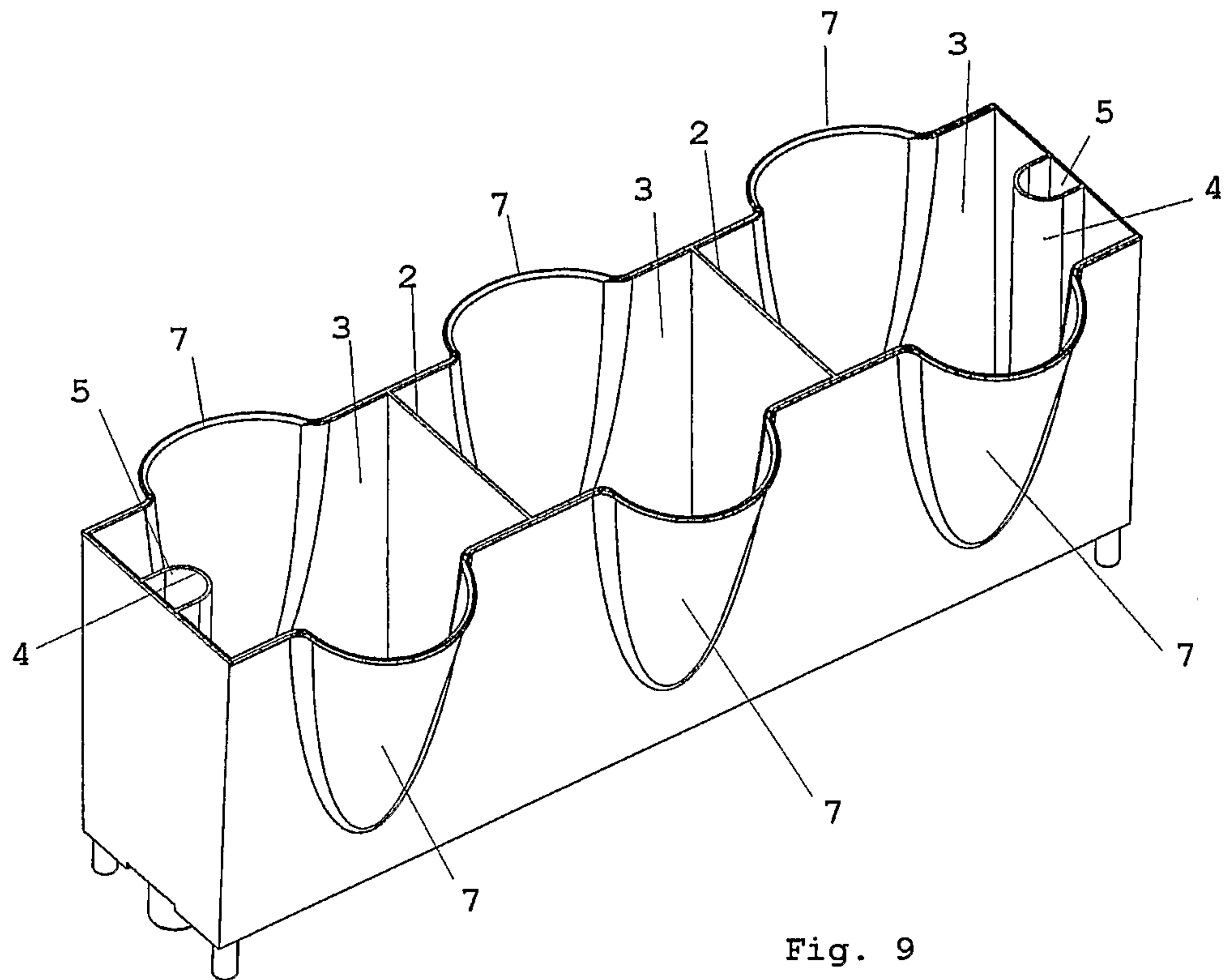
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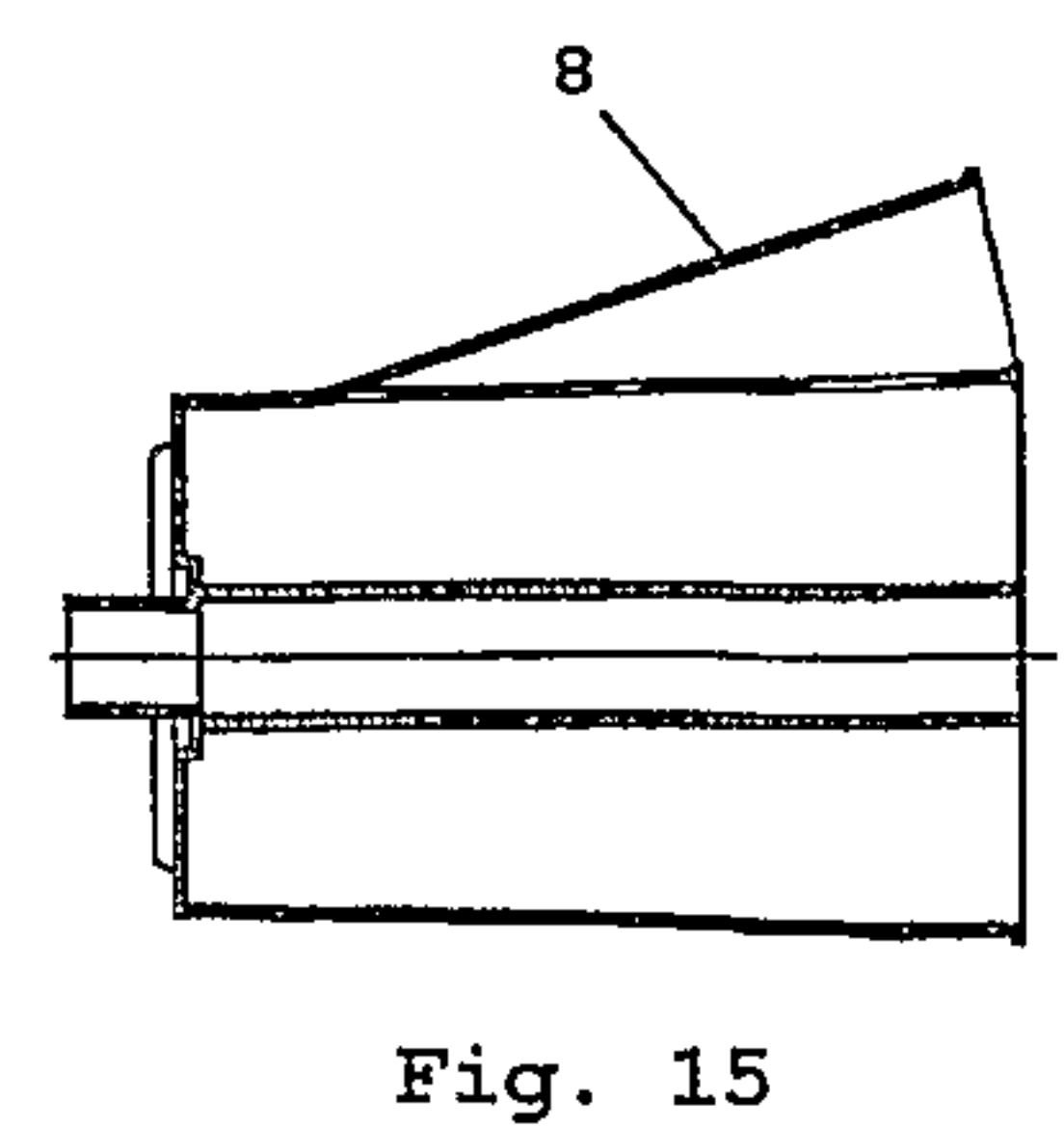
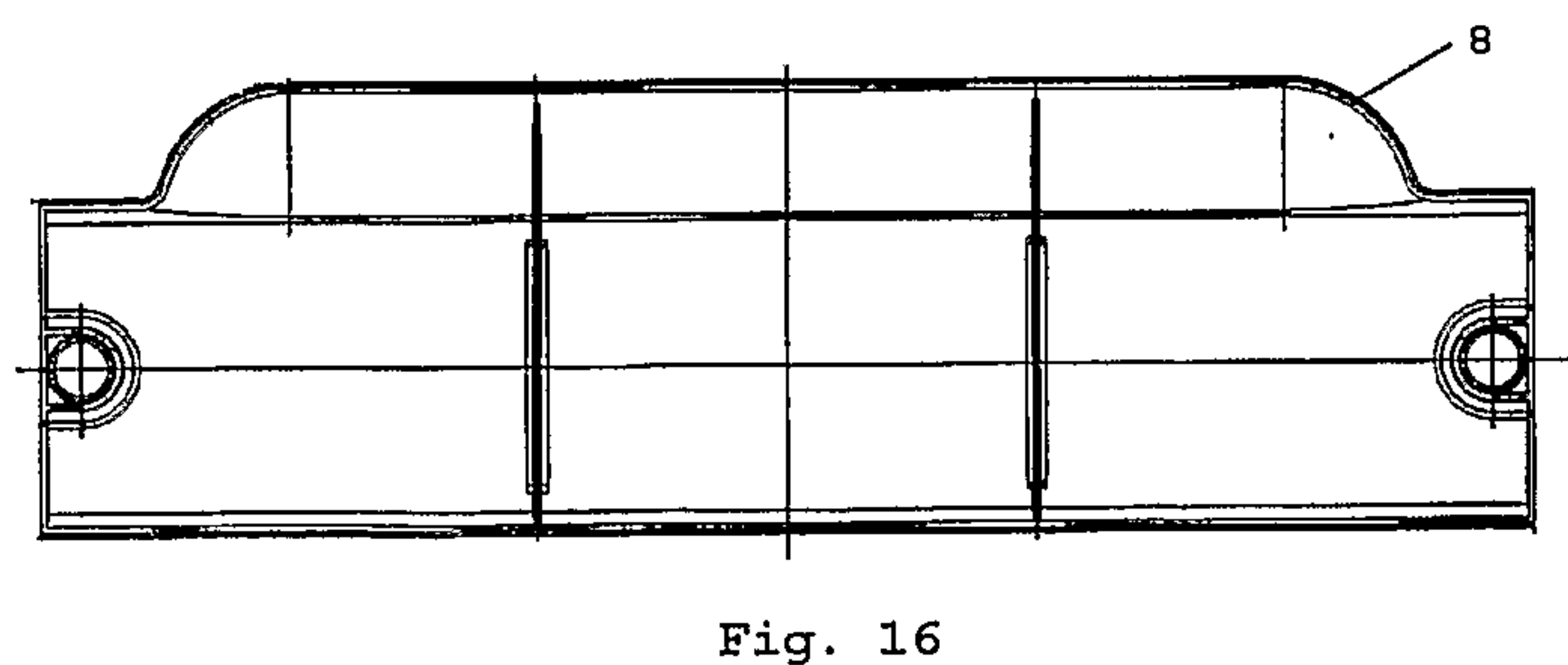
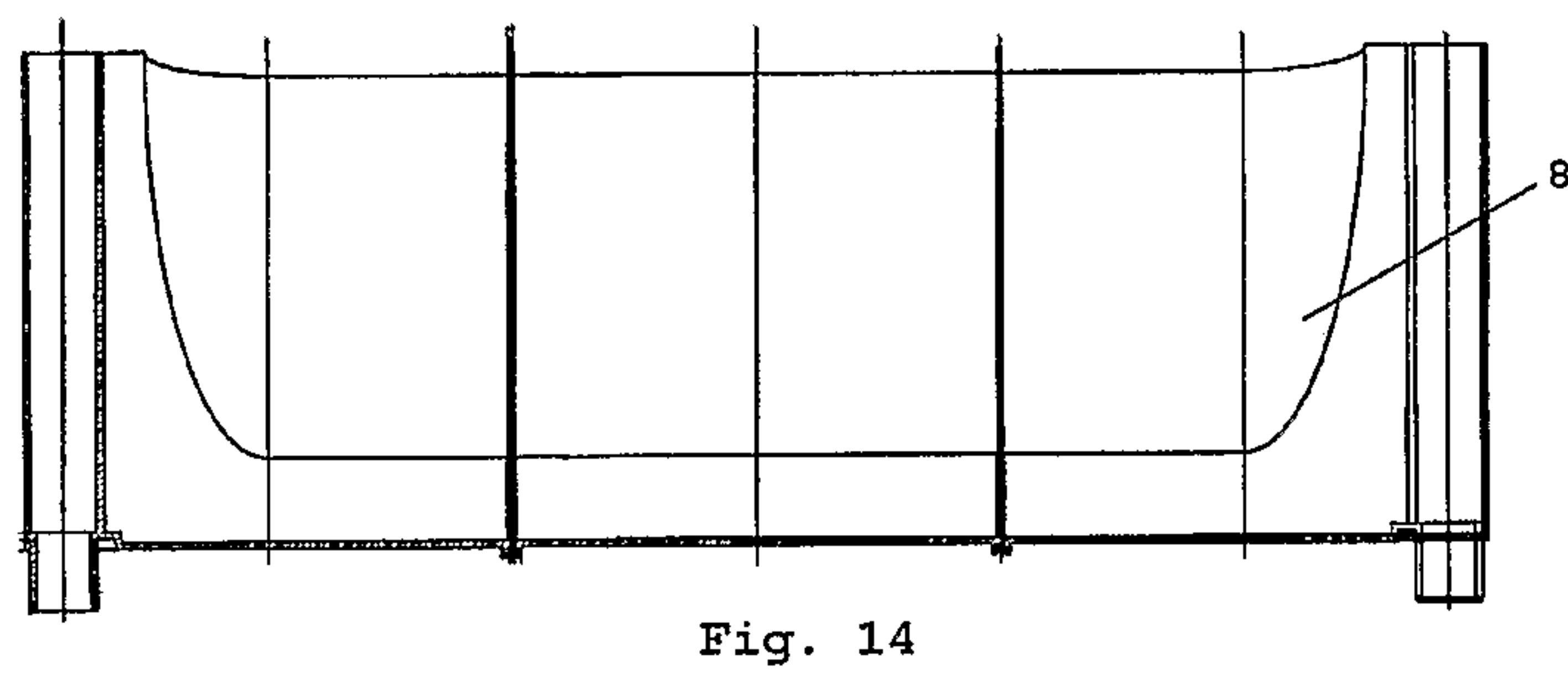
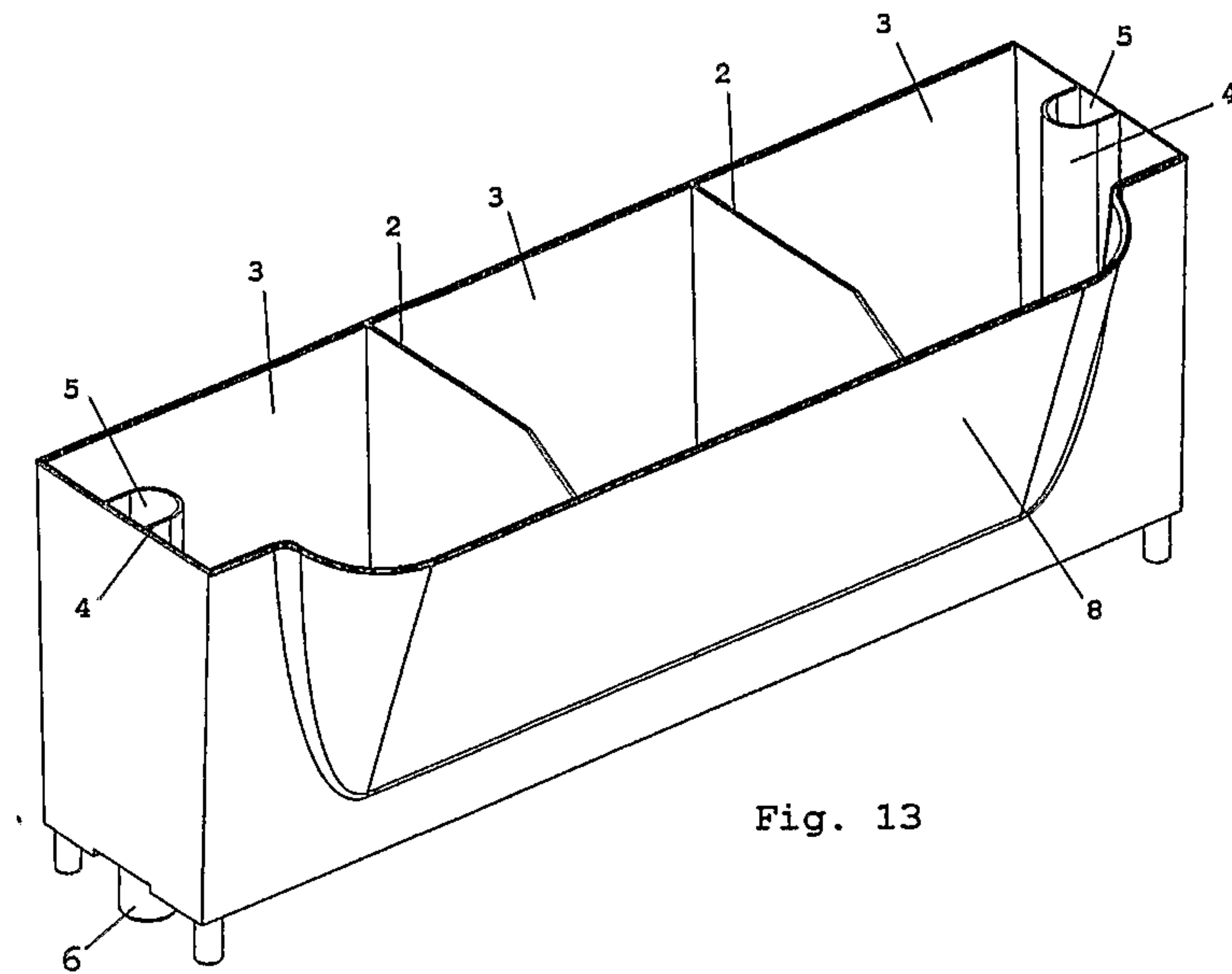
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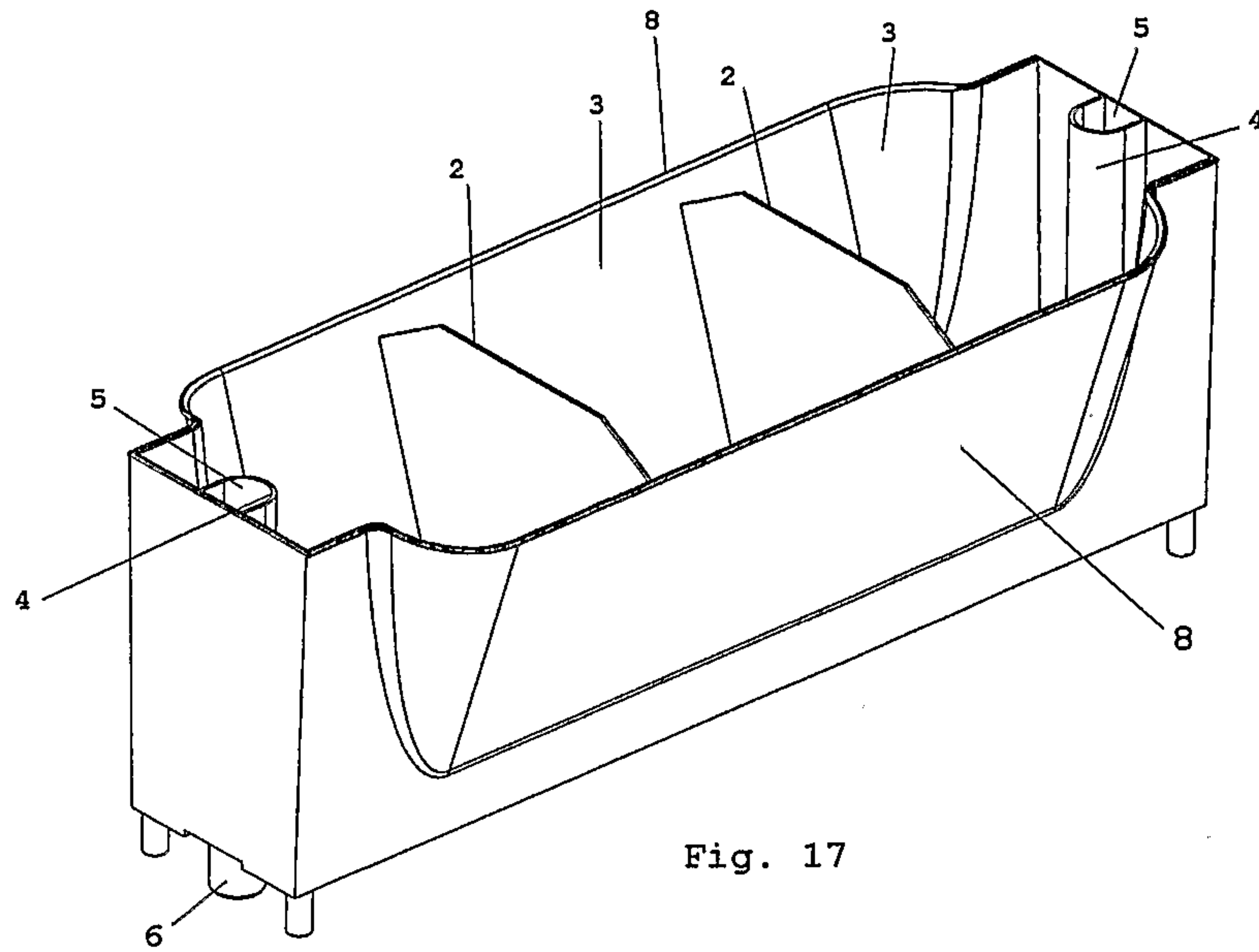


Fig. 17

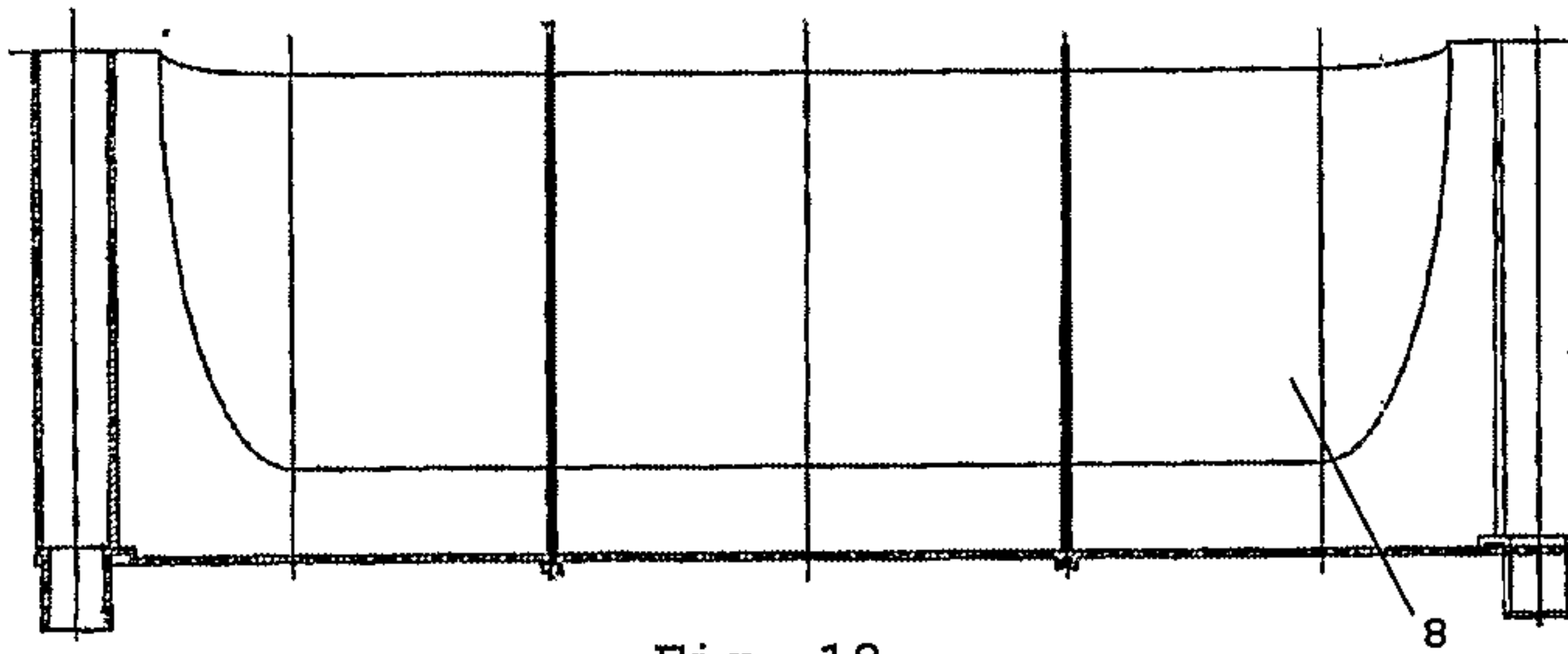


Fig. 18

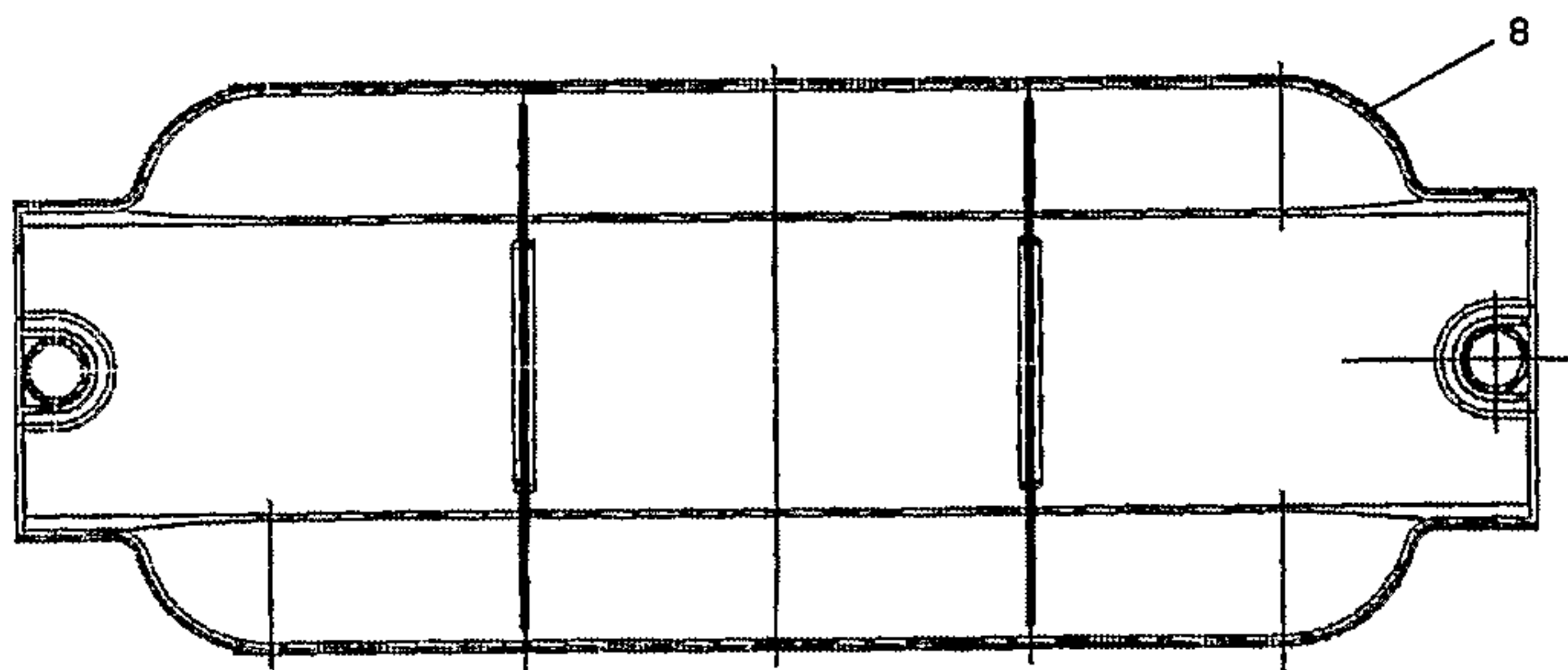


Fig. 20

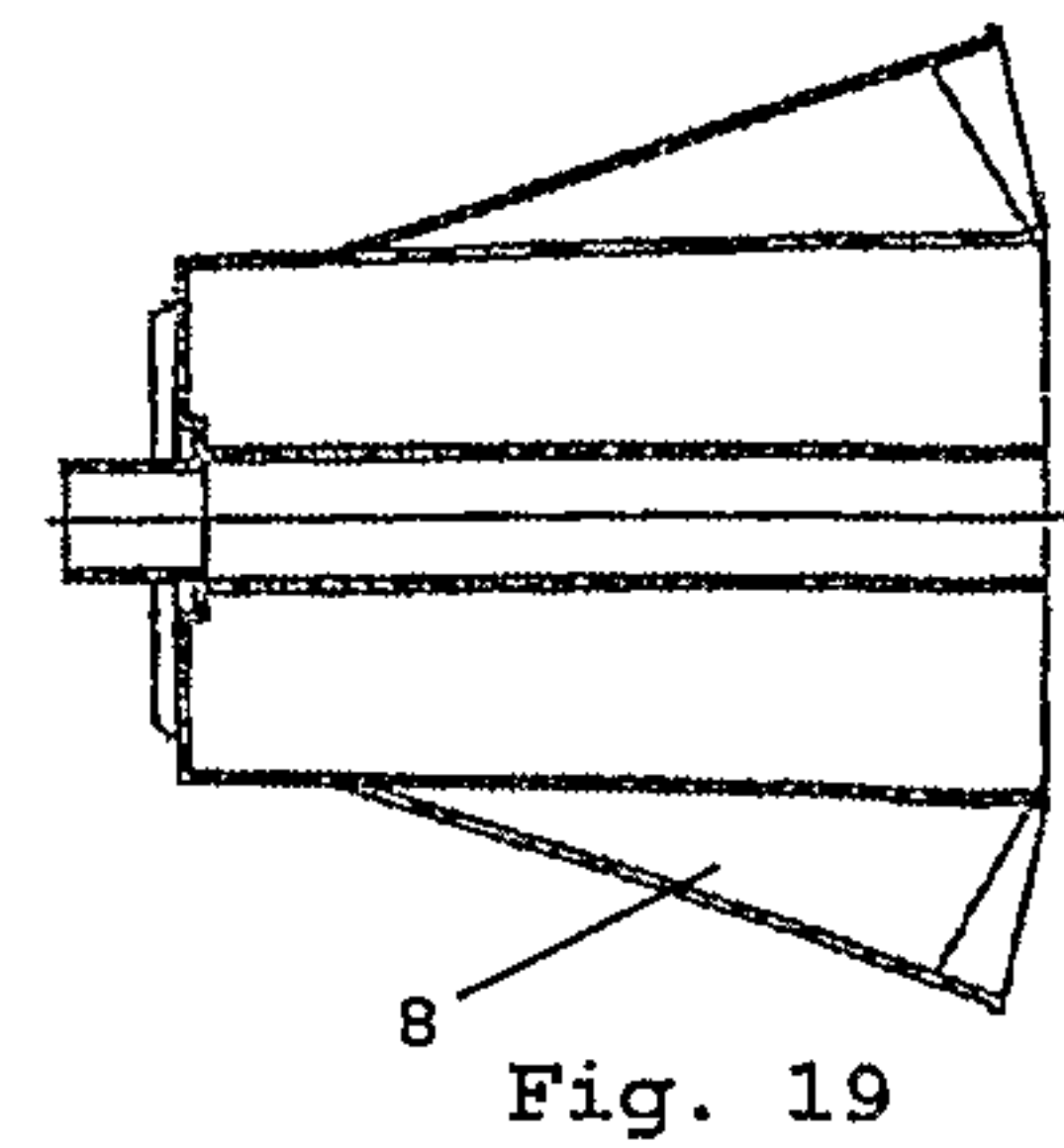


Fig. 19

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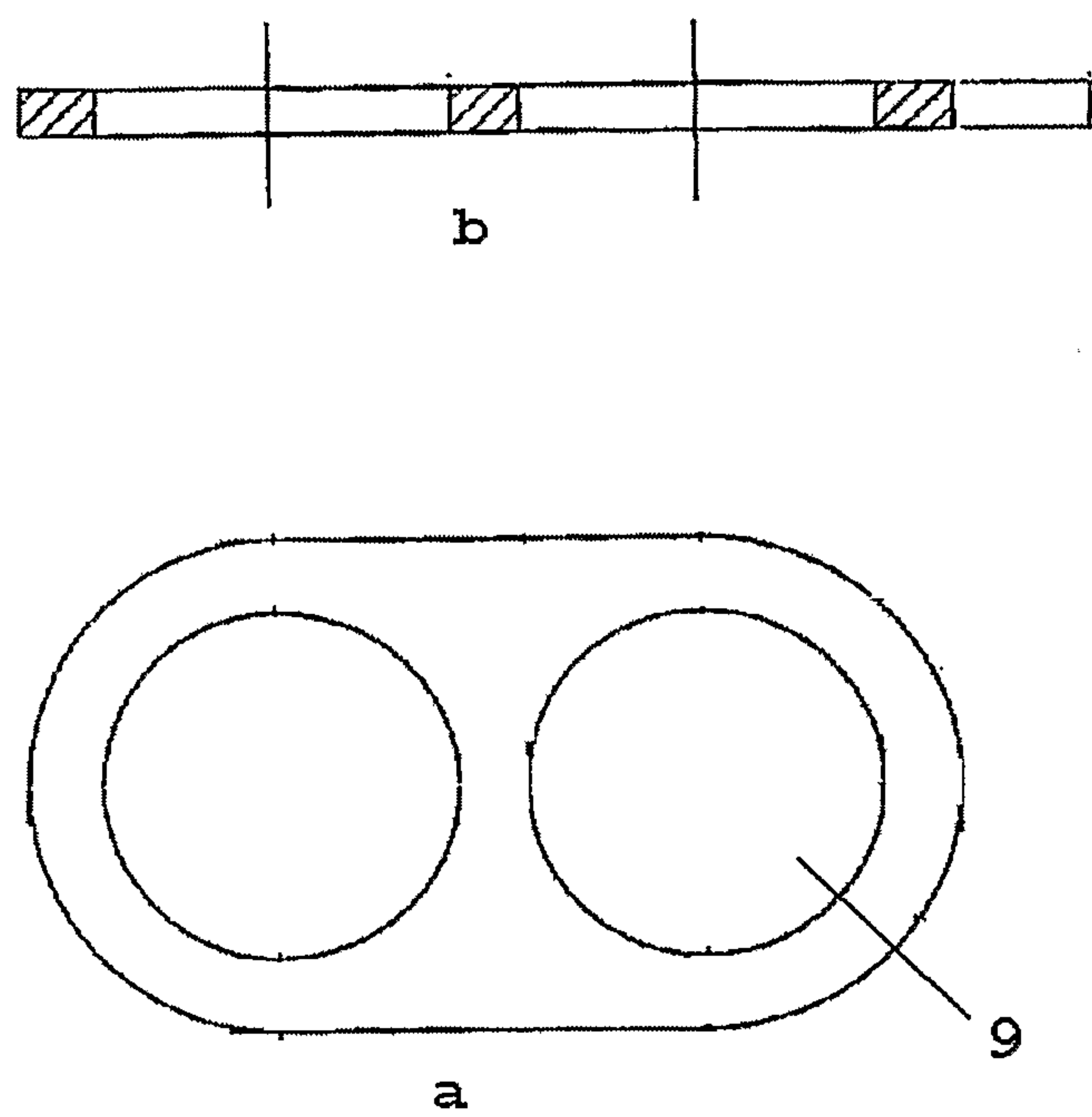


Fig. 21

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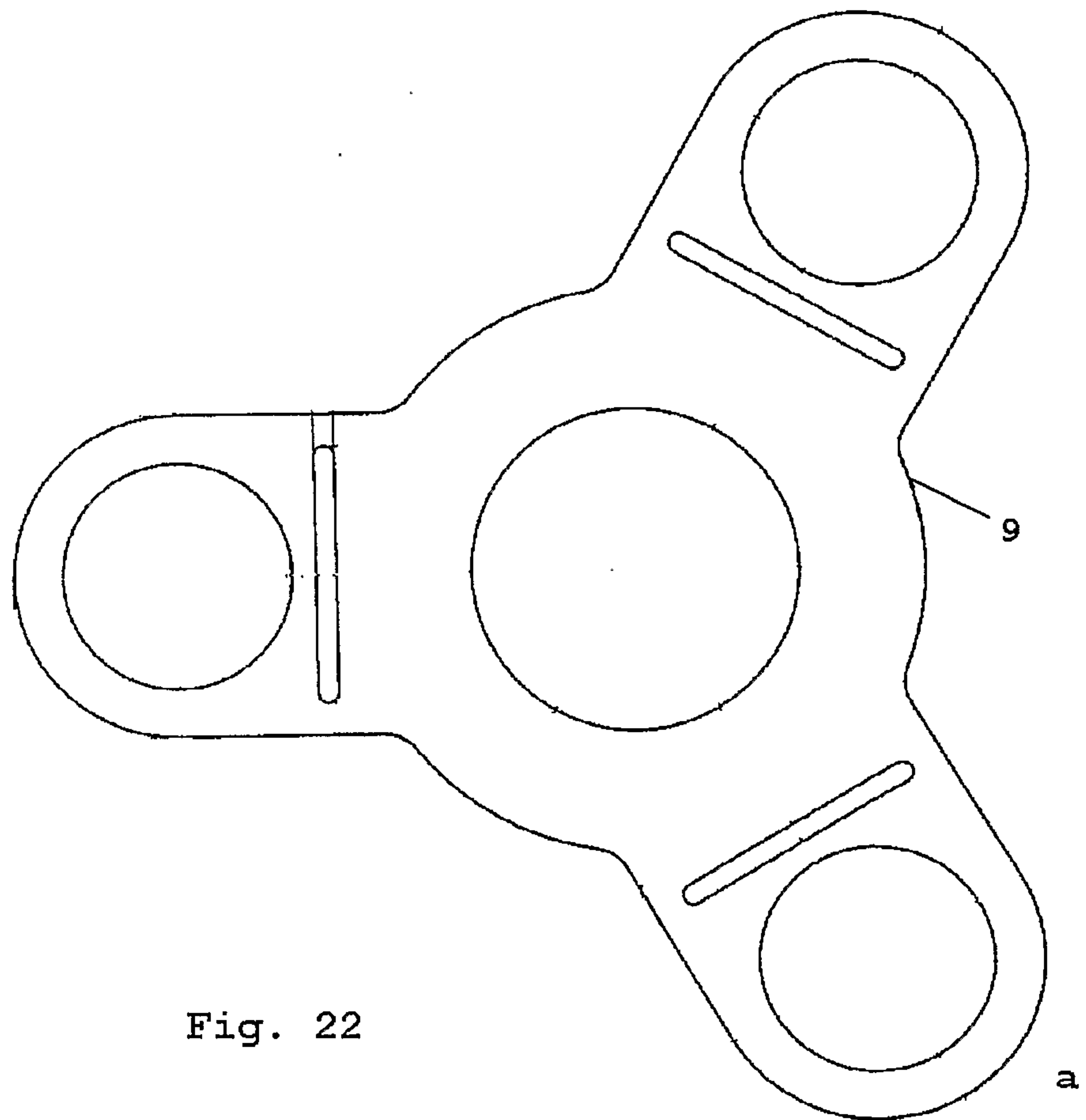
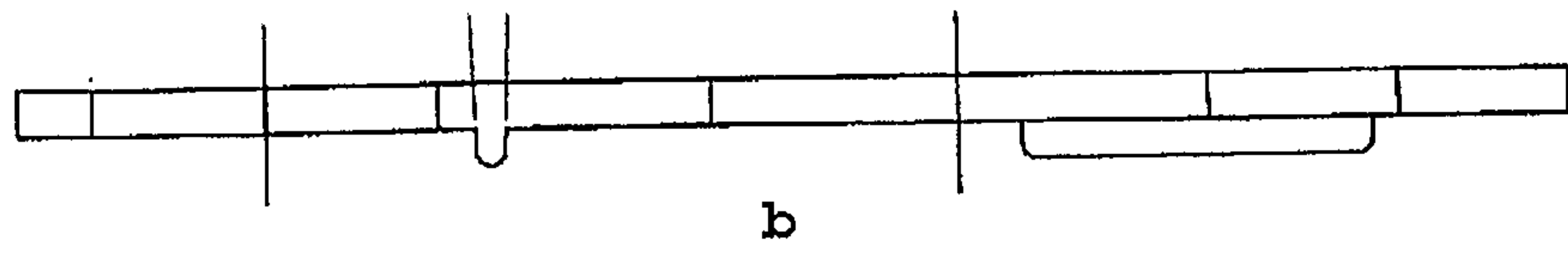


Fig. 22

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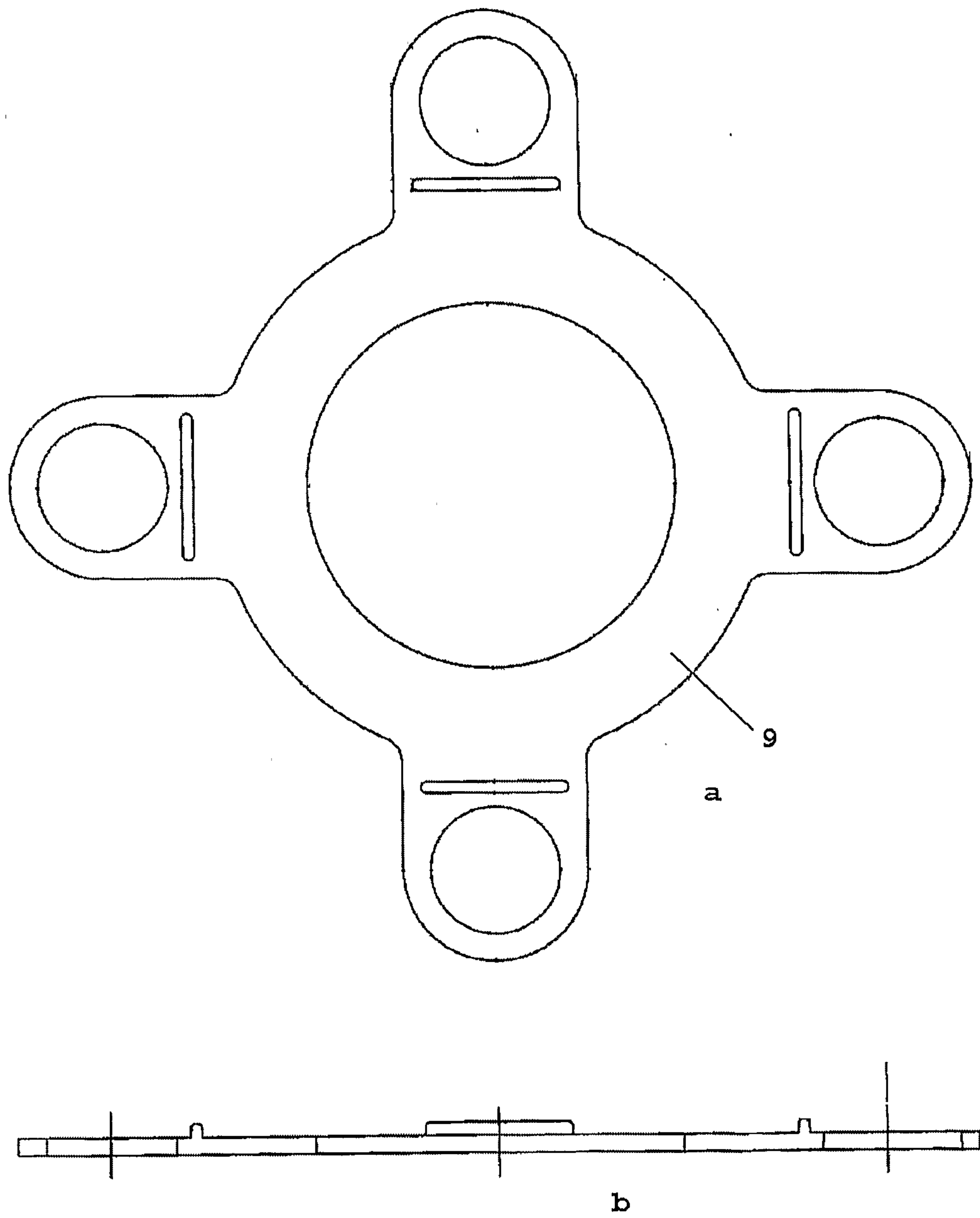


Fig. 23

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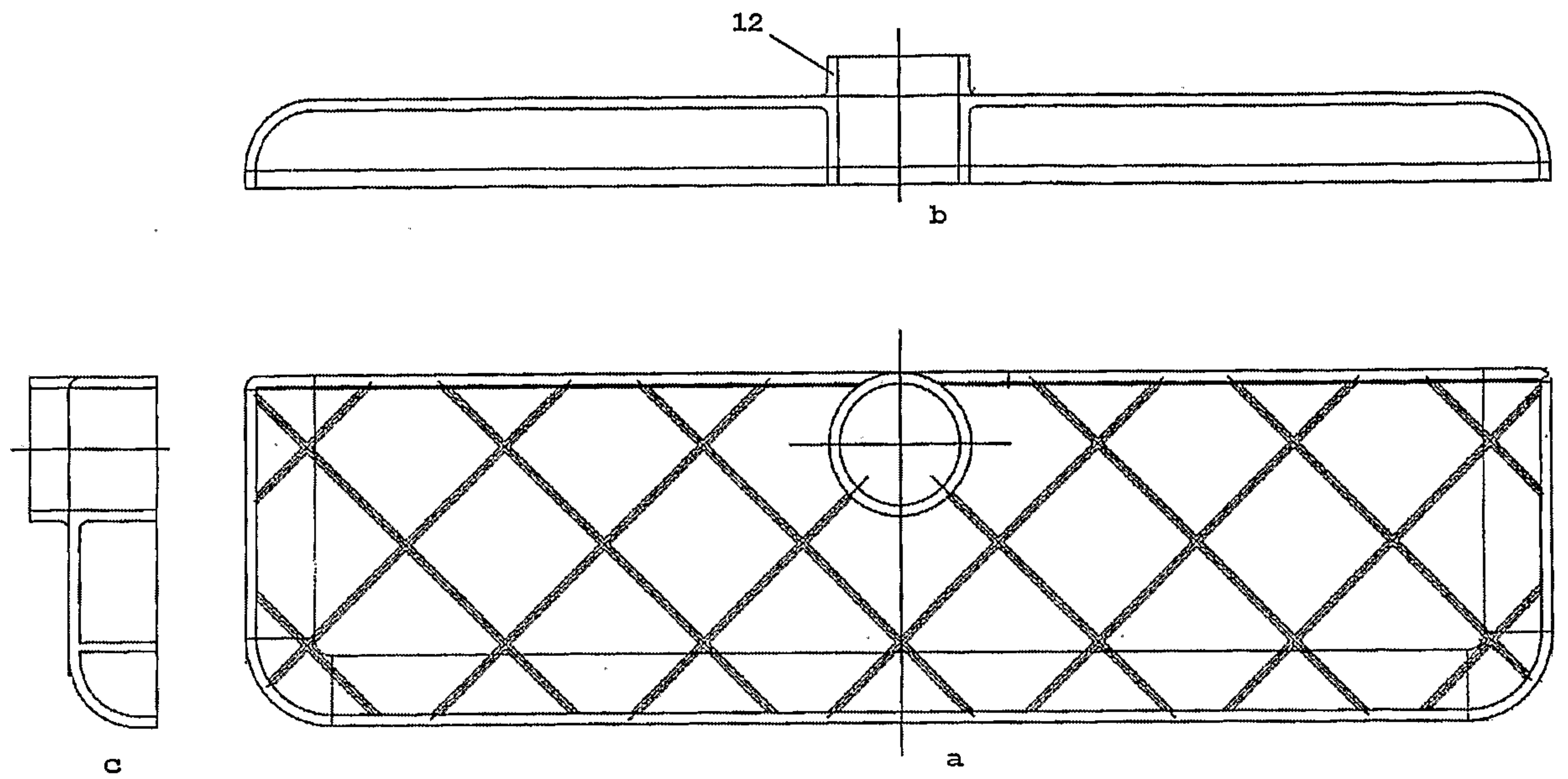


Fig. 24

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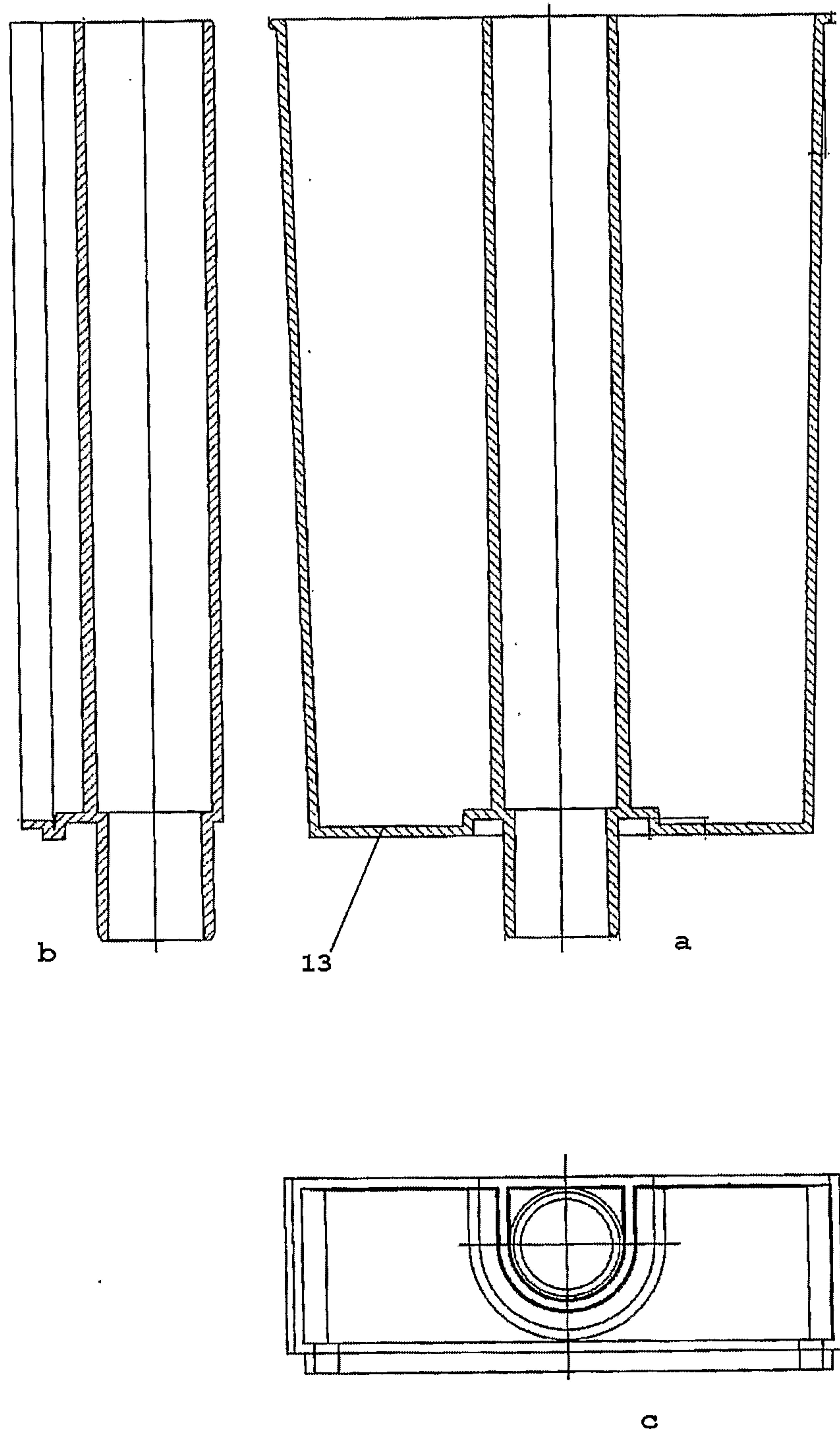


Fig. 25

- 11/15 -

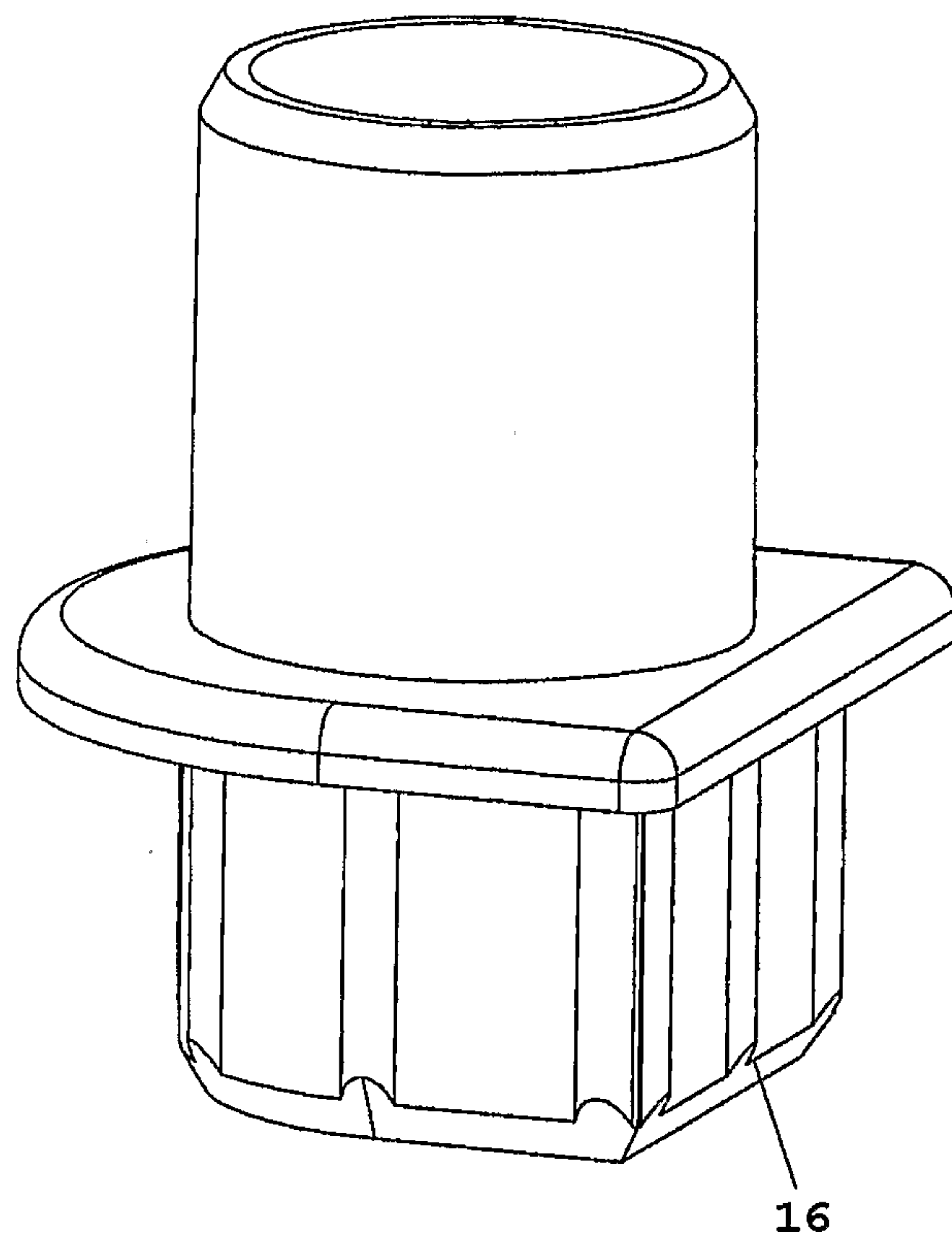


Fig. 26

- 12/15 -

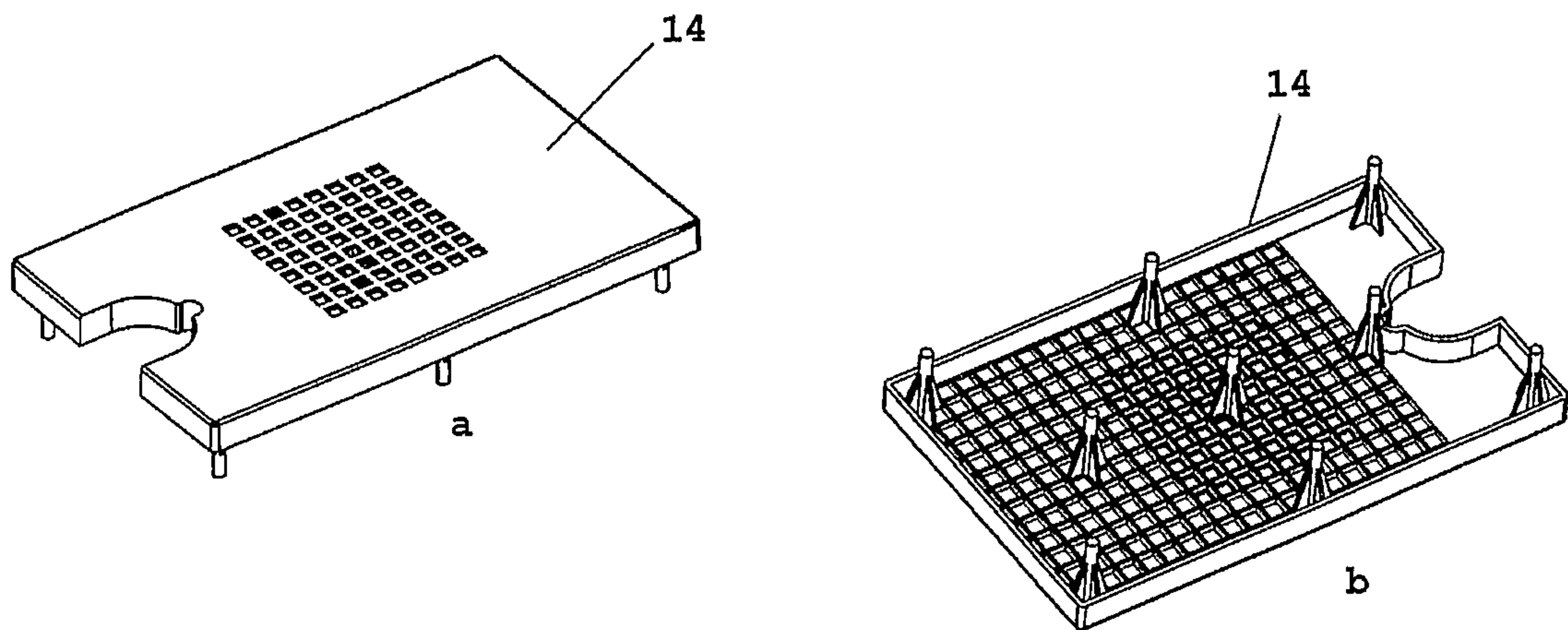


Fig. 27

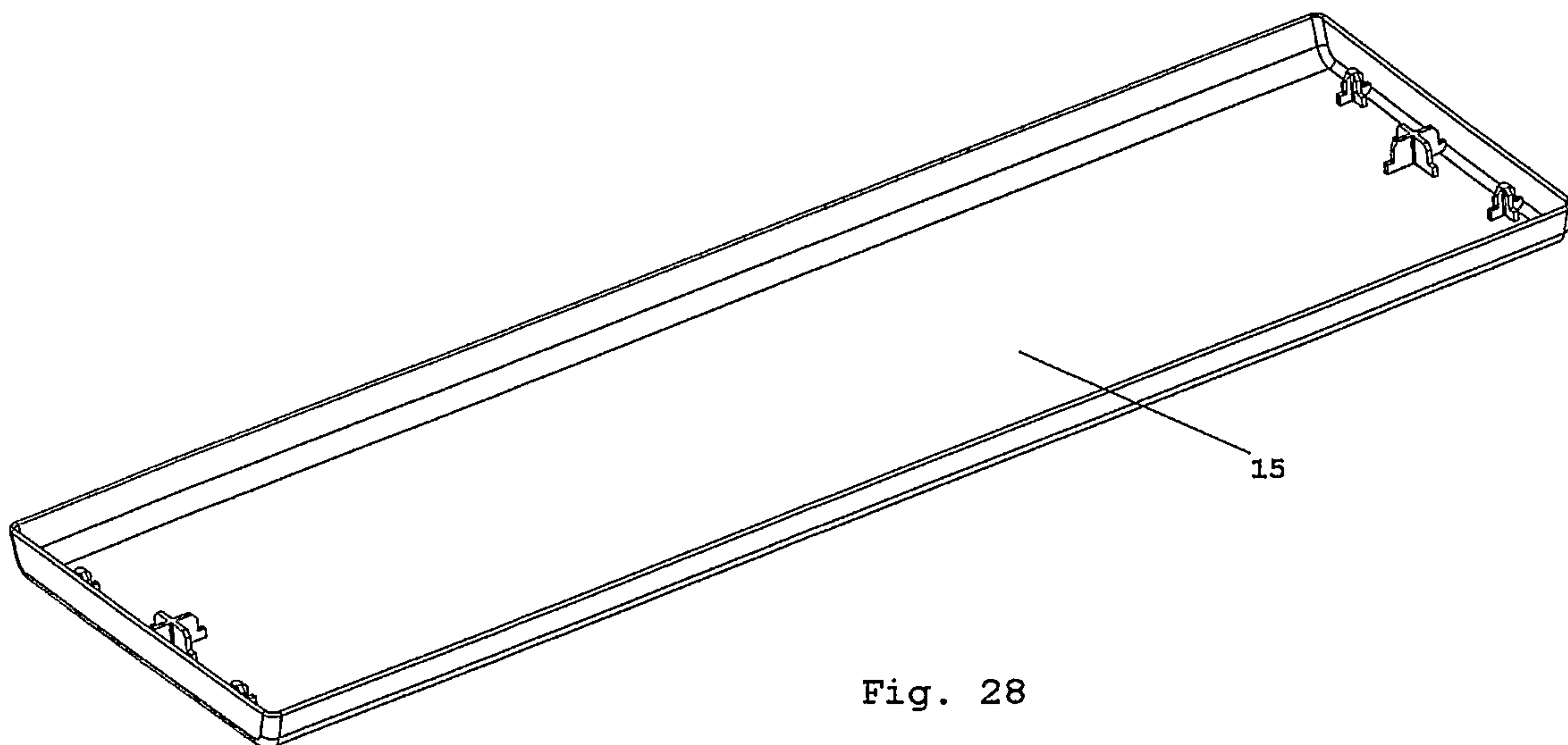


Fig. 28

- 13/15 -

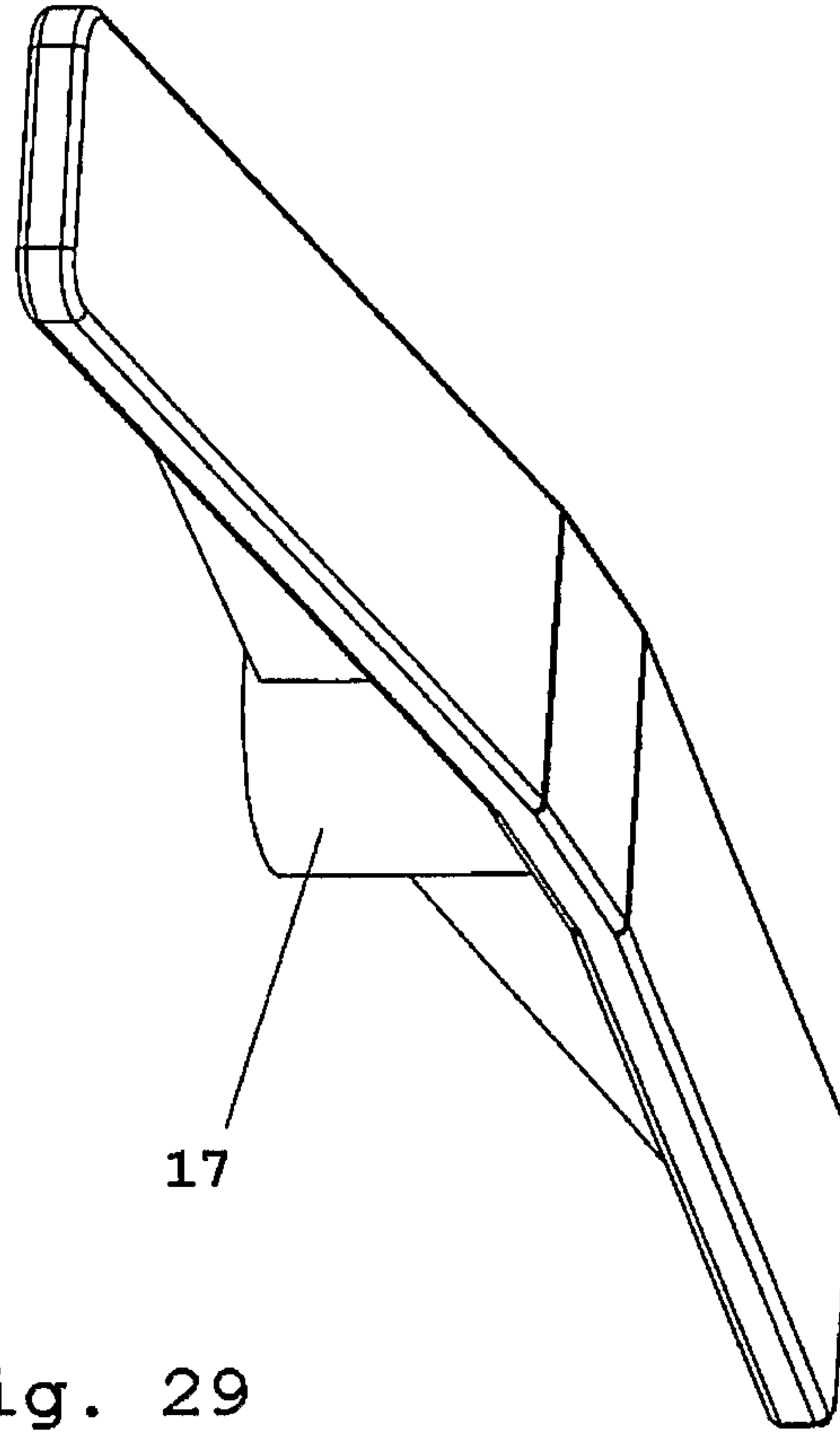


Fig. 29

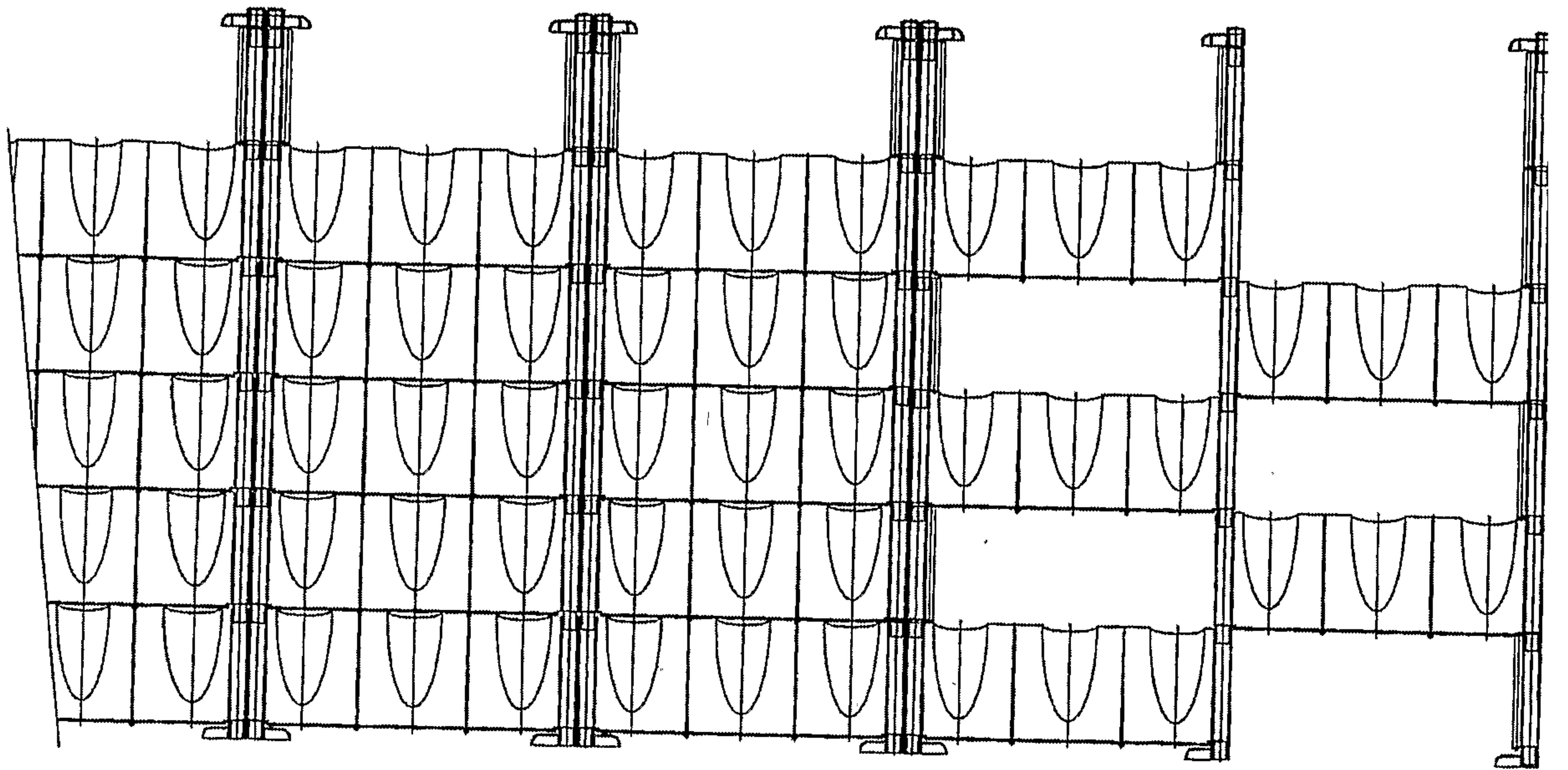


FIG. 30

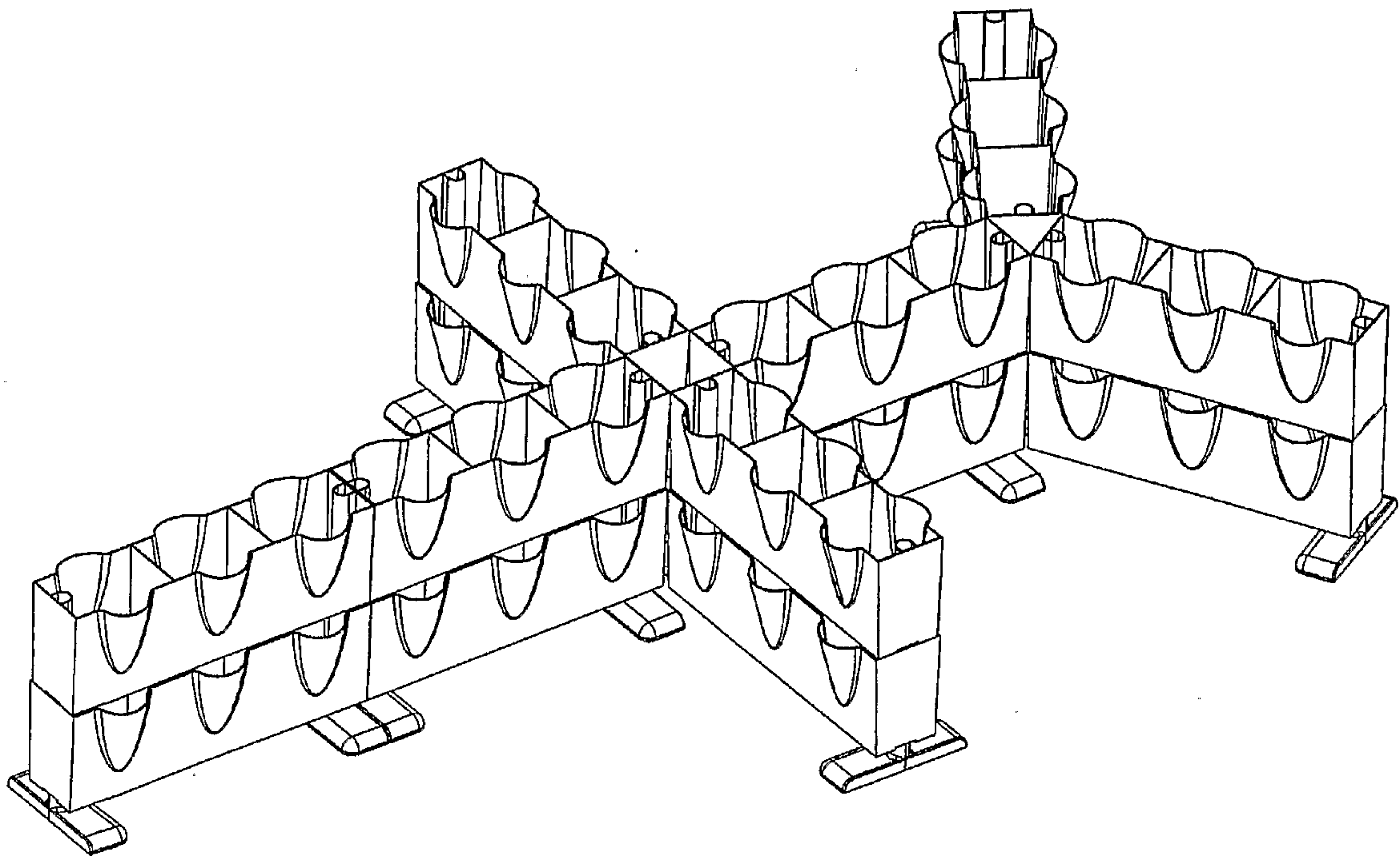


Fig. 31

