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(54) **Floor drain with removable odour seal**

(57) There is described a water trap for use in a floor drain. The water trap is designed with an outer, upwards open bowl (1) with a bottom and an inner pipe (2) mounted therein which together with the bowl (1) form a water trap. The inner pipe (2) is disposed with a lower edge spaced apart from the bottom of the bowl (1) and with an upper edge located at a position above the upper edge of the bowl (1).

The water trap includes a handle (8) in an upper part of the inner pipe (2) for taking up the water trap and/or for separating the inner pipe (2) and the bowl (1) for the purpose of cleaning. The handle (8) has an extent across part of the diameter of the inner pipe (2) and runs from the inner side of the inner pipe (2) and obliquely downwards against a central part of the inner pipe (2). The water trap further includes a strainer (20).

The strainer (20) has a downwards convex shape adapted to fit into the upper part of the inner pipe (2). The rim of the strainer (20) is adapted for resting against the upper edge of the inner pipe (2), and the central part of the strainer (20) is adapted to rest on part of the top side of the handle (8). A central handle (26) is provided in the convex interior of the strainer (20), extending to a level at the rim of the strainer (20).

Hereby is achieved a water trap which has a particularly efficient self-cleaning action that reduces the need of cleaning or makes it completely superfluous. At the same time it is adapted for achieving optimal throughflow.

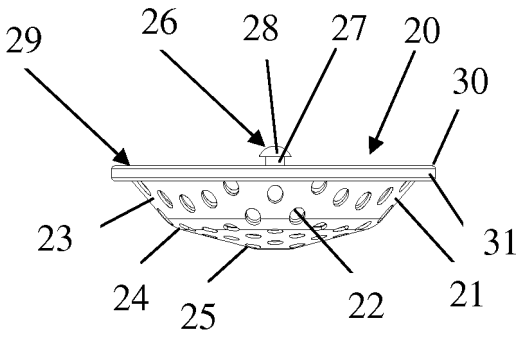

Fig. 6

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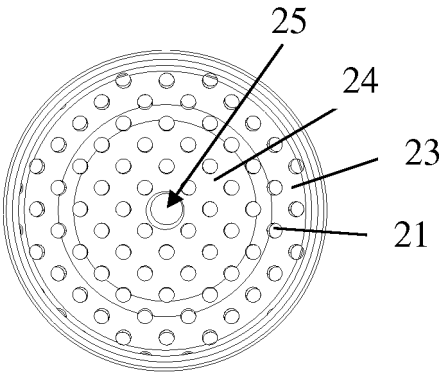

Fig. 7

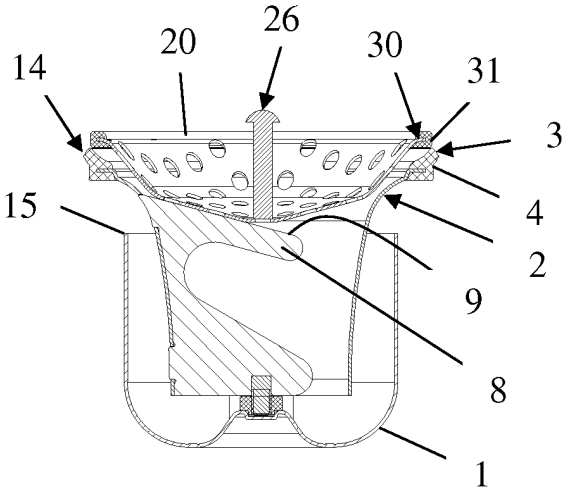

Fig. 8

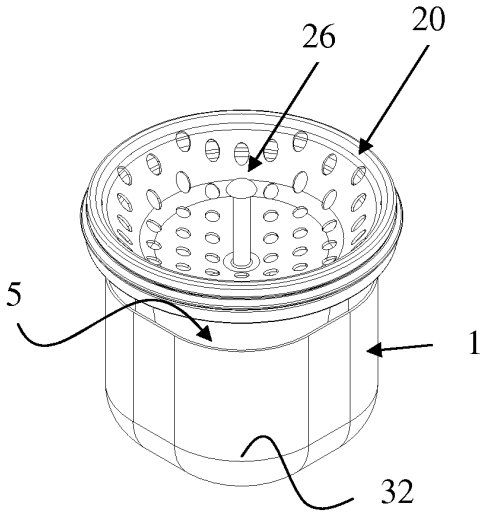

Fig. 9

Description

Field of the Invention

[0001] The present invention concerns a water trap for use in a floor drain. More specifically, the invention concerns a water trap of the type with an outer, upwards open bowl with a bottom and an inner pipe mounted therein, which together with the bowl forms a water trap, as the inner pipe is disposed with a lower edge spaced apart from the bottom of the bowl and with an upper edge disposed at a position above the upper edge of the bowl, the water trap including a handle in an upper part of the inner pipe for taking up the water trap and/or for separating the inner pipe and the bowl for the purpose of cleaning.

[0002] The present invention moreover concerns a strainer for a water trap for use in a floor drain. More specifically, the invention concerns strainer for a water trap with an outer, upwards open bowl with a bottom and an inner pipe mounted therein, which together with the bowl forms a water trap, as the inner pipe is disposed with a lower edge spaced apart from the bottom of the bowl and with an upper edge disposed at a position above the upper edge of the bowl, the water trap including a handle in an upper part of the inner pipe for taking up the water trap and/or for separating the inner pipe and the bowl for the purpose of cleaning.

Background of the Invention

[0003] It has been known for many years to provide a water trap in a floor drain in e.g. a bathroom. Obnoxious smell from drain pipe and sewer is hereby avoided, as there will always be a water surface in the floor drain.

[0004] However, the water trap in the floor drain will be connected with drawbacks as it may prevent a rapid and efficient flow through the drain and also give rise to clogging, which may contribute to further reducing the flow through the drain.

[0005] The water trap is provided with a handle which is typically a diagonal transverse rod which the user may grip in order to pull the water trap up of the drain for the purpose of cleaning. However, the handle will contribute to accumulation as long items, such as hair and threads, will get caught by the handle.

[0006] In recent years, stricter official requirements have been made to the water flow, and therefore there is an increased demand for efficient self-cleaning of the drains in order to meet the official requirements without necessitating frequent cleaning.

[0007] As an example, it is to be mentioned that a drain with diameter 110 mm outlet is to yield 1.4 l/s according to standard EN1253. The present invention is suited for application in drains with such dimension, but it may also be applied in other drains with outlets up to diameter 200 mm, or even larger.

[0008] It is also prior art to place a strainer in such a water trap for collecting impurities that otherwise would block the drain partly or entirely. However, prior art strainers have the drawback that they impart a greater installation height to the water trap/drain.

[0009] It is desirable to achieve low installation height and at the same time to achieve a water trap with low risk of clogging.

Object of the Invention

[0010] It is the object of the present invention to indicate a water trap of the type specified in the introduction having a particularly efficient self-cleaning action in order to reduce the need for cleaning or making it completely superfluous, and which at the same time is adapted for attaining optimal through-flow.

[0011] Moreover, it is the object of the present invention to indicate a strainer of the type specified in the introduction which has low installation height and which contributes to preventing clogging in order to reduce the need for cleaning or making it completely superfluous.

Description of the Invention

[0012] According to the present invention, this is achieved by a water trap of the type specified in the introduction which is peculiar in that the handle has an extent across part of the diameter of the inner pipe and runs from the inner side of the inner pipe and obliquely downwards against a central part of the inner pipe.

[0013] The flow in the water trap is such that the liquid is led down internally of the inner pipe through a gap formed between the bottom and the lower edge of the inner pipe and up into the gap formed between the outer side of the inner pipe and the inner side of the bowl. The liquid will then be led over the upper edge of the bowl and out through the drain. When there is no flow, liquid will stand at a level corresponding to the upper edge of the bowl in the water trap.

[0014] As the handle has an inclination and is not extended between opposing sides in the inner pipe, long objects, such as hair and threads, may slide down along the top side of the handle and be released over the outer free end hereof when the liquid flows through the water trap. The requirements to cleaning are hereby significantly reduced.

[0015] Furthermore, disposition of a handle in the liquid surface will reduce the tendency to whirl formation. Hereby is achieved a more pronounced laminar flow which will increase the flow through the water trap.

[0016] The strainer according to the present invention is peculiar in that it has a downwards convex shape adapted to fit in the upper part of the inner pipe, that the rim of the strainer is adapted to rest against the upper edge of the inner pipe, that the central part of the strainer is adapted to rest against part of the top side of the handle, and that a central handle is provided in the convex interior of the strainer, extending to a level at the rim of the strain-

er.

[0017] Since the strainer has a convex shape, it may be designed such that it fits into the inner pipe and does not contribute to any appreciable installation height, or may even be designed such that its upper rim is disposed at a level under the upper edge of the inner pipe so as to be completely contained within the inner pipe.

[0018] The handle is designed with a height approximately corresponding to the height of the conical strainer. The handle will thus not contribute to increased installation height and will project above floor level when the strainer is provided in a water trap in a floor drain.

[0019] As the bottom of the strainer rests on part of the top side of the handle, no hair, threads or other contaminants can be deposited on this part. The risk of retained matter and of clogging in the water trap is hereby reduced.

[0020] According to a particular embodiment, the water trap according to the invention is peculiar in that the handle is fastened to the inner side of the inner pipe and fastened to the bottom of the bowl via a releasable screw connection. After taking the water trap out from the drain, it is easy hereby to separate the inner pipe and the bowl for facilitating the cleaning. A threaded rod may be fitted on the handle, interacting with a threaded bushing which is fastened to the bottom of the bowl. Joining of the inner pipe and bowl in the bottom instead of on the sidewalls reduces the risk of catching hair and threads.

[0021] Alternatively, a releasable mutual connection can be formed in other ways, for example as a bayonet connection.

[0022] According to a further embodiment, the water trap according to the invention is peculiar in that the handle extends largely diagonally transversely of the inner pipe. Preferably, it will have an extent which is between 50% and 85% of the diameter of the inner pipe and particularly less than 75% of the diameter of the inner pipe. Hereby, a sufficiently wide area with free passage between the outer free end of the handle and the opposing side of the inner pipe will be provided for particles and long objects to slide freely down through the interior of the inner pipe. Even if a relatively narrow area will be sufficient for the passage of hair and threads, a relatively short handle for taking out/separating the water trap will be sufficient. At the same time, there will be a need for a certain length for achieving an efficient reduction of whirling in the surface.

[0023] According to a further embodiment, the water trap according to the invention is peculiar in that the top side of the handle is located at level with the upper edge of the bowl such that the top side is located above a water level in the water trap. Dirt lying on the liquid surface will not accumulate on the handle hereby. Moreover, it may hereby be achieved that whirling is avoided in the surface when liquid flows through the water trap.

[0024] According to a further embodiment, the water trap according to the invention is peculiar in that the upper edge of the inner pipe has a larger diameter than the outermost extension of the bowl and adapted for sealing abutment against a floor drain. The inner pipe may hereby fit to an edge of a drain in which the bowl is inserted. No additional flanges or similar are thus required for mounting the water trap. In principle, the water trap may therefore be disposed directly in a tubular drain without need of forming an independent drain housing around the water trap.

[0025] According to a further embodiment, the water trap according to the invention is peculiar in that the inner pipe is conical and has a circular cross-section, and that the bowl has a rectangular cross-section. The conical inner pipe suitably forms a funnel-shaped inlet to the water trap, enabling provision of a drain grating in a floor which is connected to a drain with lesser diameter. The upper edge of the inner pipe may also be rectangular such that through the upper part of the inner pipe, the cross-section is changed from rectangular cross-section into a circular cross-section in the lower part of the inner pipe inside the bowl.

[0026] In practice it has appeared that a very efficient flow through the water trap is attained when the inner pipe is circular and the bowl is rectangular. A whirling movement that may be formed in the inner pipe will thus be broken, and a laminar flow advantageously appears at the corners in the gap between the inner side of the bowl and the outer side of the inner pipe. This destroys the whirling and increases the flow, contributing to reduce the risk of hair and threads being caught by the handle. At the same time, a self-cleaning effect is enhanced in that the flow produces a kind of flushing action entraining hair, threads, sludge and other contaminants through the drain. In practice it has surprisingly appeared possible to achieve a flow that is almost doubled in relation to the flow through a corresponding size of drain with circular bowl.

[0027] According to a further embodiment, the water trap according to the invention is peculiar in that the handle is plate-shaped and provided with projections adapted for mounting in cutouts in the wall of the inner pipe. This provides simple and stable mounting which enables taking the bowl out together with the inner pipe and at the same time providing a connection that may transmit a moment when the bowl and the inner pipe are to be separated.

[0028] According to a further embodiment, the water trap according to the invention is peculiar in that it is provided with an outer cylindric bushing, where the upper edge of the inner pipe has a flange which sealingly engages a collar on the bushing, as a sealing means is provided there between. This may facilitate mounting of the water trap directly in a drain pipe.

[0029] According to a further embodiment, the water trap according to the invention is peculiar in that the bushing is adapted for mounting in a drain pipe, as at its upper end the bushing is provided with an external bead for abutting on an end edge of a drain pipe. In that the bushing is adapted for mounting in the drain pipe, a particularly

simple construction is achieved with simple mounting, as the bushing functions as an adaptor where the bead ensures that a packing on a drain pipe will be correctly positioned in relation to the bushing/water trap.

[0030] According to a further embodiment, the water trap according to the invention is peculiar in that it is provided with a strainer disposed at the upper end of the inner pipe. As some impurities are filtered off in the strainer, there will be a reduced risk of clogging and thereby an improved flow is ensured. Such a strainer may preferably be loosely- mounted and may thus readily be taken out and cleaned. The strainer may be provided with a handle such that it is easier to grip.

[0031] Moreover, it may be designed convex so that it extends down into the upper end of the inner pipe.

[0032] According to a particular embodiment, where the handle has an extent across part of the diameter of the inner pipe and runs from the inner side of the inner pipe and obliquely downwards against a central part of the inner pipe, the strainer according to the invention is peculiar in that the central part of the strainer is resting against the surface of the handle near the inner side of the inner pipe.

[0033] Hair or threads cannot hereby hang on the part of the handle supporting the strainer. Hairs and threads passing through the perforations of the strainer will thus pass by the handle, and the risk of clogging is thus considerably reduced.

[0034] According to a further embodiment, the strainer according to the invention is peculiar in that its central part rests against the top side of the inclining handle to a position immediately above the liquid level of the water trap.

[0035] It is aimed that the strainer rests upon an upper part of the top side of the handle which is disposed above the liquid level in the water trap, such that no visible liquid is standing in the strainer. Moreover, a free surface of the handle located under the liquid level will not give rise to attachments or retained matter.

[0036] According to a further embodiment, the strainer according to the invention is peculiar in that its rim is provided with a packing. The packing is designed to fit into the inner pipe. A tight construction is hereby achieved where liquid does not run around the inner pipe.

[0037] According to a further embodiment, the strainer according to the invention is peculiar in that the bottom of the strainer is formed by three largely conical sections. This is more simple in production than an evenly curving surface.

[0038] According to a further embodiment, the strainer according to the invention is peculiar in that it is made with an outer ring area with a steep inclination, an intermediate area with a less steep inclination with an angle corresponding to the inclination of the handle, and a central area with a very modest inclination.

[0039] This will provide secure support at the top side of the handle to the extent where the handle and the intermediate area are overlapping each other. By making this part as large as possible, covering of a large part of the handle as possible is thereby achieved. Therefore, it is aimed to make the outer ring area very steep.

[0040] The invention may advantageously be combined with the following independent invention for which an independent patent application has been filed simultaneously with the following main claim:

[0041] A water trap for use in a floor drain in the form of a vertical pipe and with an outer, upwards open bowl with a bottom and an inner pipe mounted therein, which together with the bowl forms a water trap, as the inner pipe is disposed with a lower edge spaced apart from the bottom of the bowl and with an upper edge disposed at a position above the upper edge of the bowl, the water trap being provided with an outer cylindric bushing which is adapted for disposition in the vertical pipe, and where the outer side of the lower edge area of the bushing has conical shape.

Description of the Drawing

[0042] The invention will now be explained more closely with reference to the accompanying drawing, where:

- Fig. 1 shows a view of a water trap, as seen from below, in a floor drain;
- Fig. 2 shows a sectional view from the side through a water trap with a bowl according to Fig. 1 in which an inner pipe is mounted;
- Fig. 3 shows a side view of the water trap shown in Fig. 2;
- Fig. 4 shows a view of the water trap shown in Figs. 2 and 3, as seen from above;
- Fig. 5 shows a perspective view, partly in section, of the water trap shown in Figs. 2-4;
- Fig. 6 shows a side view of strainer for use in the water trap;
- Fig. 7 shows a view from above of a strainer for use in the water trap;
- Fig. 8 shows a sectional view corresponding to Fig. 2 with the strainer mounted in the water trap;
- Fig. 9 shows a perspective view corresponding to Fig. 5 with the strainer mounted in the water trap;
- Fig. 10 shows a sectional view corresponding to Fig. 2 with the water trap mounted in a bushing;
- Fig. 11 shows a side view of the water trap mounted in the bushing;
- Fig. 12 shows a view from above of the water trap mounted in the bushing;
- Fig. 13 shows a perspective view of the water trap mounted in the bushing;
- Fig. 14 shows a sectional view corresponding to Fig. 10 for illustrating the water trap mounted in a floor drain;
- Fig. 15 shows a partial view of a detail of the floor drain shown in Fig. 14;
- Fig. 16 shows a side view of the floor drain shown in

Fig. 14; and

Fig. 17 shows a partial view of the floor drain shown in Fig. 16.

Detailed Description of the Invention

[0043] In the Figures, corresponding or identical elements are provided with the same reference numbers, and no detailed explanation of such details in connection with each individual figure will necessarily be given.

[0044] In fig. 1, the water trap is seen from below. It appears that a bowl 1 has a largely rectangular cross-section. In the bowl 1 is fitted an inner pipe 2 (see Fig. 2) which has an outer edge 3 with a larger diameter than the outermost extent of the bowl. The edge 3 is provided with a packing 4 (see Fig. 2).

[0045] As seen from Fig. 2, the inner pipe 2 is trumpet-shaped and has a circular cross-section running inside the bowl 1. Inside the bowl, channels 5 are formed hereby which are particularly distinct in the areas where there is the greatest distance between the inner pipe 2 and the side edges 6 of the bowl 1. A plate element 7 is mounted inside the inner pipe 2. At the upper side, the plate element 7 is provided with a handle part 8 with a top side 9. The plate element 7 is provided with projections 10 adapted to be mounted in cutouts 11 in the sidewall of the inner pipe. Moreover, a threaded branch 12A engaging a threaded bushing 12B, which is fastened to the bottom of the bowl 1, is mounted in the plate element 7.

[0046] In Fig. 3 is seen the projection 10 extending out through a cutout 11 in the inner pipe 2 which is mounted in the bowl 1.

[0047] Figs. 2 and 3 illustrate a water trap such as used with a bowl 1 which is open upwards via the opening 13. Through this upper opening 13, the inner pipe 2 is mounted. Also, the inner pipe 2 has an upwards directed opening 14 where water penetrates into the water trap/floor drain.

[0048] Fig. 4 shows a view seen from above. Here it is seen that the handle 8 is directed largely diagonally and extends from the sidewall of the inner pipe and about 80% above the diameter of the inner pipe in the position where the handle is situated.

[0049] As it particularly appears from Fig. 2, the handle 8 is located in an area corresponding to the level for the upper edge 15 of the bowl 1. The upper edge 15 defines the level of the water surface in the water trap. As the handle 8 is located at this level for the water surface, whirl formation will be prevented when water flows in through the opening 14 in the floor drain. Hereby, the flow through the water trap is optimised.

[0050] As seen in Fig. 5, the plate element 7 is largely U-shaped, which also appears in Fig. 2. In the central part 16 of the plate element 7 there is thus a free cutout which enables gripping around the handle 8. Alternatively, it may be designed as a plate member extending the whole way from the foremost end 16 of the handle 8 and down to the foremost end 18 of the lower part 19 of the handle on which the threaded connection 12A is fitted.

[0051] Fig. 6 shows a side view of a strainer 20, and Fig. 7 shows a plan view thereof. The strainer has a bottom 21 which is provided with a number of openings 22. The bottom 21 of the strainer is formed with three conical sections, of which a first section 23, which is an outer ring area, is relatively steep, and a second section 24 in an intermediate area which is less steep, and a section 25 in a central area having a slight inclination. The inclination is indicated in relation to a horizontal orientation.

[0052] The strainer is provided with a handle 26 consisting of a stem 27 and an upper grip knob 28. As seen in Fig. 6, the grip knob is provided such that it only extends immediately above the upper rim of the strainer 29 which is designed with a convex shape. The convex shape of the strainer provides that it may be disposed in the inner pipe as it appears in Fig. 8 in such a way that it does not contribute to the installation height for the water trap.

[0053] At an upper rim 30, the strainer has a packing 31 serving for sealing abutment against the upper edge 3 of the inner pipe 2. In practice, the abutment occurs by abutting against the packing 4.

[0054] As it appears from Fig. 8, the strainer is adapted such that the underside of the convex strainer rests with its underside against the top side 9 of the handle 8. It is seen that the strainer rests with a great length, namely the entire section 24, on the top side of the handle 8. Moreover, it appears that the very steep section 23 provides that the greater part of the strainer can rest on the top side 9. Hereby, the risk of catching hair, threads and similar that may penetrate through the strainer is avoided. Moreover, the oblique orientation of the top side 9 of the handle 8 will cause possible hairs and threads being caught on the free top side of the handle will be flushed away and carried through the water trap such that this is not clogged.

[0055] One of the channels 5 formed in an area with a corner 32 of the outer bowl 1 is seen particularly clearly in Fig. 8. In this area, water flowing through the interior of the inner pipe will penetrate up and leave the water trap above the upper edge 15 on the bowl 1. A laminar flow in the channels 5 will be imparted by the water flow through the water trap. The risk of whirl formation is thus broken, not only by the handle 8, but also due to the shape of the outer bowl for establishing the channels 5. This increases the flow through the water trap.

[0056] Fig. 10 illustrates the above mentioned water trap mounted in a cylindric bushing 33. At its top side, the bushing has a collar 34 where the upper edge of the inner pipe 2 with the packing 4 is in sealing engagement. Furthermore, it appears that the bushing 33 is provided with an outwards directed bead 35 at a position immediately under the collar 34.

[0057] As seen also by Fig. 11, the outer side of the lower edge area 36 of the bushing has conical shape. As it particularly appears from Fig. 10, the bushing 33 is thin-walled, such that the conical shape has been provided by the wall itself being imparted the conical shape in the

lower edge area 36.

[0058] As it particularly appears from Fig. 12, channels 37 are provided between the bushing 33 and the outer side of the bowl 1, the channels 37 substantially having the same function as the channels 5. The flow of liquid flowing above the upper edge 15 on the bowl 1 will flow down through the channels 37 and will continuously maintain a laminar flow preventing whirl formation. It will thus also contribute to a large flow through the water trap. The flow will contribute to a self-cleaning effect.

[0059] Fig. 13 shows in perspective a view of the water trap mounted in the bushing 33 with the upwards directed, open water lock which is brought into sealing abutment against the bushing 33 due to the sealing engagement of the packing 4 with the inner side of the bushing.

[0060] Fig. 14 shows how the bushing 33 with the water trap mounted therein, as illustrated in Figs. 10-13, is mounted in a floor drain in the shape of a vertical pipe. By a vertical pipe is meant a pipe mounted in a building construction with vertical orientation when in use.

[0061] It appears from Fig. 14 and particularly clearly from Fig. 15 that the bead 35 serves as abutment against an upper edge 39 on the vertical pipe 38. Hereby it is ensured that a packing 40 provided in a recess 41 in the vertical pipe 38 will always be correctly placed on the cylindric part of the bushing 33.

[0062] In Figs. 16 and 17 is also seen how the bead 35 is bearing against the edge 39 on the pipe 38. The pipe 38 is provided in the shown form as a socket pipe with a socket 42 serving to receive the bushing 33. As seen in Fig. 14, the bushing 33 is with a lesser length than the length of the socket 42 such that there is a free length from the lower edge area 36 of the bushing 33.

[0063] As shown in Fig. 14, the lower edge area 36 will have conical shape directed into the vertical pipe 38. Hereby, an ejector action is produced, contributing to increase the flow through the water trap and the vertical pipe 38. The floor drain illustrated in Figs. 14-17 will thus have an ejector action. This ejector action enhances the flow through the floor drain.

[0064] The increased flow in the floor drain is thus achieved due to a combined action from the handle 8, the channels 5 and 37 and the edge area 36.

[0065] The floor drain will thus be largely self-cleaning without risk of sedimentation of sludge and the like, and without risk of deposition of hair or threads on the handle 8.

[0066] During use, the handle 8 may serve to lift the entire water trap up from the floor drain with the object of cleaning. Moreover, the handle part may be applied for separating the inner pipe 2 from the bowl 1 as the handle may be used for separating the screw connection 12A, 12B.

[0067] Water running through the drain will always run through the inner pipe due to the use of the packings, and is discharged through the vertical pipe 38 in a secure way.

[0068] The water will thus flow through the water trap from the top side of the inner pipe and down through the inner pipe and under the lower edge of the inner pipe which is disposed at a distance from the bottom of the bowl. It will then flow up along the outer side of the inner pipe in the interspace between the inner pipe and the bowl and flow out over the upper edge of the bowl which at the same time defines the level of the water in the water trap. From the bowl, the water will flow down through the bushing and onwards down into the vertical pipe.

Claims

1. A water trap for use in a floor drain and with an outer, upwards open bowl (1) with a bottom and an inner pipe (2) mounted therein, which together with the bowl (1) forms a water trap, as the inner pipe (2) is disposed with a lower edge spaced apart from the bottom of the bowl and with an upper edge disposed at a position above the upper edge of the bowl, the water trap including a handle (8) in an upper part of the inner pipe (2) for taking up the water trap and/or for use in separating the inner pipe (2) and the bowl (1) for the purpose of cleaning, **characterised in that** the handle (8) has an extent across part of the diameter of the inner pipe and runs from the inner side of the inner pipe (2) and obliquely downwards against a central part of the inner pipe (2).

2. Water trap according to claim 1, **characterised in that** the handle (8) is fastened to the inner side of the inner pipe (2) and is fastened to the bottom of the bowl via a releasable screw connection (12A, 12B).

3. Water trap according to claim 1 or 2, **characterised in that** the handle (8) extends largely diagonally transversely of the inner pipe (2).

4. Water trap according to any preceding claim, **characterised in that** the top side (9) of the handle is located at level with the upper edge of the bowl such that the top side (9) is located above a water level in the water trap.

5. Water trap according to any preceding claim, **characterised in that** the upper edge of the inner pipe has a larger diameter than the outermost extension of the bowl and adapted for sealing abutment against a floor drain.

6. Water trap according to any preceding claim, **characterised in that** the inner pipe (2) is conical and has a circular cross-section, and that the bowl (1) has a rectangular cross-section.

7. Water trap according to any preceding claim, **char-**

acterised in that handle (8) is plate-shaped and provided with projections (10) adapted for mounting in cutouts (11) in the wall of the inner pipe.

8. Water trap according to any preceding claim, **characterised in that** it is provided with an outer cylindric bushing (33), where the upper edge of the inner pipe has a flange that sealingly engages a collar (34) on the bushing (33), as a sealing means (4) is provided there between.

9. Water trap according to claim 8, **characterised in that** the bushing (33) is adapted for mounting in a drain pipe, as at its upper end the bushing (33) is provided with an external bead (35) for abutting on an end edge (39) of a drain pipe.

10. Water trap according to any preceding claim, **characterised in that** it is provided with a strainer (20) which is disposed at the upper end of the inner pipe.

11. A strainer (20) for a water trap for use in a floor drain and with an outer, upwards open bowl (1) with a bottom and an inner pipe (2) mounted therein, which together with the bowl (1) forms a water trap, as the inner pipe (2) is disposed with a lower edge spaced apart from the bottom of the bowl and with an upper edge disposed at a position above the upper edge of the bowl, the water trap including a handle (8) in an upper part of the inner pipe (2) for taking up the water trap and/or for use in separating the inner pipe (2) and the bowl (1) for the purpose of cleaning, **characterised in that** the strainer (20) has a downwards convex shape adapted to fit in the upper part of the inner pipe, that the rim (30) of the strainer is adapted to rest against the upper edge (3) of the inner pipe, that the central part (25) of the strainer is adapted to rest against part of the top side (9) of the handle, and that a central handle (26) is provided in the convex interior of the strainer, extending to a level at the rim (30) of the strainer.

12. Strainer according to claim 11, where the handle (8) has an extent across part of the diameter of the inner pipe and runs from the inner side of the inner pipe (2) and obliquely downwards against a central part of the inner pipe (2), **characterised in that** the central part (25) of the strainer rests against the surface (9) of the handle near the inner side of the inner pipe.

13. Strainer according to claim 12, **characterised in that** the central part (25) of the strainer rests against the top side (9) of the oblique handle (8) to a position immediately above the liquid level of the water trap.

14. Strainer according to any of preceding claims 11 -13, **characterised in that** the rim (30) of the strainer is provided with a packing (31).

15. Strainer according to any of preceding claims 11 -14, **characterised in that** the bottom (21) of the strainer is formed by three largely conical sections (23, 24, 25).

16. Strainer according to claim 15, **characterised in that** there will be an outer ring area (23) with a steep inclination, an intermediate area (24) with a less steep inclination with an angle corresponding to the inclination of the handle, and a central area (25) with a very modest inclination.

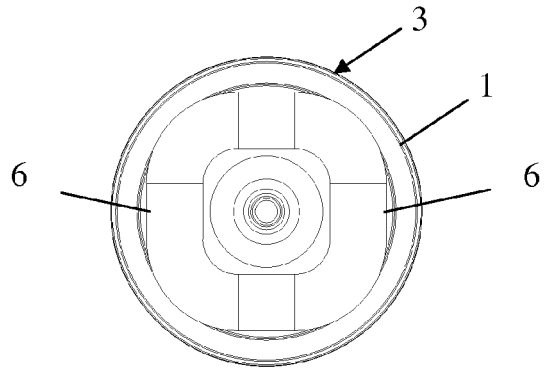

Fig. 1

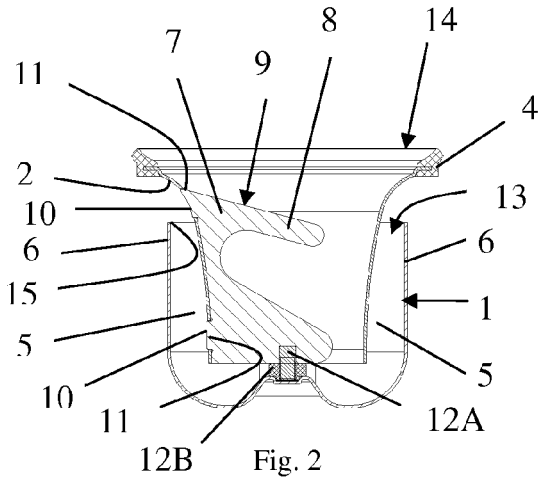

Fig. 2

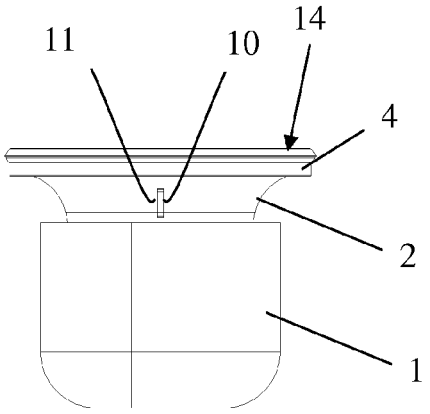

Fig. 3

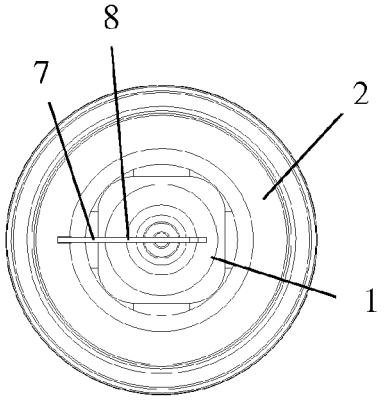

Fig. 4

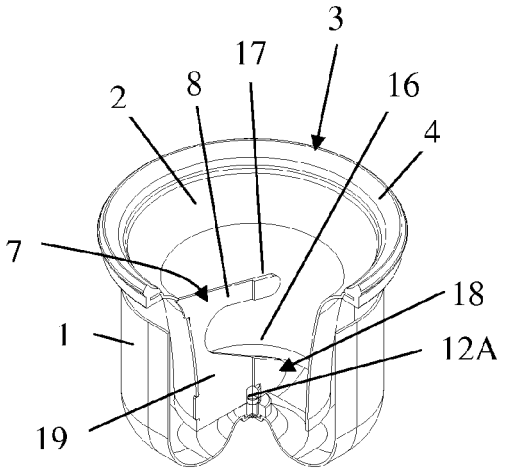

Fig. 5

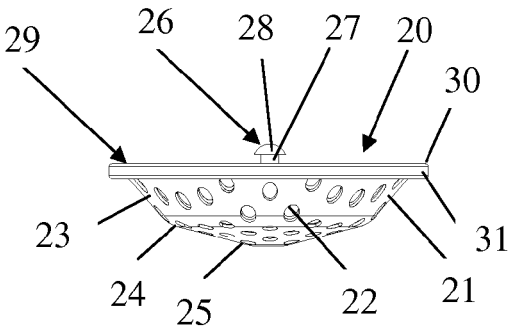

Fig. 6

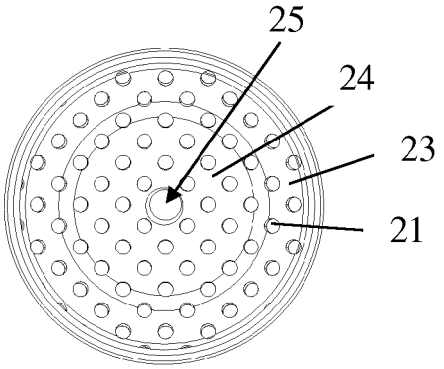

Fig. 7

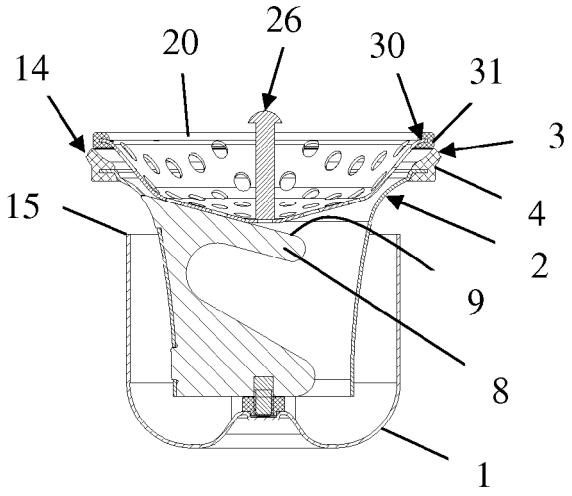

Fig. 8

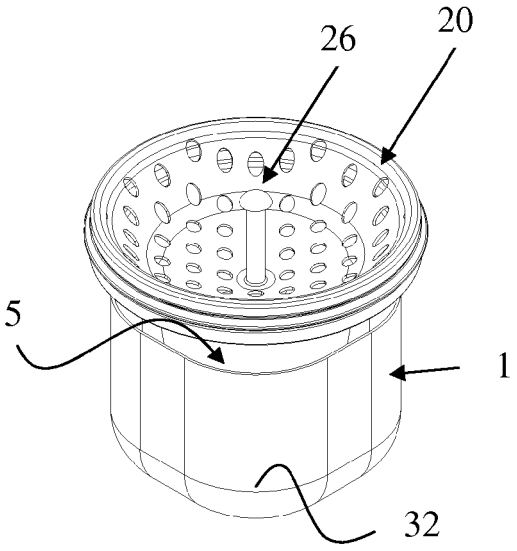

Fig. 9

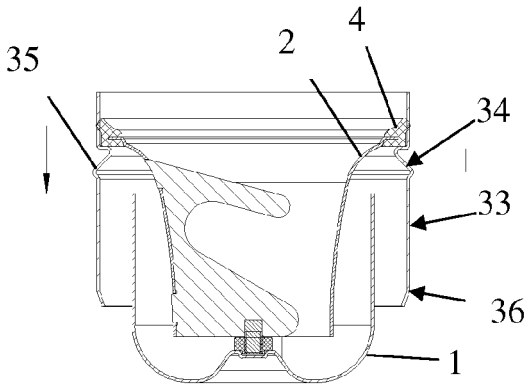

Fig. 10

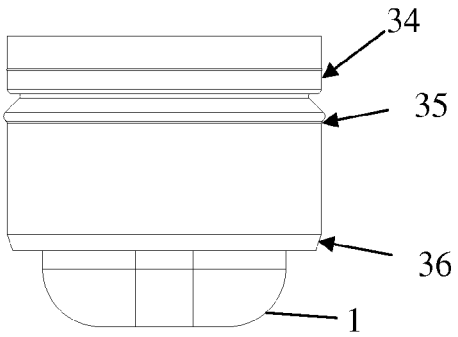

Fig. 11

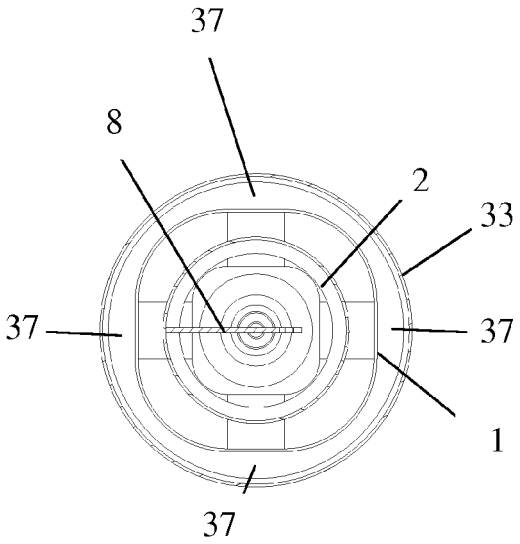

Fig. 12

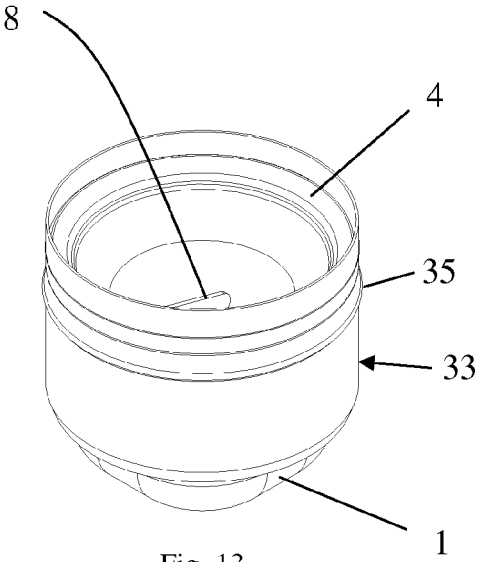

Fig. 13

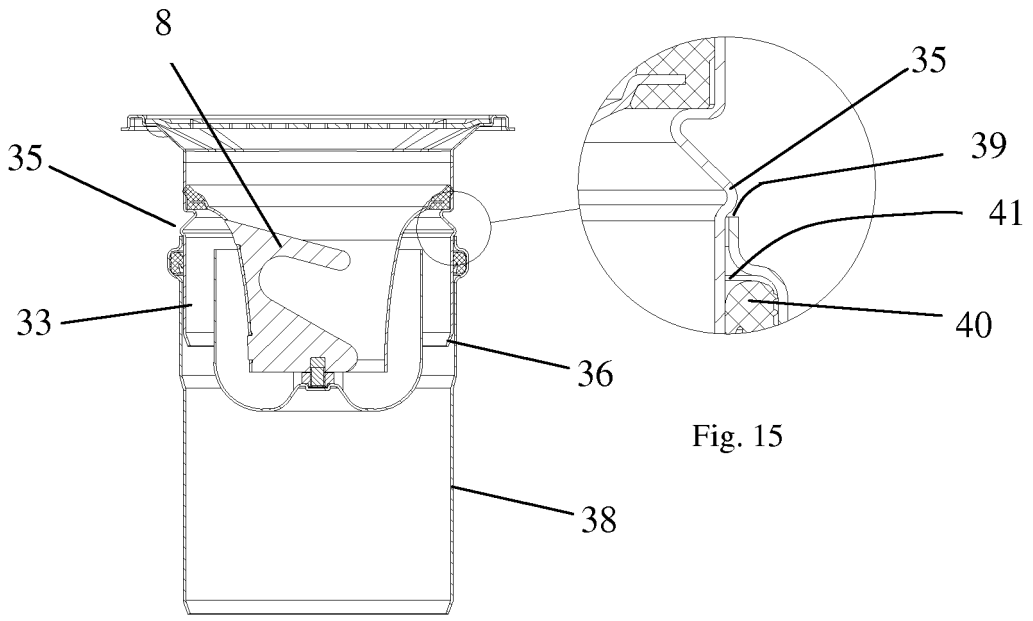

Fig. 14

Fig. 15

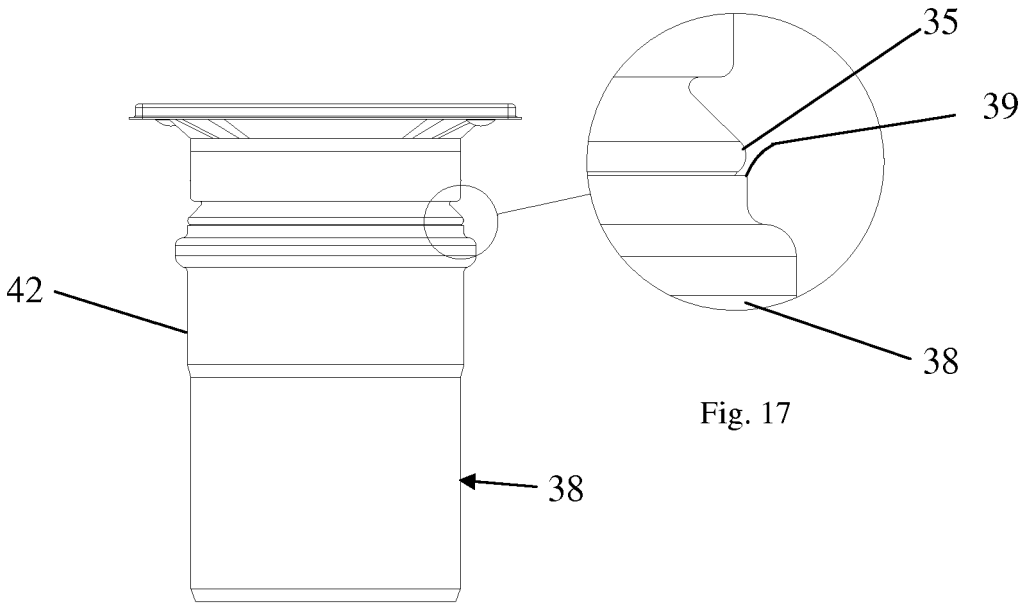

Fig. 16

Fig. 17