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(11) **EP 1 264 566 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
11.12.2002 Bulletin 2002/50

(51) Int Cl.7: **A47G 7/02**

(21) Application number: **02076936.0**

(22) Date of filing: **17.05.2002**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR**
Designated Extension States:
AL LT LV MK RO SI

(72) Inventor: **Galletti, Davide**
23870 Cernusco Lombardone (Lecco) (IT)

(74) Representative: **De Gregori, Antonella et al**
Ing. Barzano & Zanardo Milano S.p.A.
Via Borgonuovo 10
20121 Milano (IT)

(30) Priority: **21.05.2001 IT MI20011050**

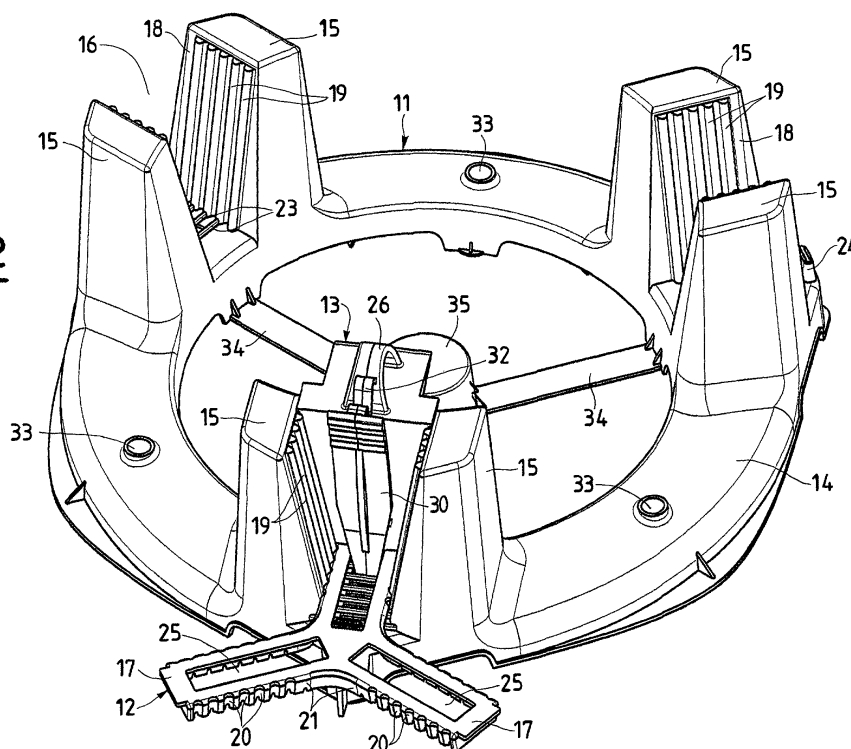
(71) Applicant: **Plastecnic S.p.A.**
23888 Perego, Lecco (IT)

(54) **Flower-pot holder for open-air cultivation**

(57) A universal, wind-proof potholder for open-air cultivation, which comprises a base (14) from which a series of uprights (15) extend upwards, which can receive anchoring elements (13), adjustable in a radial position and acting on a wall of the pot. Said potholder comprises adjustable seats (16) for housing spacer el-

ements (12) for adjacent pot-holders (11) and in particular the uprights (15) are in the form of radial couples, whereby each couple identifies a U-shaped seat (16) facing upwards and suitable for receiving one of the anchoring elements (13) and one of the spacer elements (12). The spacer element is generally star-shaped and the anchoring element is wedge-shaped.

Fig.2



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Description

[0001] The present invention relates to a universal pot-holder for open-air cultivation and its auxiliary elements.

[0002] Above-ground cultivation in medium-sized pots, i.e. with pot diameters ranging from 18 to 26 cm, is one of the most profitable and widely appreciated methods in modern floriculture. This type of cultivation, however, has a series of problems deriving from the devices and methods currently used for their production.

[0003] Pots situated outside the nursery in the open air must be firmly arranged, at the right distance, and the excess rainwater which tends to collect, must be drained.

[0004] To try and provide a solution to some of these problems, holding hooks are placed between adjacent pots, but their positioning is quite difficult.

[0005] In other known cases, perforated trays, for example thermoformed, are used, and the pots are inserted in the holes. This again is not an optimum solution as the cultivated area can undergo deterioration due to stagnant water or to geometrical and/or dimensional restrictions caused by the trays themselves.

[0006] In some cases stakes are used for anchoring the pots to the ground or electro-welded netting, with a wide mesh, for holding the pots and raising them above the ground. Both of these solutions however require complicated and costly positioning expenses and also a considerable amount of time, which further increases the costs.

[0007] Some of the main problems, however, strictly relating to this type of cultivation, remain unsolved.

[0008] One of the major problems, mentioned above, is linked to the fact that, due to the instability of pots of these dimensions, in the presence of strong winds, whole rows of pots tend to be overturned. Overturning causes loss of soil and fertilizer, distributed on top of the pot for each plant. Furthermore, the maintenance of pots and plants on the ground causes deterioration of the foliage and there is also the possibility of the plant collecting parasites and fungi present in the earth.

[0009] Cultivation waste due to the overturning of pots due to wind are therefore onerous. The labour costs for repositioning the pots after bad weather are also high.

[0010] The setting up of each are, moreover, is normally determined by the species of plant cultivated in the particular type of pot with a certain equidistance between the pots; at each turnover, however, the new pots are re-divided in the specific lot assigned with an analogous procedure, as in the case of a new cultivation scheme, to reselect the reciprocal distances between each pot and those adjacent.

[0011] Another problem, partly explained above, derives from the fact that in very rainy seasons there is the risk that, as the pot rests in the underlying polyethylene sheet, the water tends to accumulate and drain near the pot bases. This causes puddles which can create the

excessive irrigation of the plant due to sub-irrigation from the underlying holes of the pot, considerably damaging the roots.

[0012] A general objective of the present invention is therefore to produce a universal pot-holder which solves the technical problems specified above, in a simple and practical way.

[0013] Another objective of the present invention is to produce a pot-holder which can be placed in a cultivation plant in the open air, rapidly and with firm stability.

[0014] A further objective of the present invention is to produce a pot-holder equipped with elements which can be easily and rapidly connected to other pot-holders in an open-air cultivation, ensuring rapid adjustment to other pot sizes and which can also be repositioned according to measurements established in relation to the type of cultivation.

[0015] These and other objectives according to the present invention are achieved by the production of a universal pot-holder as described in claim 1.

[0016] Further characteristics of the pot-holder and auxiliary elements strictly connected thereto, forming part of the present invention are specified in the subsequent claims.

[0017] The characteristics and considerable advantages of a universal pot-holder for open-air cultivations and its auxiliary elements according to the present invention can be better understood and are evident from the following illustrative and non-limiting description, referring to the schematic drawings enclosed, wherein:

figure 1 is a blown-up axonometric view of a pot-holder according to the invention equipped with a spacer element and an anchoring wedge whose position can be regulated,

figure 2 is an axonometric view of a pot-holder in which a spacer element and anchoring wedge have been inserted for receiving a small-sized pot,

figure 3 is a section along the zone comprising the pot-holder and other two elements as illustrated and arranged in figure 2,

figure 4 shows an axonometric view similar to that illustrated in figure 2 with reciprocal positions for receiving a large-sized pot,

figure 5 is a section similar to that of figure 3, but for figure 4,

figure 6 is a plan view from above of the pot-holder alone of figure 1,

figure 7 is a cross-section according to the track VII-VII of figure 6 of the pot-holder itself,

figure 8 is a view from below of the pot-holder of figure 6,

figure 9 is an axonometric view of the pot-holder of the invention without the central wedge,

figure 10 is an axonometric view of the spacer element illustrated in figure 1,

figure 11 is a view from below of figure 10,

figure 12 is an axonometric view of the anchoring

wedge illustrated in figure 1 from a different angle, figure 13 is a front view of the wedge of figure 12, figure 14 is a view from above of the wedge of figure 12, figure 15 is a side view of the wedge of figure 12, figures 16 and 17 are plan views from above of a series of pot-holders without the central element and auxiliary elements, when respectively arranged for a dense cultivation, for receiving closely-packed pots, and for a sparse cultivation, for pots arranged at a distance, figure 18 is an axonometric view of the pot-holder of the invention with various kinds of radial lifting elements.

[0018] With reference to figures 1-8, these illustrate a pot-holder 11 according to the invention, equipped with a spacer element 12 of the interaxis between the pots, not shown, and an anchoring wedge 13, whose position can be regulated for blocking each pot in the respective pot-holder 11.

[0019] The pot-holder 11 has a modular structure, for example, hexagonal, and is produced as a module consisting of a base 14, for example annular and flattened at the bottom, from which a series of uprights 15 extend upwards. The uprights 15 are, for example, in the form of three radial couples, whereby each couple identifies a U-shaped seat 16 facing upwards. Said seat 16 is suitable for receiving both an arm portion 17 of a spacer element 12 and an anchoring wedge 13, after the positioning of the spacer element 12 (figures 2, 3 and 4, 5). On two facing surfaces 18 of the two uprights 15, the seat 16 has a series of reliefs 19 suitable for identifying fitting elements by means of a toothed surface. Complementary fitting elements identified by means of complementary toothed grooves 20 situated on opposite lateral surfaces 21 and oriented towards the outside of each arm portion 17 of the spacer element 12, are applied in these reliefs 19, or in the relative fitting elements of the relative surface 18.

[0020] The bottom of the seat 16 also has a series of openings 22 identified by various transversal rods 23 and at one end facing outwards, there is also an extension facing upwards 24 suitable for being inserted in an internal outlet (25) for lightening each arm portion 17 of the star-shaped spacer element 12.

[0021] There is also an anchoring wedge 13 whose position, as already mentioned, can be adjusted in relation to the diameter of the pot to be inserted in the pot-holder 11. Said wedge 13 comprises a monolithic body consisting of an upper gripping element 26, lateral surfaces 27, an internal radial supporting surface 29 and a linking element 30.

[0022] The two lateral surfaces 27 are equipped with a series of reliefs 28 complementary to the reliefs 19 of the two facing surfaces 18 of the two uprights 15, thus identifying further fitting elements with the pot-holder 11 and between the various parts. In particular, stable po-

sitioning elements (19, 28) are thus formed in a radial direction between the uprights 15 and the wedges 13.

[0023] The internal radial surface 29 creates a tangential supporting zone for a pot (not shown), when placed inside the pot-holder 11 equipped with three respective spacer elements 12 and three anchoring wedges 13, suitably regulated.

[0024] Finally, each anchoring wedge 13 extends laterally in a linking element 30 consisting of an appendage, of which a portion of the lower end forms a hook 31, which is inserted in an opening 22 situated on the bottom of the seat 16, passing through the internal outlet 25 of the arm portion 17 of the star-shaped spacer element 12, and is hooked onto a transversal rod 23. In this way, stable positioning elements (22, 23, 24; 30, 31) are formed in an axial direction between the uprights 15 and the wedges 13.

[0025] The appendage 30, forming the linking element, is constrained in 36 to the wedge body 13, and is connected to the gripping element 26 by means of an S-shaped extension 32 which creates a certain elasticity between the parts, improving their coupling.

[0026] The internal supporting surface 29, moreover, is connected from below to the wedge body 13 by means of a pliable curved zone 37 which makes the insertion of the pot more adaptable.

[0027] The annular base 14 of the pot-holder 11 can also comprise holes 33 for possible further anchorage to the ground. In addition, in order to make the structure more rigid, radial spokes 34 can be added together with a central lifting element of the pot 35. Alternatively, as illustrated in figure 18, there can also be a series of radial lifting elements 135.

[0028] Both the facing surfaces 18 of the seats 16 between the two uprights 15, the lateral surfaces 21 of each arm portion 17 and also the lateral surfaces 27 of the wedges 13 are slightly and complementarily reamed to allow a better and more stable connection with each other.

[0029] The star-shaped spacer element 12 is available in various lengths, making it possible to cover a wide variety of interaxes between the pot-holders 11 (see figures 16 and 17). In general, there are also three wedge elements 13 for each pot-holder 11, adjustable within a certain pitch range, for example seven millimeters, which, when suitably housed, keep the pot, not shown, in position, and hold the star-shaped spacer element 12 in the seat.

[0030] All the parts can be made of thermoplastic material, also of the recycled type, and can be easily and economically produced by means of moulding.

[0031] The various characteristics of the elements 11, 12 and 13 are more visible in the figures which illustrate them in detail.

[0032] In short, the end article according to the present invention has been studied so as to ensure that the pot-holder 11 has a stable positioning also in the presence of strong winds and allows a wide range of

pots to be inserted. The structure, moreover, is such as to easily and safely remove rainwater from the bottom of the pot, which can even, in one of the versions, keep the pot raised above the ground.

[0033] There are also no problems should the pot-holder be trampled on or kicked, as a result of its stability, which, if necessary, can be further increased by anchorage to the ground by means of stakes inserted in pre-arranged holes 33.

[0034] The star-shaped spacer element 12 is available, as already mentioned, in various lengths and has been studied for allowing a correction distribution of even equidistances in the whole cultivation plant set-up. For each specific plant set-up, in fact, it can cover a wide range of interaxes between the pots.

[0035] This spacer element 13 allows the modules 11 to be fixed to each other forming a cell-like structure capable of resisting stress caused by wind, at times strong, which may blow against the pots.

[0036] Finally, the anchoring wedge 13 is firstly aimed at holding the pot in position preventing it from being overturned, in spite of the pot-holder.

[0037] It also allows the specific housing of a wide range of pots of varying sizes, types, shapes and angle of clearance by the elastic adjustment of the part.

[0038] This wedge, moreover, remains permanently in the seat by means of the hook 31 which passes through the star-shaped spacer element 12 and is firmly anchored to the pot-holder module 11. Finally, it is designed so as to withhold the star-shaped spacer element 12 thus ensuring the housing of the whole structure in the seat.

[0039] All the elements 11, 12 and 13 can be suitably scaled with appropriate indexes and references allowing an easier setting up.

Claims

1. A universal pot-holder for open-air cultivation, **characterized in that** it comprises a base (14) from which a series of uprights (15) extend upwards, which receive anchoring elements (13), adjustable in a radial position and acting on a wall of a pot.
2. The pot-holder according to claim 1, **characterized in that** it also comprises seats (16) for the adjustable housing of spacer elements (12) for adjacent pot-holders (11) in said open-air cultivation.
3. The pot-holder according to claim 1, **characterized in that** said uprights (15) are in the form of radial couples, whereby each couple identifies a U-shaped seat (16) facing upwards and suitable for receiving one of said anchoring elements (13).
4. The pot-holder according to claim 1 or 2, **characterized in that** said uprights (15) are in the form of radial couples, whereby each couple identifies a U-shaped seat (16) facing upwards and suitable for receiving either one of said anchoring elements (13) or one of said spacer elements (12).
5. The pot-holder according to claim 1, **characterized in that** each of said anchoring elements comprises a wedge (13) which can be inserted in a seat (16) situated in said uprights (15), there also being a series of stable positioning elements (19, 28) in a radial direction between said uprights and each of said wedges.
6. The pot-holder according to claim 5, **characterized in that** said stable positioning elements (19, 28) in a radial direction consist of complementary reliefs (19, 28) situated on facing surfaces (18, 27).
7. The pot-holder according to claim 5, **characterized in that** there are further stable positioning elements (22, 23, 24; 30, 31) in an axial direction between said uprights and each of said wedges.
8. The pot-holder according to claim 7, **characterized in that** said stable positioning elements (22, 23, 24; 30, 31) in an axial direction consist of a series of openings (22) in which linking elements (31) constrained to said wedges (13), are inserted.
9. The pot-holder according to claim 7, **characterized in that** said stable positioning elements (22, 23, 24; 30, 31) in an axial direction are associated with elastic elements (30, 32) which favour a stable positioning.
10. The pot-holder according to claim 5 or 7, **characterized in that** each wedge (13) comprises an internal radial surface (29) which identifies a tangential supporting zone for a pot situated inside said pot-holder (11).
11. The pot-holder according to claim 10, **characterized in that** each wedge (13) behind the internal radial surface (29) which identifies a supporting zone, comprises a pliable curved zone (37) which makes the insertion of the pot more adaptable.
12. The pot-holder according to claim 5 or 7, **characterized in that** each wedge (13) comprises a gripping element (26).
13. The pot-holder according to claim 2, **characterized in that** said spacer elements (12) are star-shaped, having a series of arms (17) equipped with fitting elements (20) with said uprights (15).
14. The pot-holder according to claim 13, **characterized in that** said fitting elements consist of comple-

mentary reliefs and grooves (19, 20) situated on facing surfaces (18, 21).

15. The pot-holder according to claim 13, **characterized in that** said arms (17) of said star-shaped spacer elements (12) comprise an internal outlet (25) for the passage of said anchoring elements (13). 5
16. The pot-holder according to claim 1, **characterized in that** said base (14) is annular and comprising lifting elements (35, 135) of the pot situated therein. 10
17. The pot-holder according to claim 16, **characterized in that** said lifting elements are central (35) or radial (135). 15

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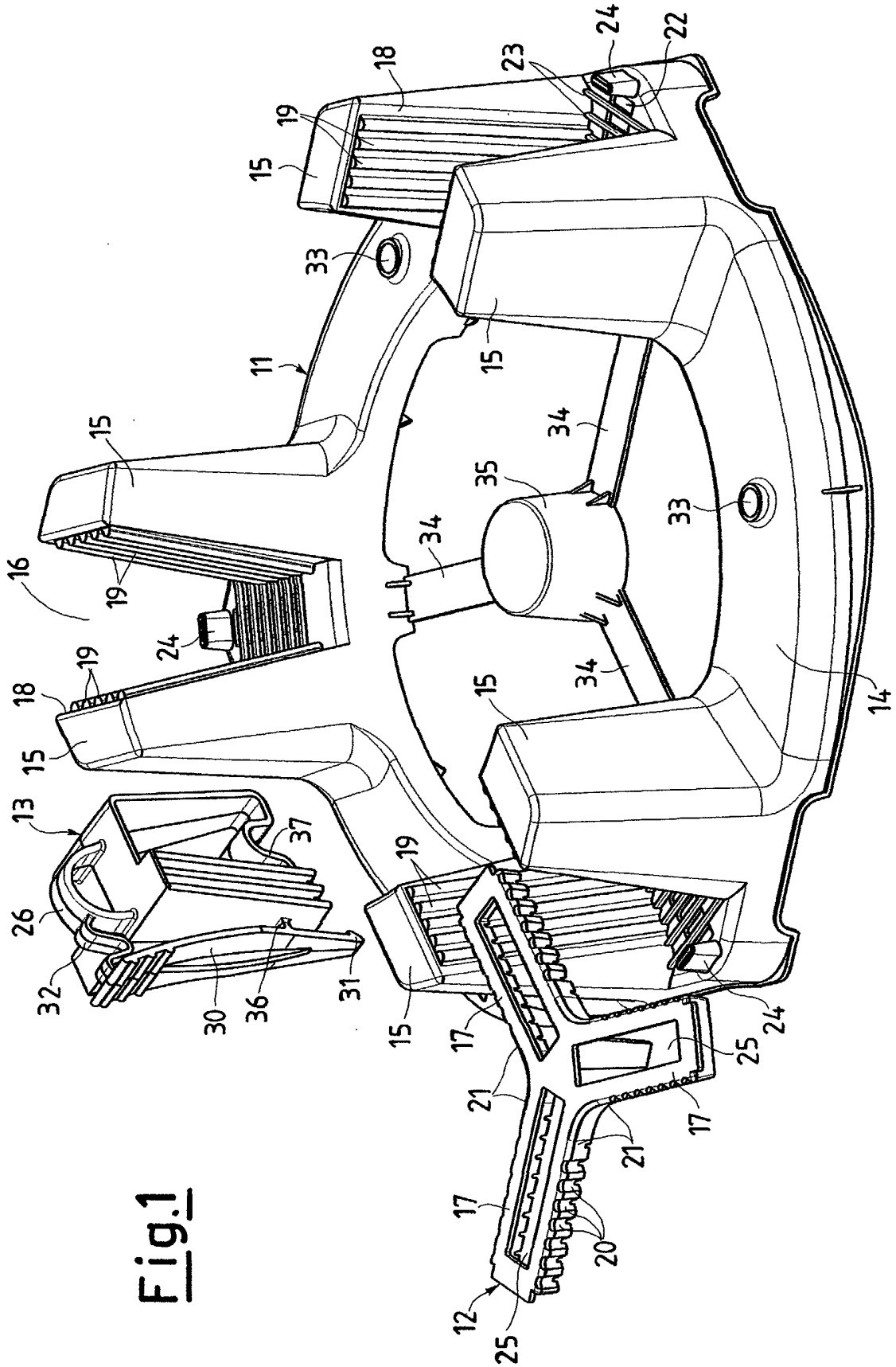


Fig. 1

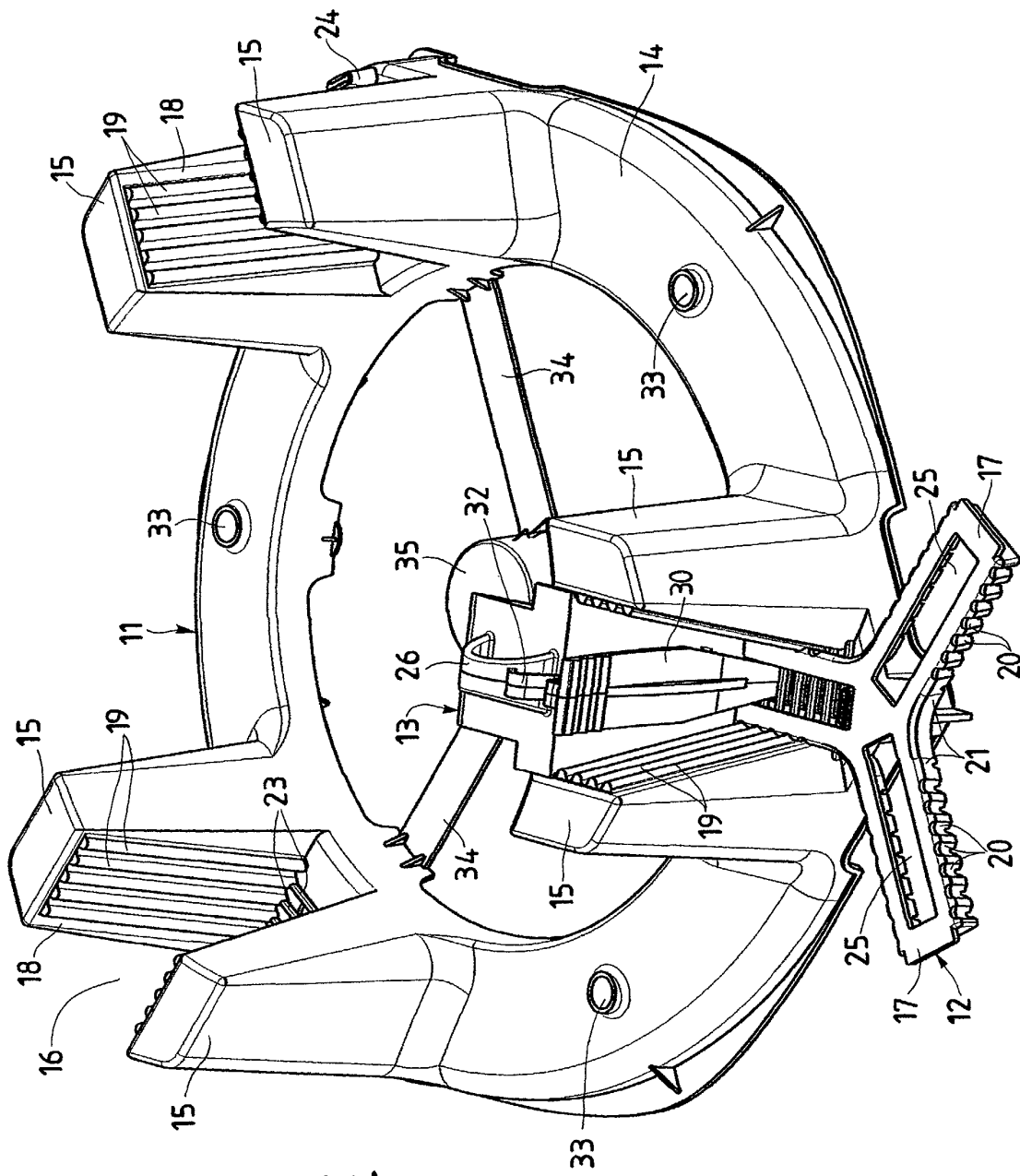


Fig. 2

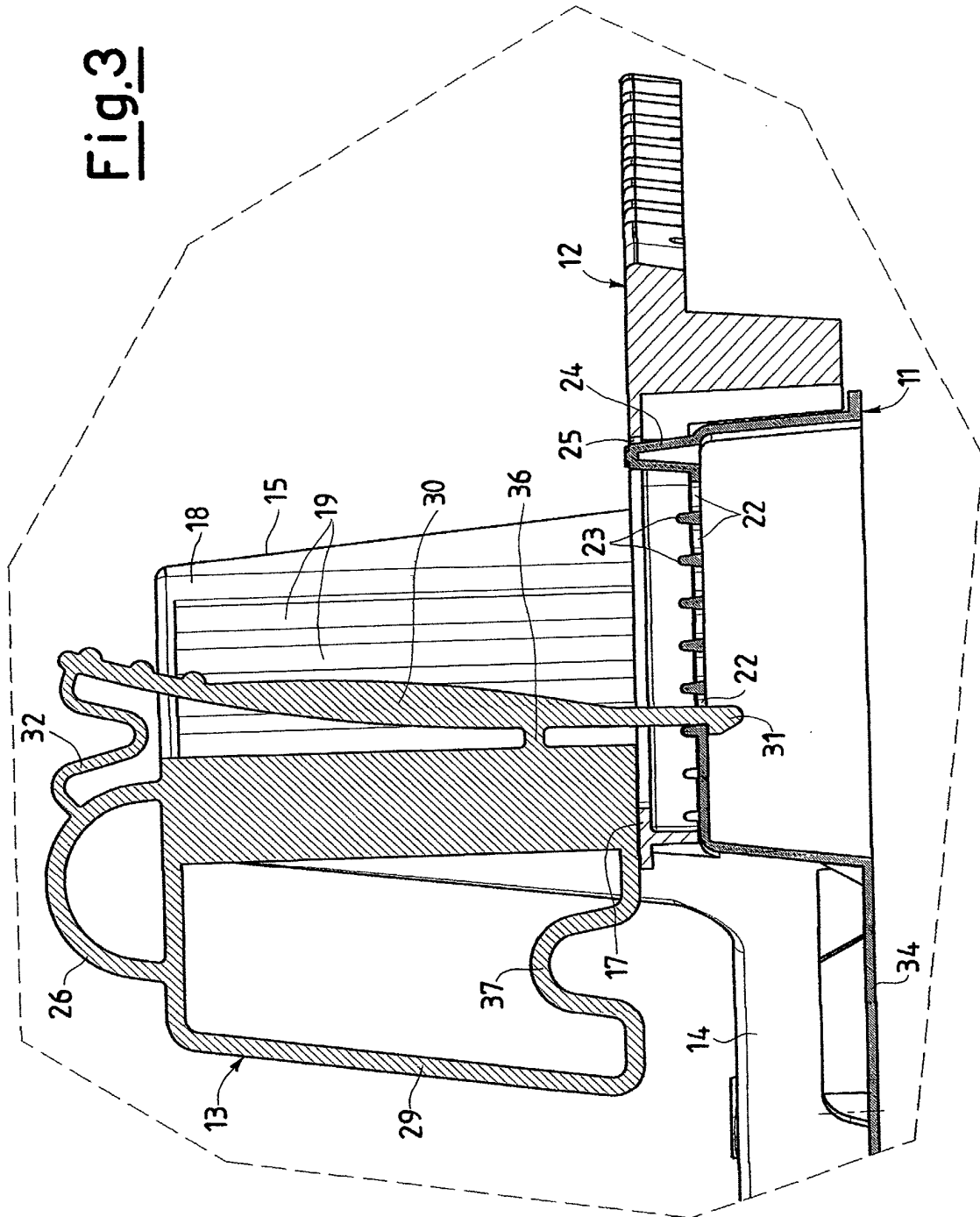


Fig. 3

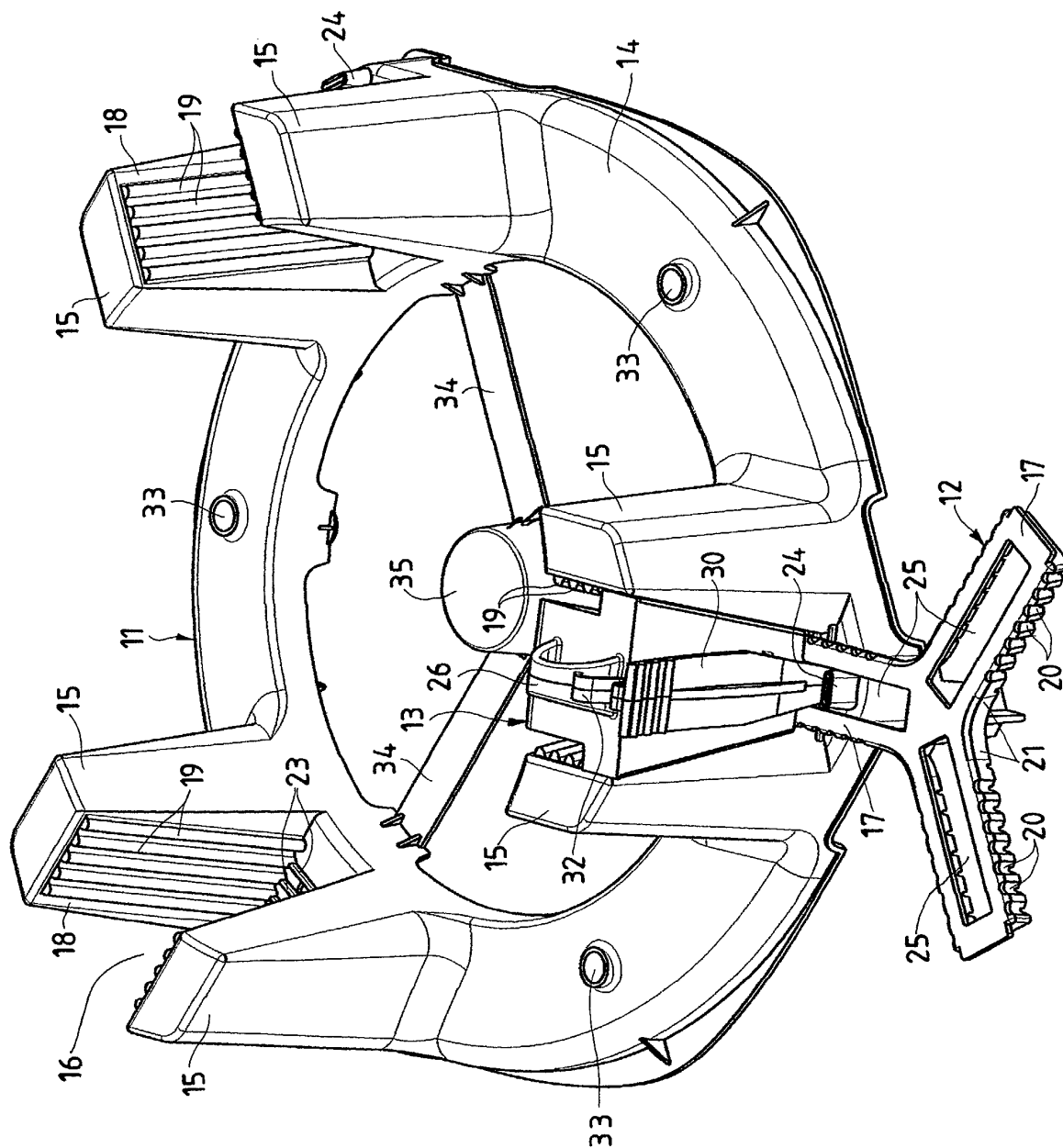


Fig. 4

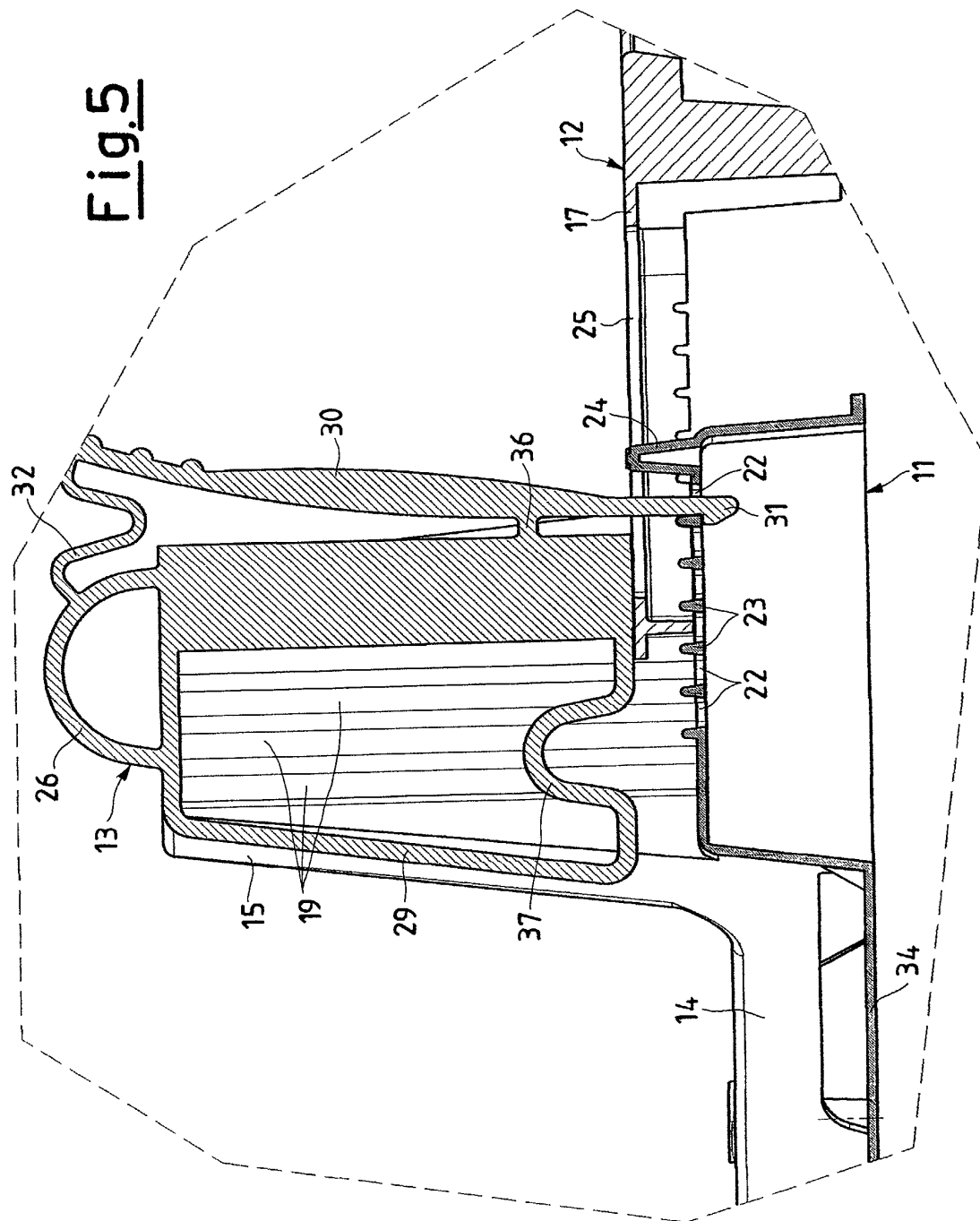


Fig.6

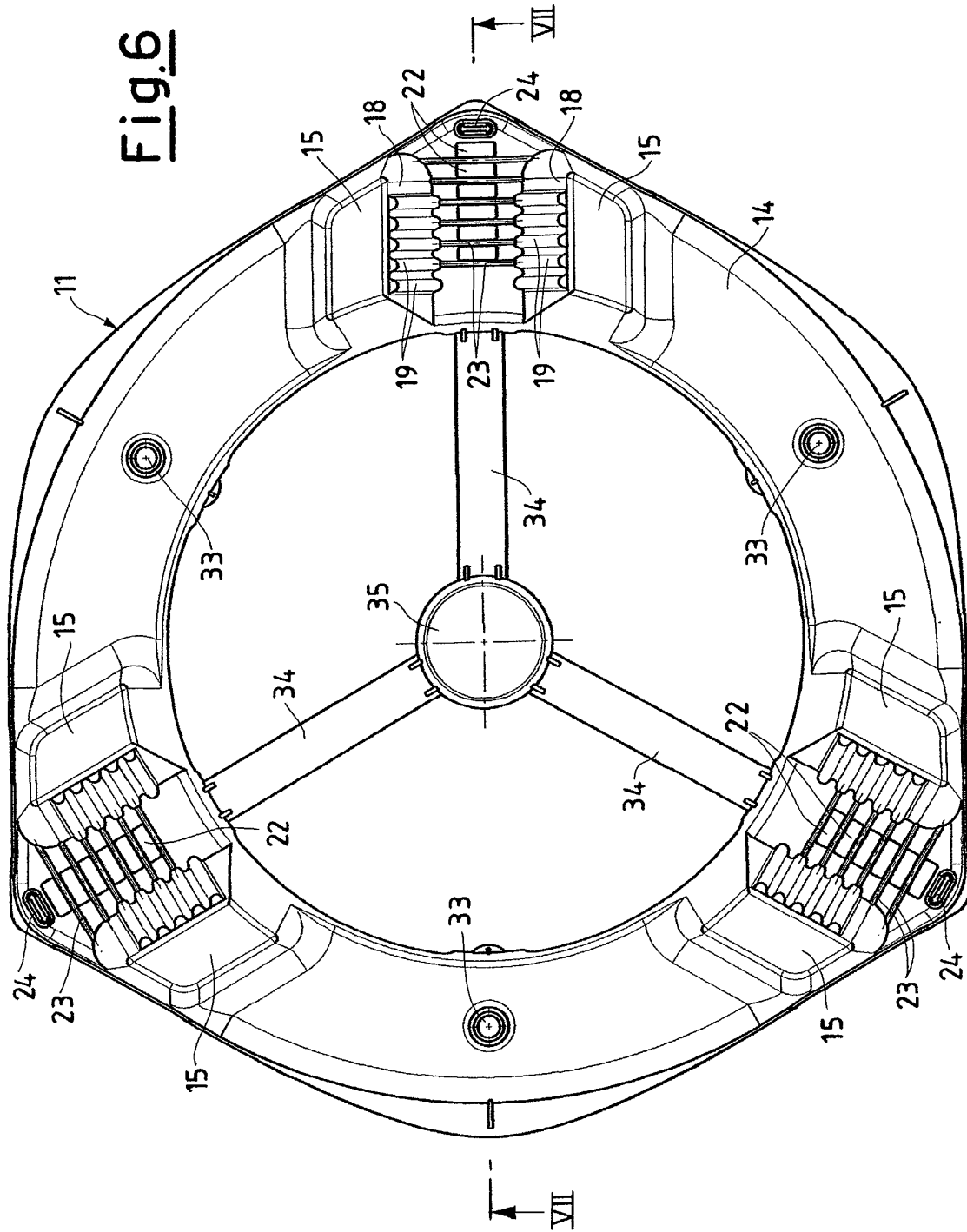
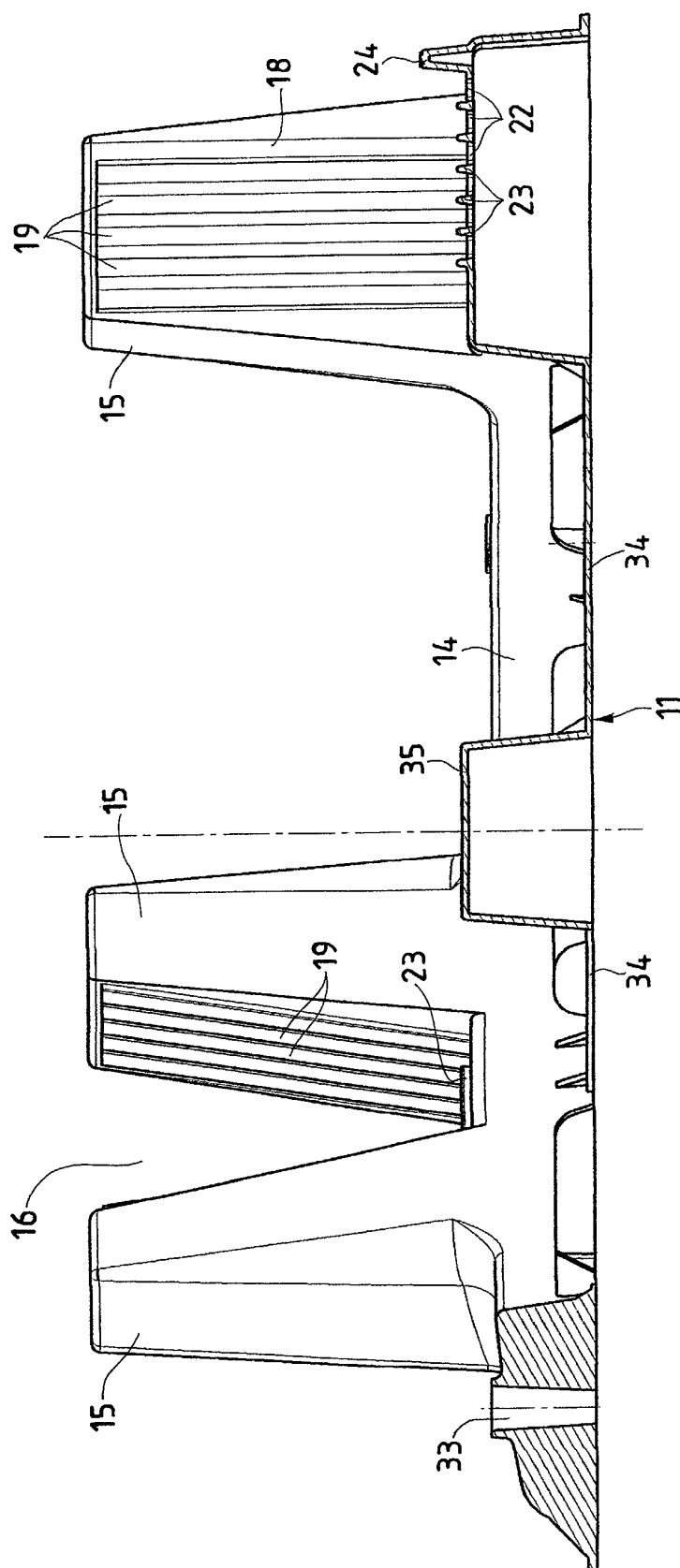


Fig.7



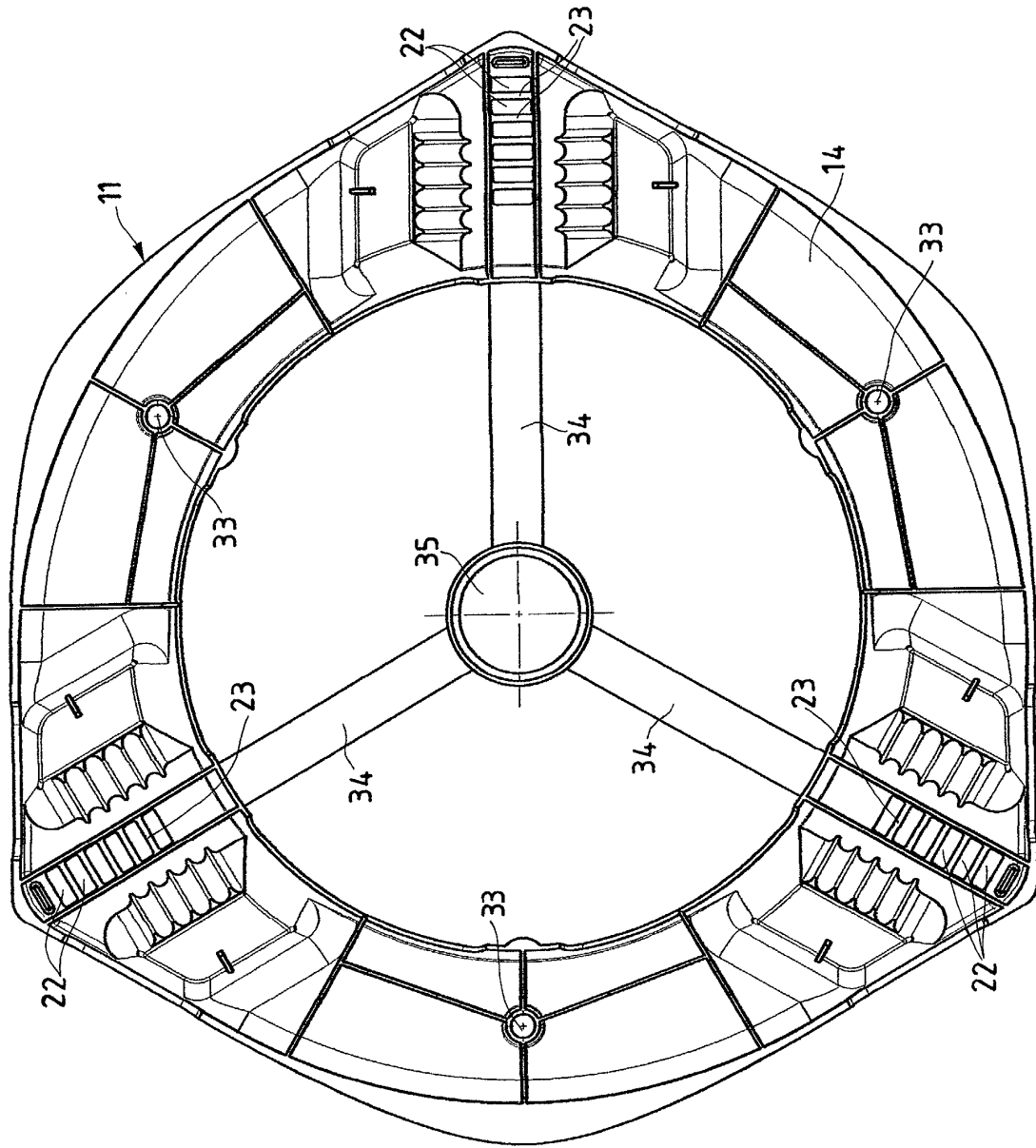


Fig. 8

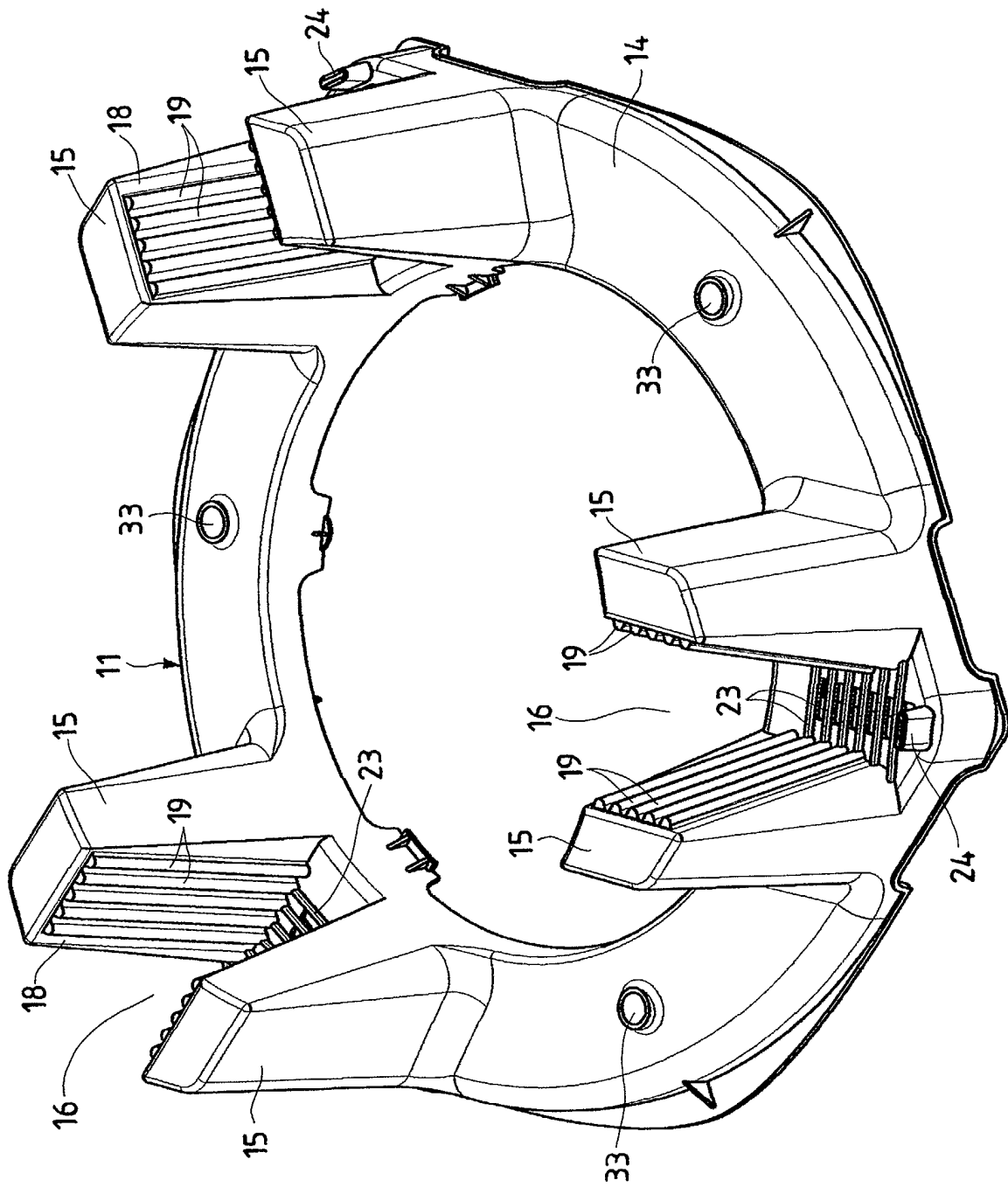


Fig. 9

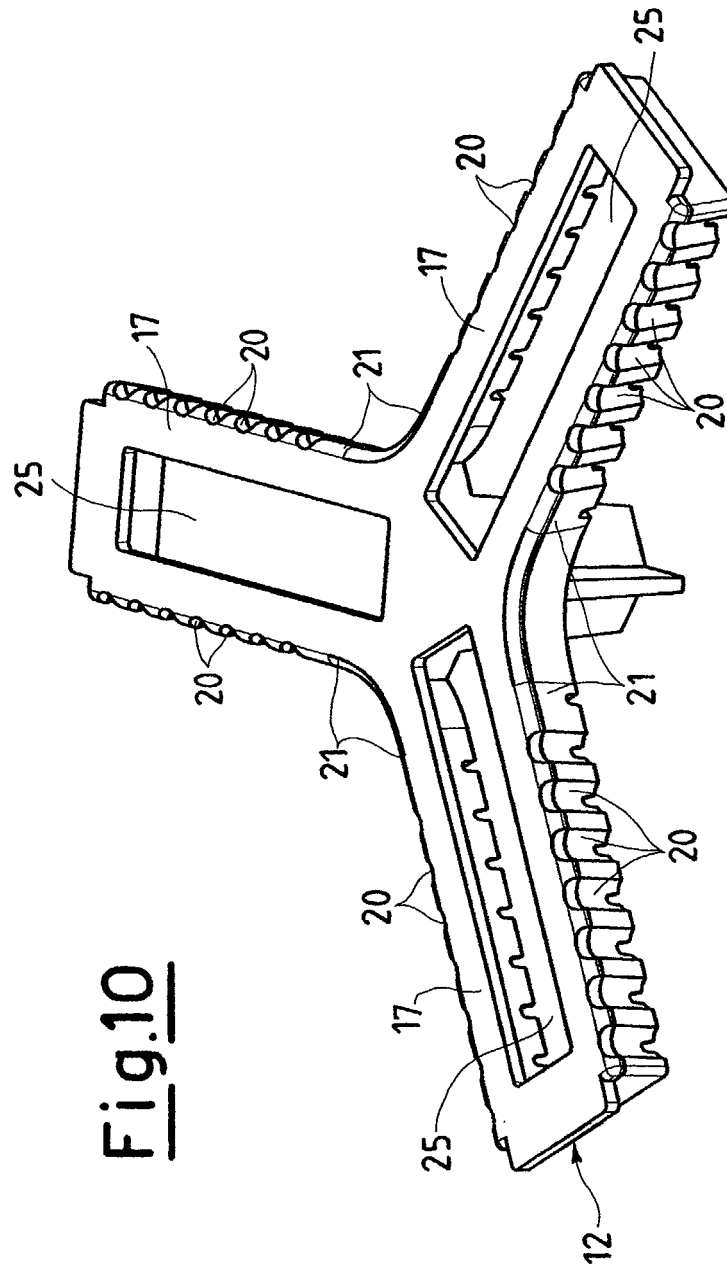


Fig.10

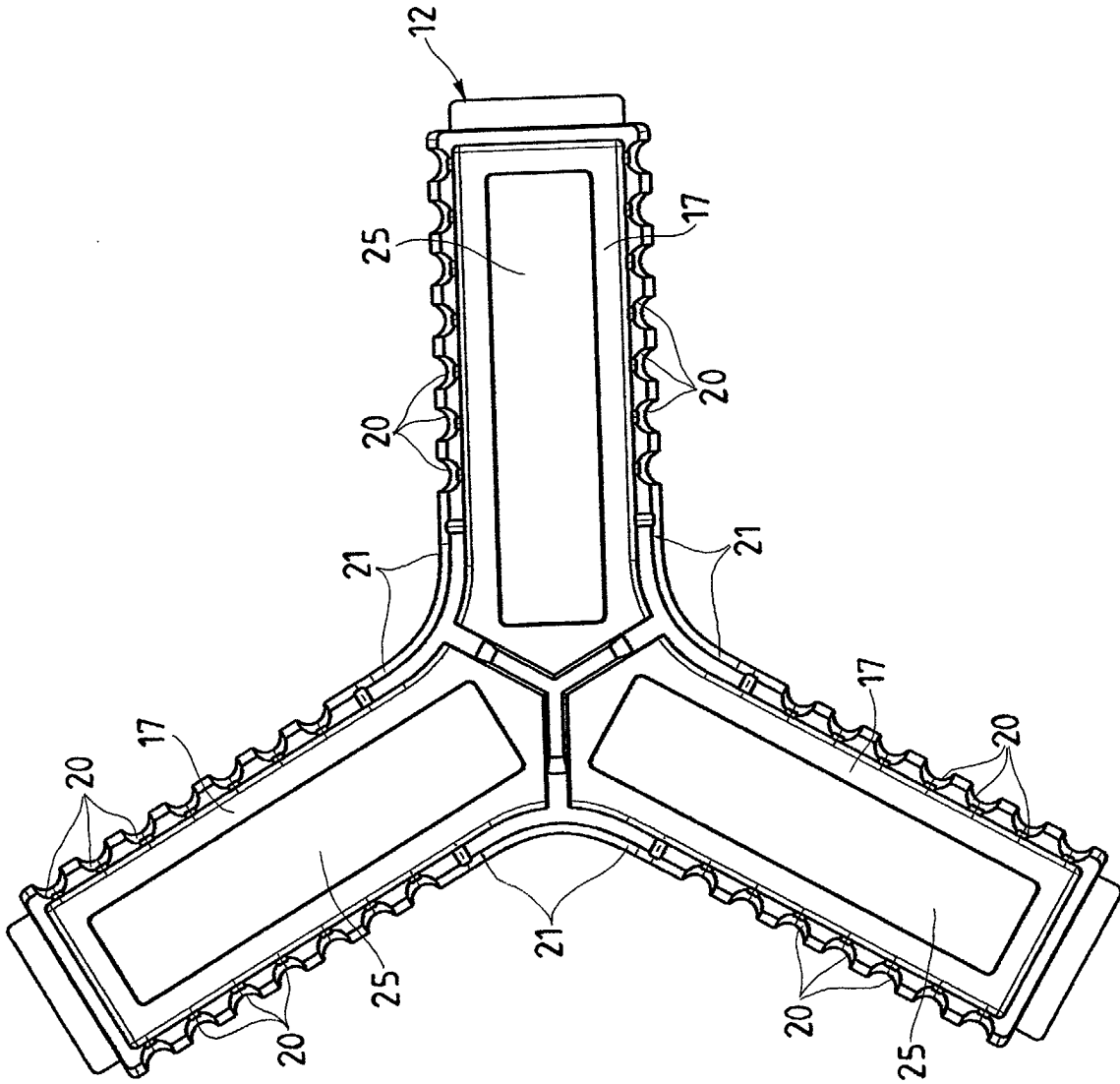


Fig.11

Fig.12

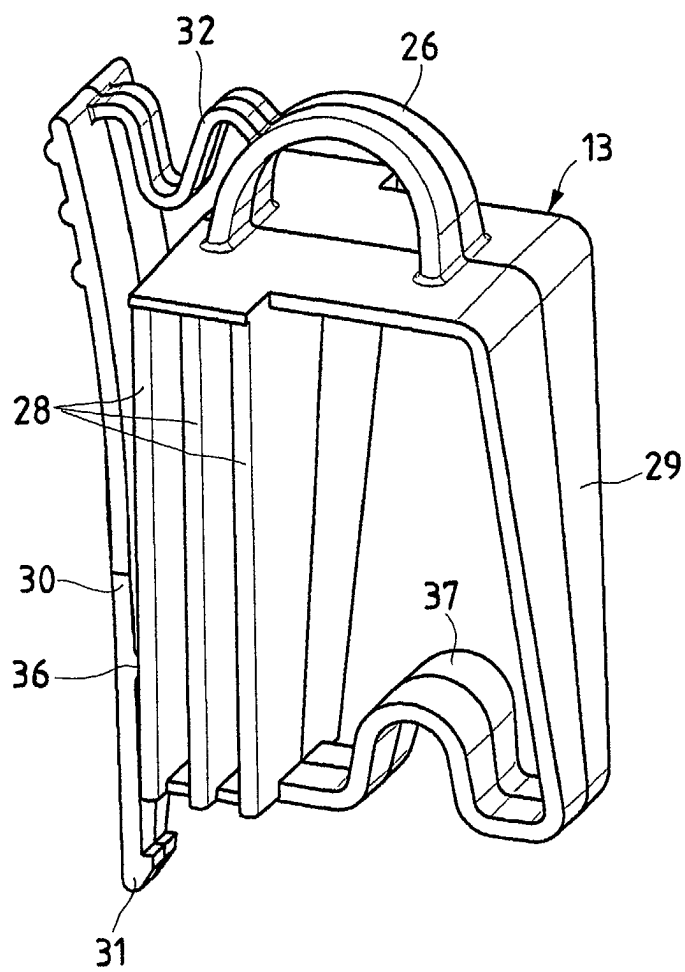


Fig.14

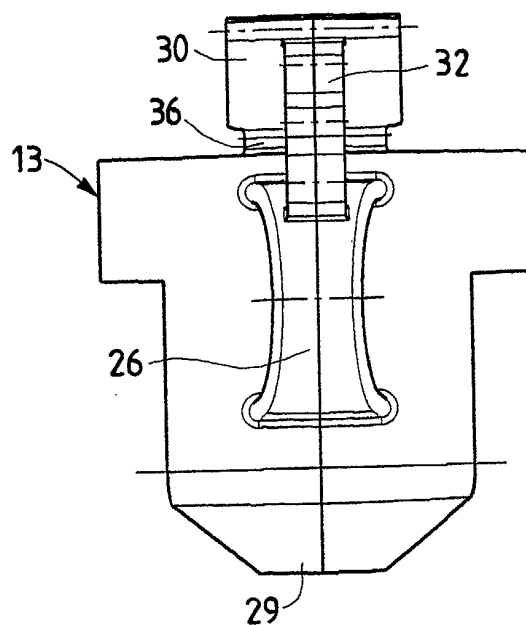


Fig.13

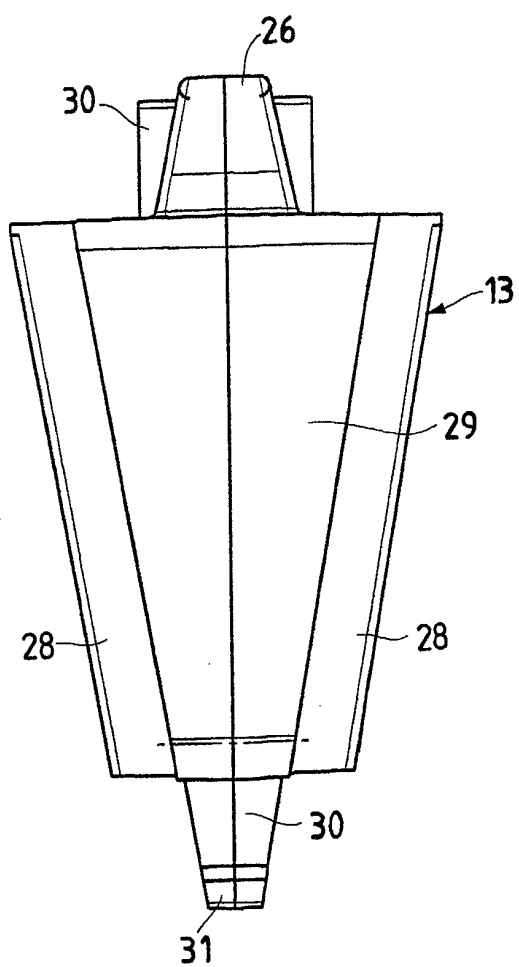
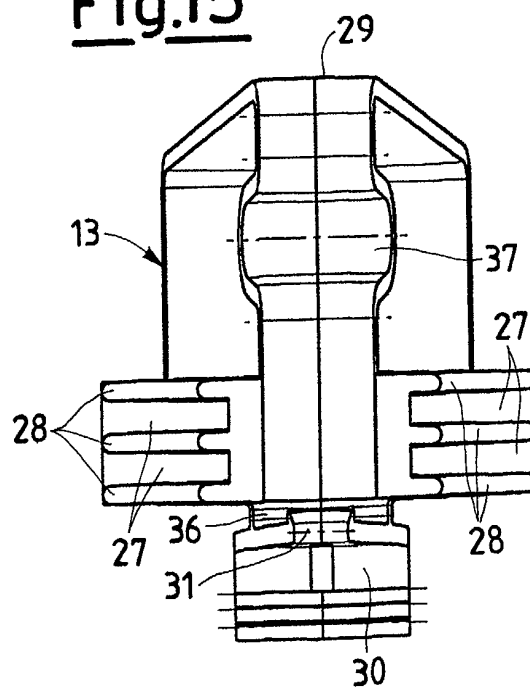


Fig.15



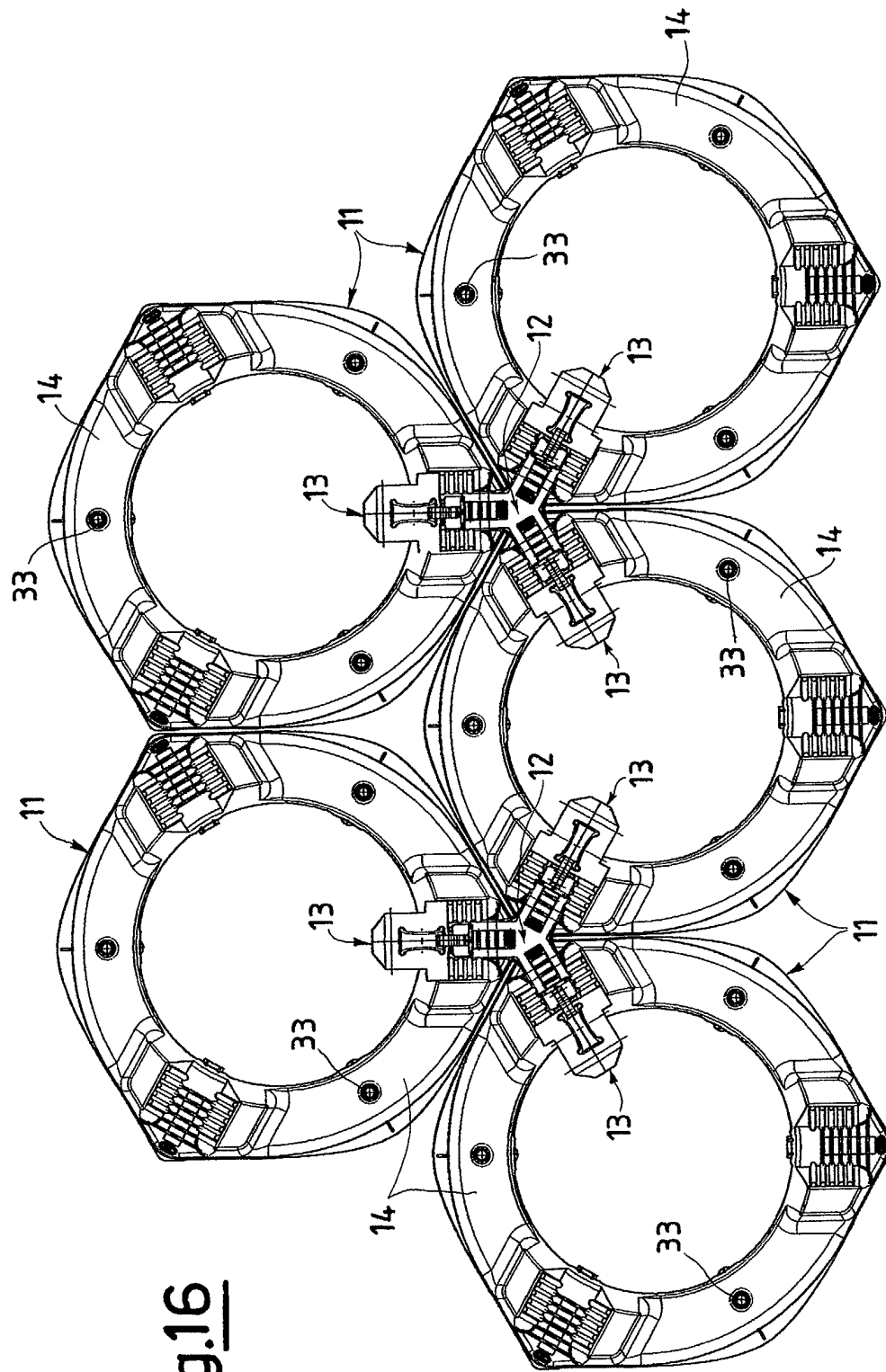


Fig.16

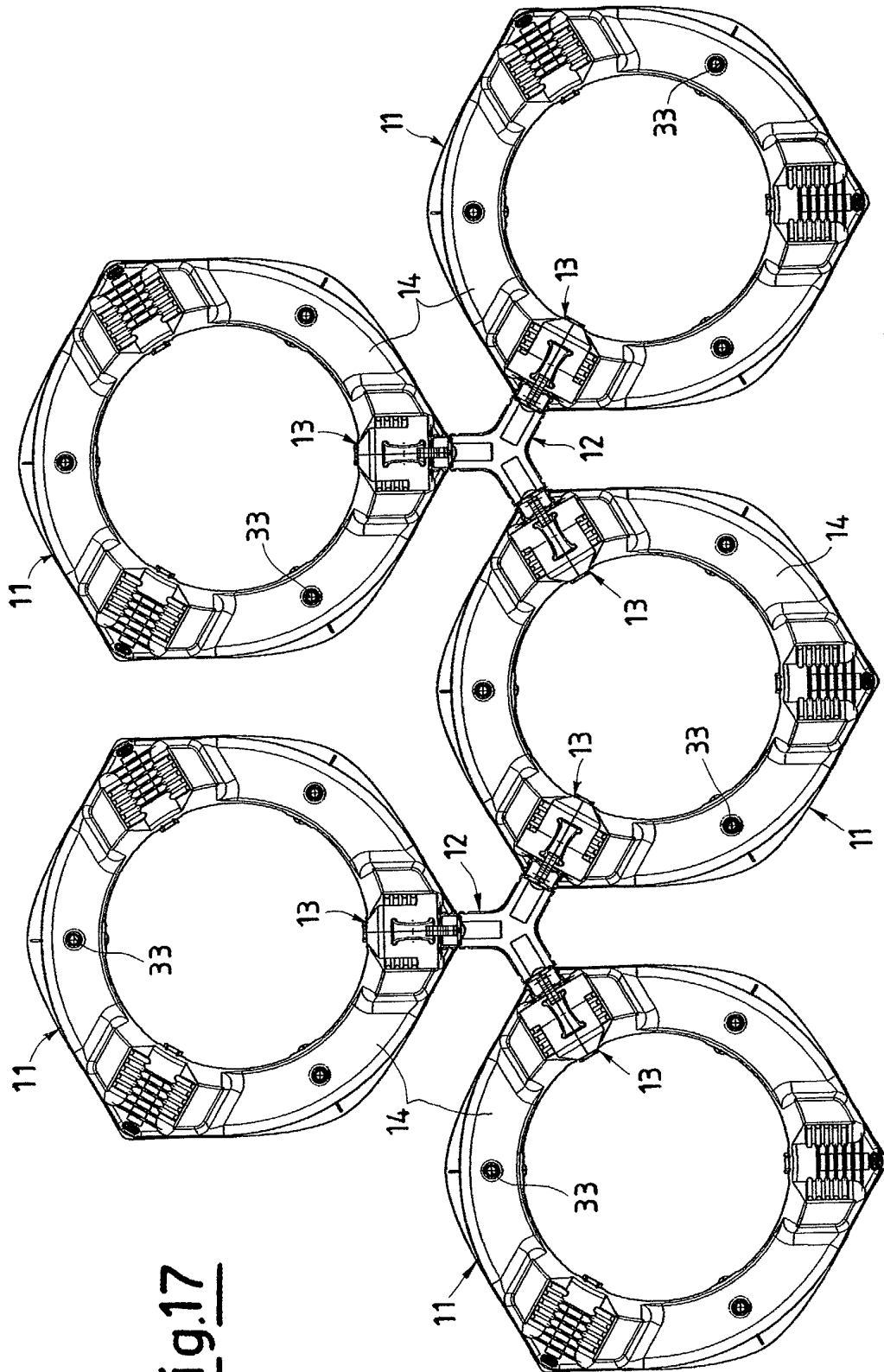


Fig.17

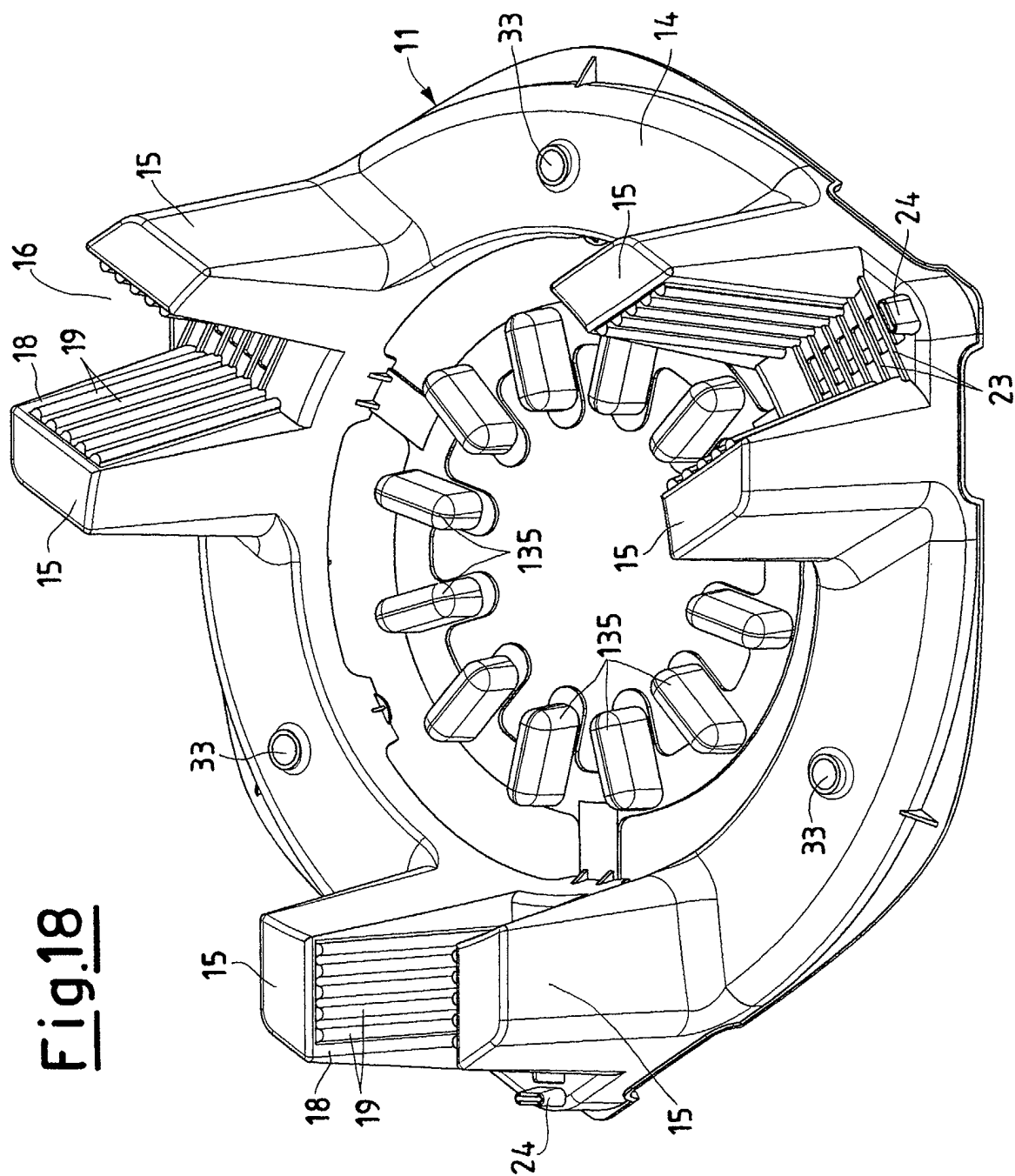


Fig.18