



(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
07.06.2006 Bulletin 2006/23

(51) Int Cl.:
E03C 1/22 (2006.01)

(21) Application number: 05025325.1

(22) Date of filing: 21.11.2005

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI
SK TR
Designated Extension States:
AL BA HR MK YU

(71) Applicant: AB SJÖBO BRUK
S-275 21 Sjöbo (SE)

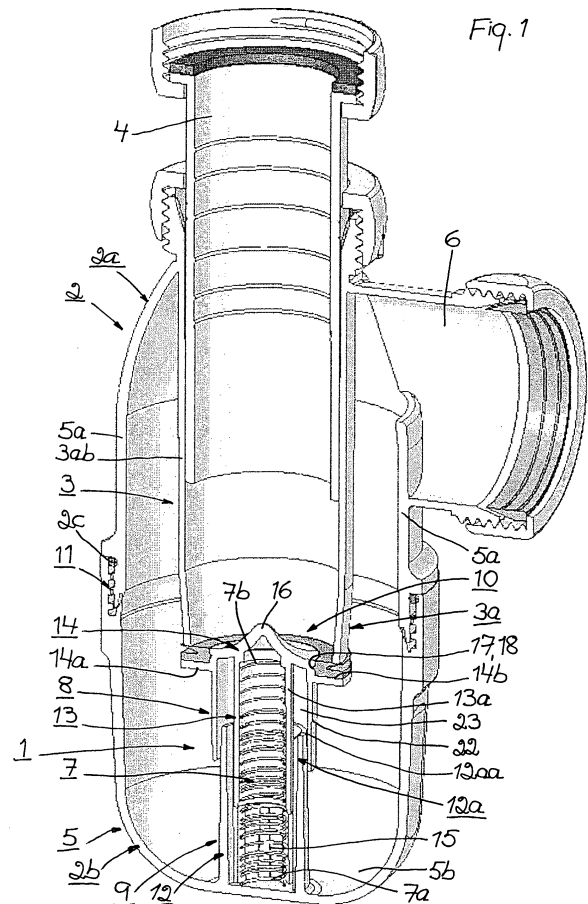
(72) Inventor: Spånberg, Lars
224 65 Lund (SE)

(30) Priority: 03.12.2004 SE 0402946

(74) Representative: Wagner, Karl Heinz
Wagner Zacco AB
Norra Vallgatan 72
211 22 Malmö (SE)

(54) Odour trap

(57) A dome-shaped water seal (2) comprises an inlet pipe piece (3), a mounting member (5) and an outlet pipe piece (6). An odour trap (1) for said dome-shaped water seal (2) comprises a guide member (9) and a bracket (8) which is spring-loaded and displaceable along the guide member. The bracket (8) carries a sealing portion (10) which by the spring (7) is brought to engage the inlet pipe piece (3) for closing thereof and which can be pressed away by waste water from said closing position and permit passage thereof to the outlet pipe piece (6) through the mounting member (5). The guide member (9) consists of a sleeve-like member (12) into which the spring (7) is inserted. The bracket (8) consists of a hollow shaft member (13) which is inserted into the sleeve-like member (12), which receives the spring (7) and which at the end portion (13a) protruding out of the sleeve-like member is closed by a plate-like member (14). One surface (14a) of the plate-like member is engaged by the spring, and the sealing portion (10) is provided on another surface (14b) of the plate-like member



Description

[0001] The present invention relates to an odour trap according to the preamble of claim 1. The odour trap according to the invention may be used not only at sinks or wash basins, but also at e.g. washing troughs, slop sinks, drinking fountains and other units, provided with dome-shaped water seals, for discharge of waste water, where the risk for odours or bad smell because of desiccation is obvious while the periods of time between use are long.

[0002] Odour traps of the abovementioned type are previously known in a plurality of various embodiments. See e.g. the odour traps of EP 1 188 870 A2 and FR 2 804 701 A1. The prior art constructions often have the drawbacks of being too complex, too big, difficult to mount and access for cleaning and maintenance, loose quickly their sealing function and can not be mounted afterwards in existing outlets without extensive extra work including mounting of many new components.

[0003] The object of the present invention is therefore to provide an odour trap of the abovementioned type which is compact and reliable and simple in its construction, which is easy to mount and maintain and which is easy to replace or mount afterwards.

[0004] This object is achieved according to the invention by means of an odour trap with the characterizing features of subsequent claim 1.

[0005] An odour trap as defined in claim 1 is not anticipated by prior art and can not be built based thereon. Thus, it is e.g. impossible to provide, at the odour trap of EP 1 188 870 A2, the plate-like member (9) at the end portion, protruding out of the sleeve-like member (18), of that part (19) which is most similar to the hollow shaft member of the odour trap according to the present invention.

[0006] Since at the odour trap according to the present invention, inter alia, the bracket for the sealing portion consists of a hollow shaft member which is inserted into a sleeve-like member and in which a spring is received, and the end portion of the hollow shaft member, protruding out of the sleeve-like member, is sealed by a plate-like member which is engaged by the spring, a more compact, shorter embodiment of the odour trap than the prior art odour traps is obtained, which permits mounting thereof in smaller dome-shaped water seals.

[0007] The invention will be further described below with reference to the accompanying drawings, in which

fig. 1 is a longitudinal sectional view, in perspective, through a dome-shaped water seal with an odour trap according to the invention in closing position; while

fig. 2 is a corresponding longitudinal section with the odour trap in open position.

[0008] The odour trap 1 according to the present in-

vention is, as is apparent from the drawings, located or mounted in a dome-shaped water seal 2 for a waste-water discharge unit (not shown), preferably a sink or wash basin. As mentioned above, the waste-water discharge unit may however be something else than a sink or wash basin.

[0009] The dome-shaped water seal 2 comprises an inlet pipe piece 3 for connection of a discharge pipe 4 from the waste-water discharge unit to said dome trap.

The dome-shaped water seal 2 further comprises a mounting member 5 for the odour trap 1. The inlet pipe piece 3 emerges into the mounting member 5 with an end portion 3a. The dome-shaped water seal 2 finally comprises an outlet pipe piece 6 which extends from the mounting member 5 for connection of the dome-shaped water seal to a discharge system for waste water (not shown).

[0010] The odour trap 1 is designed to take a first position in which the dome-shaped water seal 2 is gas-tightly sealed or closed for preventing preferably gas, but eventually also waste water, from passing against the flow direction for waste water through the dome-shaped water seal past the odour trap. The odour trap is further displaceable to a second position in which the dome-shaped water seal 2 is more or less open to permit passage of waste water in the flow direction thereof through the dome-shaped water seal past the odour trap.

[0011] The odour trap 1 is also designed such that it always strives to take said first position, i.e. the closing position in which the dome-shaped water seal 2 is gas-tightly sealed or closed.

[0012] To this end, as is illustrated in the drawings, the odour trap 1 comprises a bracket 8 which is loaded by a spring 7. The bracket 8 is mounted displaceable along an elongated guide member 9 which is provided in the mounting member 5. A sealing portion 10 is provided on the bracket 8 and brought by the spring 7, through the bracket 8, to engage the inlet pipe piece 3 emerging into the mounting member 5, i.e. engage an end surface 3aa defining an opening in the end portion 3a of said inlet pipe piece, for closing thereof (see fig. 1). When the displaceable bracket 8 through the sealing portion 10 is affected by waste water flowing into the inlet pipe piece 3 with a force exceeding the spring force, i.e. when the amount of water above the sealing portion has a weight which exceeds the force by means of which the spring 7 presses the sealing portion against the inlet pipe piece, the sealing portion is pressed away from the position closing the inlet pipe piece and permits passage of the water through the gap defined between the sealing portion and the inlet pipe piece and, through the mounting member 5, to the outlet pipe piece 6 (see fig. 2). How much the sealing portion 10 is pressed away from the inlet pipe piece 3 depends on how strong or intense the flow is. When the flow of waste water ceases, the sealing portion 10 returns to engaging the inlet pipe piece 3 for closing or sealing thereof.

[0013] By means of the dome-shaped water seal 2,

double security is obtained and should the water seal dry out because the waste-water discharge unit has not been used for a long time, the odour trap prevents bad smell from the discharge system from spreading out of said system. Since the mounting member 5 for the odour trap 1 is defined by a substantially dome-shaped member of the dome-shaped water seal 2, the water seal is defined by the wall 3aa of a lower portion, i.e. the end portion 3a, of the inlet pipe piece 3 extending downwards into the dome-shaped mounting member, and by a wall in or for said dome-shaped mounting member, here the wall 5a for the dome of said mounting member. With this embodiment of the water seal, the outlet pipe piece 6 extends from the dome-shaped mounting member 5 preferably at a level above the water seal, as is illustrated in fig. 1 and 2.

[0014] A possible alternative dome-shaped water seal embodiment, not illustrated, may comprise an intermediate wall which is located in the mounting member and dividing the space therein in two parts, namely one part into which the inlet pipe piece extends from above and another part from which the outlet pipe piece protrudes, whereby the outlet pipe piece may protrude from the mounting member on the same level as the water seal or even at a level beneath the water seal, and it may thereby protrude horizontally as well as vertically.

[0015] As is normal at dome-shaped water seals, the inlet pipe piece 3 is here provided substantially vertically in the mounting member 5, while the outlet pipe piece 6 protrudes substantially horizontally from said mounting member. As has been noticed however, a vertical arrangement of the outlet pipe piece is also possible. By the substantially vertical arrangement of the inlet pipe piece 3, waste water flowing thereinto will affect the sealing portion 10 with a force which is uniformly distributed over the entire surface thereof, whereby the bracket 8 and thus, the spring 7, will be uniformly loaded such that the odour trap 1 opens uniformly along the entire end surface 3aa defining or limiting the opening of the inlet pipe piece.

[0016] In order to obtain a construction which is simple and easy to mount and maintain, to mount also afterwards, the dome-shaped water seal 2 consists of preferably two releasably interconnected members 2a and 2b, namely a first member 2a between the inlet and outlet pipe pieces 3 and 6 respectively, and a second member 2b comprising the odour trap 1 and at least portions of the mounting member 5 for the odour trap. When required, such a second member 2b comprising a new mounting member 5 may e.g. hereby replace an existing dome-shaped member and the water trap function all the same be maintained. With a threaded coupling 11 it is easy to unscrew said second member 2b for cleaning of the odour trap 1 and the water seal. A gasket 2c is provided between said first and second members 2a, 2b of the dome trap.

[0017] According to a preferred embodiment of the guide member 9 of the odour trap 1, said guide member

consists of an elongated sleeve-like member 12 which is formed or provided in the mounting member 5, into which the spring 7 is inserted and one end 7a of said spring is mounted either on the sleeve-like member itself or on the mounting member. The bracket 8 for the sealing portion 10 consists of a hollow shaft member 13 which is inserted into the sleeve-like member 12 and which receives the spring 7. The shaft member 13 has a length substantially corresponding with the length of the sleeve-like member 12, but is preferably prestressed by the spring 7 such that about half the shaft member protrudes out of the sleeve-like member. The shaft member 13 is at the end portion 13a protruding out of the sleeve-like member 12 closed by means of a plate-like member 14 extending transverse to said shaft member. The spring 7 engages with its other end 7b the surface 14a of the plate-like member 14 facing the sleeve-like member 12 and the shaft member 13 respectively, i.e. that part of said surface 14a which in fig. 1 and 2 is found radially within the shaft member, closing said shaft member. The sealing portion 10 is provided on the engagement surface 14b of the plate-like member 14 facing away from the sleeve-like member 12 and the shaft member 13 respectively. Hereby, a simple, reliable, easily mountable and demountable odour trap construction is obtained, in which the spring 7, through the shaft member 13, continuously presses the the plate-like member 14 with the sealing portion 10 to closing position against the end surface 3aa on the end portion 3a of the inlet pipe piece 3 emerging into the mounting member 5. The plate-like member 14 is preferably integral with the shaft member 13, as is illustrated in the drawings.

[0018] In the embodiment of an odour trap 1 which is located in a dome-shaped water seal 2 as illustrated in fig. 1 and 2, the sleeve-like member 12 is designed at the bottom 5b of the dome-shaped mounting member 5, integral therewith. Alternatively, the sleeve-like member 12 may be designed or located adjacent said bottom 5b and not necessarily quite centrally in the mounting member 5, as in the embodiment shown. From the above it can be read that the sleeve-like member 12 can be made as a separate member for subsequent mounting in the mounting member 5.

[0019] In order to prevent too close an engagement of the shaft member 13 with the sleeve-like member 12, which might obstruct the displacement of the shaft member relative to the sleeve-like member, said sleeve-like member is on its inner side preferably provided with flutes or grooves 15 which preferably extend in the longitudinal direction of the sleeve-like member.

[0020] The sealing portion 10 on the bracket 8 (on the plate-like member 14 on the shaft member 13) for the odour trap 1 consists of an elastic diaphragm, preferably a thermoplastic elastomer. ng portion 10 is annular in the illustrated embodiment and threaded onto a central increase 16 provided on the engagement surface 14b on the plate-like member 14 for the bracket 8. The annular sealing portion 10 has to this end a radially inwards di-

rected, peripheral bead 17 which, when the sealing portion is located on the engagement surface 14b around the increase 16, is moved into a radially outwards open peripheral groove 18 in said increase. The sealing portion 10 is, for obtaining the desired elasticity during engagement with the end surface 3aa on the end portion 3a of the inlet pipe piece 3, preferably provided with a radially outwards open peripheral groove 19 which divides the radially outer part of the sealing portion into a first, radially outwards tapering tongue 20 for elastic sealing engagement with said end surface 3aa, and a second tongue 21, which is thicker than the first tongue and thereby somewhat more rigid than that, for engagement with the engagement surface 14b on the plate-like member 14. It is obvious to a skilled person that during engagement with the end surface 3aa on the end portion 3a of the inlet pipe piece 3, the first tongue 20 will yield somewhat and be pressed towards the second, thicker tongue 21, which is possible due to the groove 19.

[0021] In the illustrated embodiment, the outer radius of the sealing portion 10 substantially corresponds with the radius of the plate-like member 14 and both correspond with or exceed the radius of the end portion 3a of the inlet pipe piece 3.

[0022] In the illustrated embodiment, where the radial extension of the plate-like member 14 further exceeds the radius of the hollow shaft member 13, the bracket 8 for the odour trap 1 is provided with, radially outside and preferably in parallel with said shaft member, a screen wall 22 extending from the surface 14a of the plate-like member 14 facing the sleeve-like member 12 and the shaft member 13 respectively. Hereby, a pocket 23 is defined between the screen wall 22 and the shaft member 13, into which the sleeve-like member 12 is at least partly insertable. Thus, the screen wall 22 overlaps parts of the sleeve-like member 12, i.e. the free end portion 12a with the free end surface 12aa of the sleeve-like member, and prevents dirt in waste water flowing past the odour trap 1 from entering into the sleeve-like member and in to the spring 7 therein and in the hollow shaft member 13 and getting the spring to jam such that the odour trap no longer operates at an optimum. The screen wall 22 further has such a length that the free end portion 12a of the sleeve-like member 12 is always situated in said pocket 23, i.e. irrespective of whether the odour trap 1 is in closing position or in open position.

[0023] It is obvious to a skilled person that beyond what is defined above, the invention can be changed or modified within the scope of the subsequent claims without departing from the idea and object of the invention. Thus, it is obvious that e.g. one or more of the parts and members which in the illustrated embodiment according to the drawings are shown having a substantially circular cross section, may have another cross-sectional shape, e.g. oval or square, in other applications. Furthermore, the material for the various parts and members, plastic and/or metal and/or ceramic material, may be chosen based on application, size, appearance etc., as long as

the desired function is obtained. The spring-tension is also adaptable as required and based on application.

5 Claims

1. Odour trap for a dome-shaped water seal for a wastewater discharge unit, preferably a sink or wash basin, wherein the dome-shaped water seal (2) comprises an inlet pipe piece (3) for connection of a discharge pipe (4) from the waste-water discharge unit to said dome-shaped water seal, a substantially dome-shaped mounting member (5) for the odour trap, into which the inlet pipe piece emerges, and an outlet pipe piece (6) which extends from said mounting member for connection of the dome-shaped water seal to a waste-water discharge system, wherein the water seal is defined by the wall (3ab) of a lower portion (3a) of the inlet pipe piece (3) extending downwards into the dome-shaped mounting member, and by a wall (5a) in or of said dome-shaped mounting member, and wherein the odour trap (1) comprises an elongated guide member (9) which is provided in said mounting member (5) and a bracket (8) which is spring-loaded and displaceable along the guide member, said bracket carrying a sealing portion (10) which in a first position is brought by the spring (7) to engage the inlet pipe piece (3) emerging into the mounting member (5) for gas-tight sealing or closing thereof for preventing preferably gas from passing against the flow direction for waste water through the dome-shaped water seal past the odour trap, which in a second position, when the displaceable bracket through the sealing portion is affected by waste water flowing into the inlet pipe piece with a force exceeding the spring force, is pressed away more or less from the position for closing the inlet pipe piece and permits passage of the waste water in said flow direction thereof to the outlet pipe piece (6) through the mounting member, and which, when waste water ceases to flow into the inlet pipe piece, strives by means of the spring to return to said first position,

characterized in

that the guide member (9) of the odour trap (1) consists of an elongated sleeve-like member (12) which is formed or provided in the mounting member (5), into which the spring (7) is inserted and one end (7a) of said spring is mounted, and that the bracket (8) for the sealing portion (10) consists of a hollow shaft member (13) which is inserted into the sleeve-like member, which receives the spring and which at the end portion (13a) protruding out of the sleeve-like member is closed by means of a plate-like member (14) extending transverse to said shaft member, whereby the surface (14a) of the plate-like member facing the sleeve-like member and the shaft member respectively, being engaged by the spring, and

whereby said sealing portion is provided on the engagement surface (14b) of the plate-like member facing away from the sleeve-like member and the shaft member respectively.

2. Odour trap according to claim 1, **characterized in that** the outlet pipe piece (6) protrudes from the dome-shaped mounting member (5) at a level above the water seal.
3. Odour trap according to any preceding claim, **characterized in that** the inlet pipe piece (3) is provided substantially vertically in the mounting member (5), while the outlet pipe piece (6) protrudes substantially horizontally from the mounting member.
4. Odour trap according to any preceding claim, **characterized in that** the odour trap (1) and at least portions of the mounting member (5) for the odour trap form part of one member (2b) of a dome-shaped water seal (2) consisting of two releasably interconnected members (2a, 2b), while the other member (2a) of the dome-shaped water seal includes the inlet and outlet pipe pieces (3 and 6 respectively).
5. Odour trap according to any preceding claim, **characterized in that** the sleeve-like member (12) is designed or located on or adjacent the bottom of the dome-shaped mounting member (5).
6. Odour trap according to any preceding claim, **characterized in that** the sleeve-like member (12) is on the inner side thereof provided with flutes or grooves (15), preferably flutes or grooves extending in the longitudinal direction of the sleeve-like member.
7. Odour trap according to any preceding claim, **characterized in that** the sealing portion (10) on the bracket (8) for the odour trap (1) consists of an elastic diaphragm.
8. Odour trap according to claim 7, **characterized in that** the sealing portion (10) is made of a thermoplastic elastomer.
9. Odour trap according to any preceding claim, **characterized in that** the sealing portion (10) is annular and threaded onto a central increase (16) provided on the engagement surface (14b) on the plate-like member (14) for the bracket (8).
10. Odour trap according to any preceding claim, **characterized in that** the sealing portion (10) is provided with a radially outwards open peripheral groove (19) which divides the radially outer part of the sealing portion into a first, radially outwards tapering tongue (20) for sealing engagement with the inlet pipe piece (3), and a second tongue (21), which is thicker than

the first tongue and somewhat more rigid than that, for engagement with the engagement surface (14b) on the plate-like member (14).

- 5 11. Odour trap according to any preceding claim, **characterized in that** radially outside the hollow shaft member (13), the bracket (8) for the odour trap (1) is provided with a screen wall (22) extending from the surface (14a) of the plate-like member (14) facing the sleeve-like member (12) and the shaft member respectively, thereby defining a pocket (23) between said screen wall and the shaft member, into which the sleeve-like member is at least partly insertable.
- 10 12. Odour trap according to claim 11, **characterized in that** the screen wall (22) has such a length that the free end portion (12a) of the sleeve-like member (12) is always situated in said pocket (23).
- 15
- 20
- 25
- 30
- 35
- 40
- 45
- 50
- 55

Fig. 1

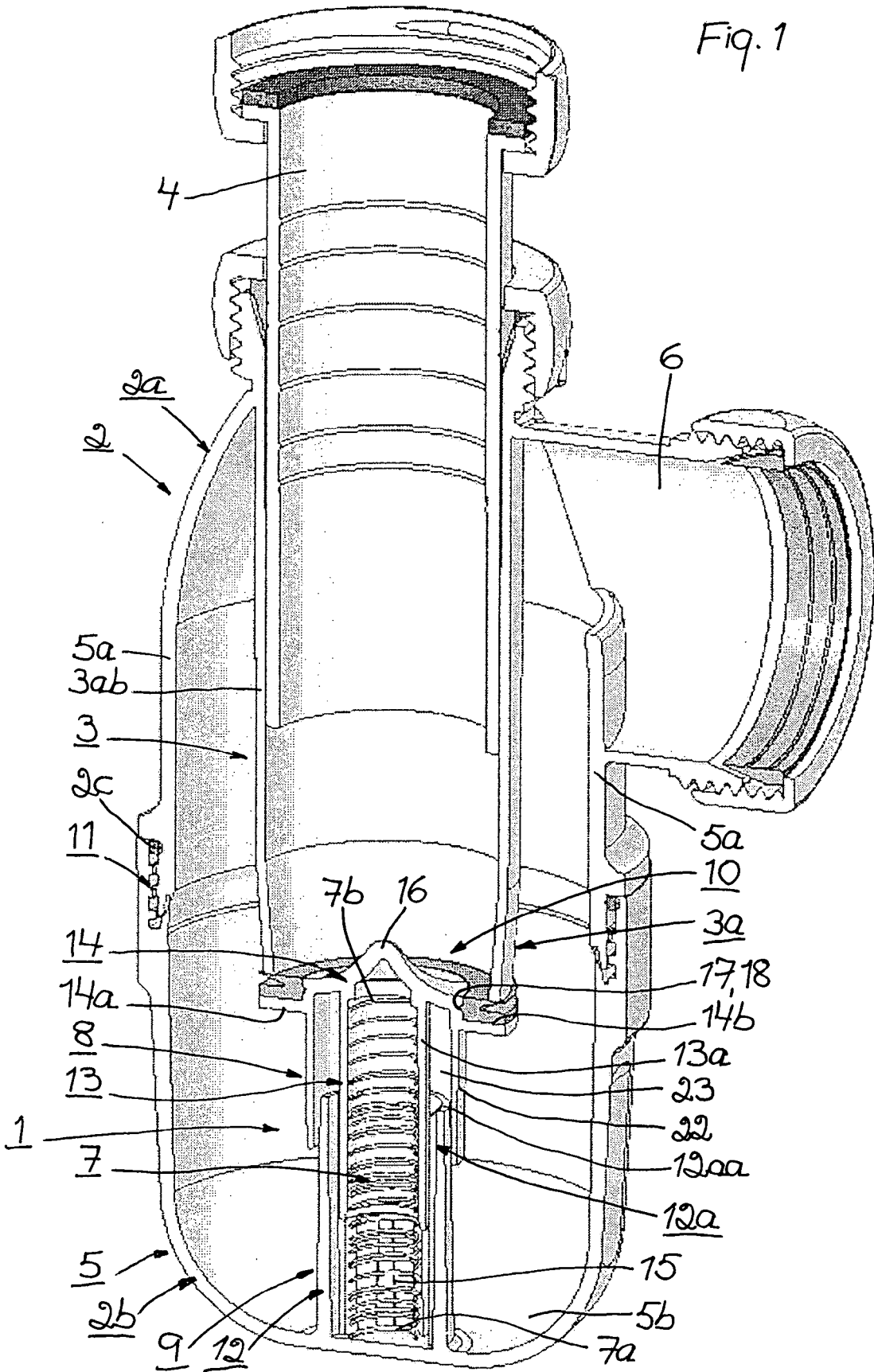


Fig. 2

