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(54) **BOSS GULLY TRAP**

(57) The present invention proposes a boss gully trap. The boss gully trap comprises a body comprising an open top, a closed end, one or more inlets configured to be connected to pipes and/or fittings, and an outlet configured to be connected to a pipe and/or a fitting. A trap configured to be mounted in the body is provided, the trap comprising an inlet; and an outlet. When the trap is mounted in the body, the distance between the closed end of the body and the inlet of the trap is about 5 mm to about 10 mm.

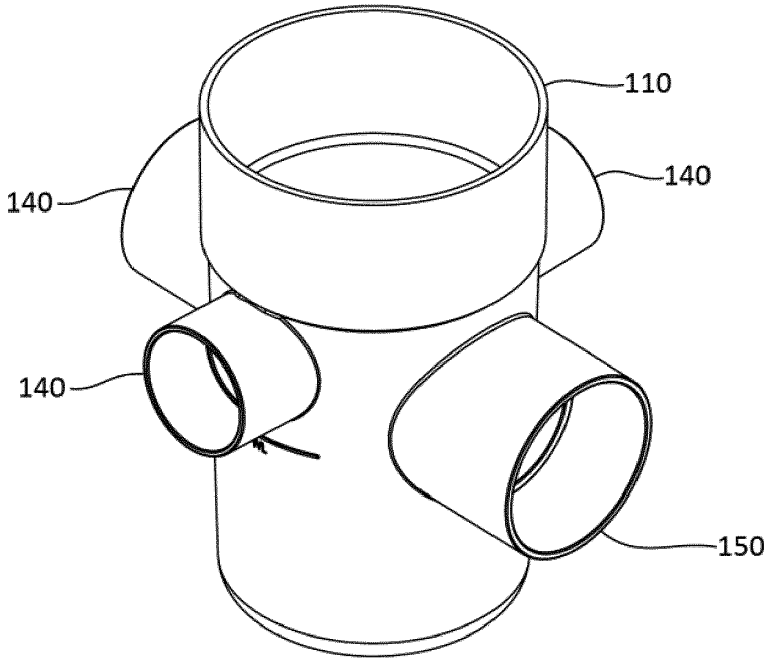

FIG. 2

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Description

FIELD

[0001] This relates to a boss gully trap.

BACKGROUND

[0002] Buildings typically have a drainage system to move waste water from the building to an external discharge network. To prevent foul air from the discharge network escaping into the building through the drainage system, the drainage system can have one or more traps with water seals.

SUMMARY

[0003] In one example embodiment, there is provided a boss gully trap, comprising: a body comprising: an open top; a closed end; one or more inlets configured to be connected to pipes and/or fittings; and an outlet configured to be connected to a pipe and/or a fitting; a trap configured to be mounted in the body, the trap comprising: an inlet; and an outlet; wherein when the trap is mounted in the body, the distance between the closed end of the body and the inlet of the trap is about 5 mm to about 10 mm.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] The invention is described by way of example with reference to the drawings, which show some embodiments of the invention. However, these are provided for illustration only. The invention is not limited to the particular details of the drawings and the corresponding description.

Figure 1 shows a view of a boss gully trap according to an embodiment.
Figure 2 shows an isometric view of the boss gully trap.
Figure 3 shows a sectional view of the boss gully trap through A-A.
Figure 4 shows an isometric view of a trap of the boss gully trap.

DETAILED DESCRIPTION

[0005] In one embodiment, there is provided a boss gully trap which is configured to be relatively compact, provide a sufficient water seal to prevent foul air escaping, and to have a sufficient flow rate of waste water with solid matter through the outlet.

[0006] Figure 1 shows a side view of the boss gully trap according to an embodiment. Figure 2 shows an isometric view of the boss gully trap. Figure 3 shows a sectional view of the boss gully trap through A-A in Figure 1.

[0007] The body 100 is hollow and has an open top 110. This is configured to connect to a riser pipe, which can be part of a vent stack. This may involve the open top 110 having a dimension sufficient to receive the riser pipe with a shoulder 111 to limit the depth of insertion of the riser pipe. For example, the open top 110 may be configured to receive a nominally 100 mm riser pipe. This may provide a friction fit with the riser pipe, and is typically sealed using solvent cement or the like.

[0008] The body 100 has a closed end 120 opposing the open top 110. The closed end 120 may have a flat external base 121 to allow the closed end 120 to sit in a stable manner. The corners of the closed end 120 may be rounded to reduce the risk of material being caught in the corners.

[0009] The body 100 has a wall 130 between the open top 110 and the closed end 120. The wall 130 may gradually narrow from a broader open top 110 to a narrower closed end 120.

[0010] The body 100 has one or more inlets 140 which are configured to attach to pipes or other fittings of a drainage system. For example, the pipes or other fittings may fit within each inlet. Each inlet 140 may have a shoulder 141 which limits the depth of insertion of each pipe or fitting.

[0011] The inlets 140 may be different diameters. For example, the body 100 may have three inlets 140 distributed around the body 100 with a spacing of about 90 degrees. Two opposing inlets 140 may have a nominal diameter of around 40 mm and an inlet positioned between the two opposing inlets may have a nominal diameter of around 50 mm.

[0012] Initially, the one or more inlets 140 may be closed with a cover 142. The cover 142 prevents passage through the inlet 140. In use, when a selected inlet 140 is intended to be used, the cover 142 from that inlet 140 may be removed by cutting, piercing, snapping, or another method. The covers 142 prevent waste water from passing out of an inlet 140 that is not connected to a pipe or other fitting.

[0013] The body 100 has an outlet 150 which is configured to attach to pipes or other fittings of a drainage system leading towards an external discharge network. For example, the pipes or other fittings may fit within the outlet 150.

[0014] The bottom edge 151 of the outlet 150 may be lower than the bottom edge 143 of any of the inlets 140. In addition, the inlets 140 may be sloped towards the body 100 and the outlet 150 may be sloped away from the body 100. This means that waste water will typically pass out of the outlet 150 rather than flowing back through an inlet 140.

[0015] The body 100 may be formed of any suitable material, such as unplasticised polyvinyl chloride (UPVC). The overall height of the body 100 may be 200 mm or less.

[0016] Figure 4 shows an isometric view of the trap 200.

[0017] A trap 200 may be provided for mounting inside the body 100. In this case, "mounting" may mean integrally formed with the body 100, or separately formed from the body 100 but removably attached from the body 100, or separately formed from the body 100 but permanently attached to the body 100. In the displayed embodiment, the trap 200 is separately formed from the body 100 and removably attachable to the body 100.

[0018] The trap 200 has an inlet 210 with a flared end. The inlet 210 is configured to be positioned near the closed end 120 of the body 100.

[0019] The trap 200 has an outlet 220 which is configured to positioned within the outlet 150 of the body 100. Projections 221 around the outlet 220 may be provided to limit the depth of insertion of the outlet 220 into the outlet 150 of the body 100. The outlet 220 may have a recess 222 near its end for receiving a sealing ring 223.

[0020] The trap 200 has a wall 230 between the inlet 210 and the outlet 220. The wall 230 may be shaped so that the inlet 210 is at an angle relative to the outlet 220. For example, the angle may be around 110 degrees.

[0021] An internal wall 240 within the trap 200 projects from the bottom of the outlet 220 and obstructs part of the outlet 220. The internal wall 240 increases the effective vertical distance between the inlet 210 and the outlet 220. That is, due to the internal wall 240, the water level must rise to a greater height to pass out of the outlet 220 compared to if the internal wall 240 were omitted.

[0022] A pull ring 250 is provided on the top of the trap 200. The pull ring 250 is sized to receive one or more fingers of a user. This allows a user to get sufficient grip to detach the trap 200 for cleaning or replacement.

[0023] The trap 200 may be formed of any suitable material, such as unplasticised polyvinyl chloride (UPVC).

[0024] When the trap 200 is mounted in the body 100, the inlet 210 is positioned near the closed end 120 of the body 100. The sealing ring 223 is positioned between the outer face of the outlet 220 and the inner face of the outlet 150. This may prevent waste water from leaking from the outlet 150 back into the body 100 and also may provide a friction fit between the outlet 150 and the outlet 220.

[0025] The distance between the inlet 210 and the closed end 120 (specifically, the distance between the lowest edge of the inlet 210 and the inner face of the closed end 120) may be between about 5 mm to about 10 mm, or preferably between about 7 mm to 8 mm, or about 7.4 mm.

[0026] In addition, the distance between the inner face of the closed end 120 and the top of the internal wall 240 may be about 90 mm. This allows a sufficient level of water to be retained within the body 100 and therefore provides a sufficient water seal in use.

Operation

[0027] In use, the boss gully trap is oriented so that the open top 110 is pointed substantially upwards. One or more inlets 140 of the body are connected to pipes or fittings in a building. The inlets 140 receive waste water, for example from domestic appliances. The waste water passes through the inlet 140 into the body 100. The level of the waste water within the body 100 rises until it reaches the top of the internal wall 240. The waste water then exits through the outlet 150, and subsequently into pipes or fittings towards a discharge network. The level of waste water within the body 100 is sufficient to provide a water seal, which prevents foul air passing through the outlet 150 into the body 100 and subsequently into the building. The open top is connected to a riser pipe. This may ultimately lead to a vent stack, which allows excess gases to be vented to prevent the gases affecting the operation of the drainage system or the efficacy of the water seal.

Results

[0028] The configuration of the boss gully trap has been selected to optimise three features. First, the height of the body 100 is intended to be minimised, to allow the boss gully trap to be used in buildings where the distance between floors is relatively limited. Second, the height of the water level is intended to be sufficient to provide to provide a robust water seal. Third, the flow rate from body 100 to the outlet 150 must be sufficient to prevent the boss gully trap from backing up in use and allow sufficient clearing of solids within the waste water.

[0029] The described boss gully trap was tested against other boss gully traps. Each other boss gully trap had a similar water seal and overall height. The distance between the inlet 210 and the closed end 120 (or otherwise the minimum

gap through which waste water must pass) of the other traps varied.

[0030] Water passed into each boss gully trap at 8 L/min ± 0.2 L/min. Clay mix cat litter was introduced into each boss gully trap in a number of doses to simulate the entrance of solid matter in use. Once the level of water within the body began to rise (indicating an insufficient flow rate), the test was terminated, and the level of remaining clay mix cat litter was measured.

	Total dose before insufficient flow	Remaining dose after termination
Described embodiment	900 ml	250 ml
Existing system 1	450 ml	150 ml
Existing system 2	300 ml	50 ml
Existing system 3	500 ml	200 ml

[0031] It was therefore found that the described boss gully trap provided superior solid matter clearance rates. It maintained a sufficient flow rate for a greater level of solid matter than other comparable boss gully traps. In addition, a greater level of solid matter could be retained within the body before flow rates are affected. The test therefore shows that a reduced distance between the inlet 210 and the closed end 120 unexpectedly improves the performance compared to the different ranges of comparable systems.

Interpretation

[0032] The term "comprises" and other grammatical forms is intended to have an inclusive meaning unless otherwise noted. That is, they should be taken to mean an inclusion of the listed components, and possibly of other non-specified components or elements.

[0033] A reference to prior art or existing systems is not to be construed as an admission that such prior art or existing systems is public or that is forms part of the common general knowledge.

[0034] The present invention has been illustrated by the description of some embodiments. While these embodiments have been described in detail, this should not be taken to restrict or limit the scope of the claims to those details. Additional advantages and modifications will readily appear to those skilled in the art. Therefore, the invention in its broader aspects is not limited to the specific details of the illustrative examples shown and described. Accordingly, modifications may be made to the details without departing from the spirit or scope of the general inventive concept.

Claims

1. A boss gully trap, comprising:

a body comprising:

an open top;
a closed end;
one or more inlets configured to be connected to pipes and/or fittings;
and
an outlet configured to be connected to a pipe and/or a fitting;

a trap configured to be mounted in the body, the trap comprising:

an inlet; and
an outlet;

wherein when the trap is mounted in the body, the distance between the closed end of the body and the inlet of the trap is about 5 mm to about 10 mm.

2. The boss gully trap of claim 1, wherein when the trap is mounted in the body, the distance between the closed end of the body and the inlet of the trap is about 7 mm to about 8 mm.

3. The boss gully trap of claim 1, wherein when the trap is mounted in the body, the distance between the closed end of the body and the inlet of the trap is about 7.4 mm.

4. The boss gully trap of any of claims 1 to 3, wherein the outlet of the trap is configured to fit inside the outlet of the body, and a sealing ring is provided between the outlet of the trap and the outlet of the body.

5. The boss gully trap of any of claim 4, wherein the outlet of the trap comprises:
one or more projections configured to limit the insertion of the outlet of the trap into the outlet of the body.

6. The boss gully trap of any of claims 1 to 5, wherein the trap comprises:
an internal wall configured to increase the effective vertical distance between the inlet of the trap and the outlet of the trap.

7. The boss gully trap of claim 6, wherein when the trap is mounted in the body, the vertical distance between the top of the internal wall and the closed end of the body is about 90 mm.

8. The boss gully trap of any of claims 1 to 7, wherein the open top is configured to connect to a riser pipe.

9. The boss gully trap of any of claims 1 to 8, wherein the one or more inlets comprise at least two inlets of different diameters.

10. The boss gully trap of any of claims 1 to 9, wherein the height of the body is less than about 200 mm.

11. The boss gully trap of any of claims 1 to 10, wherein the trap comprises a pull ring configured to receive one or more fingers of a user.

12. The boss gully trap of any of claims 1 to 11, wherein one or more of the inlets of the body are sealed with a cover.

13. The boss gully trap of any of claims 1 to 12, wherein the trap is configured to be removable from the body.

14. The boss gully trap of any of claims 1 to 13, wherein the body and/or the trap are formed of UPVC.

15. A boss gully trap substantially as herein described with reference to the drawings.

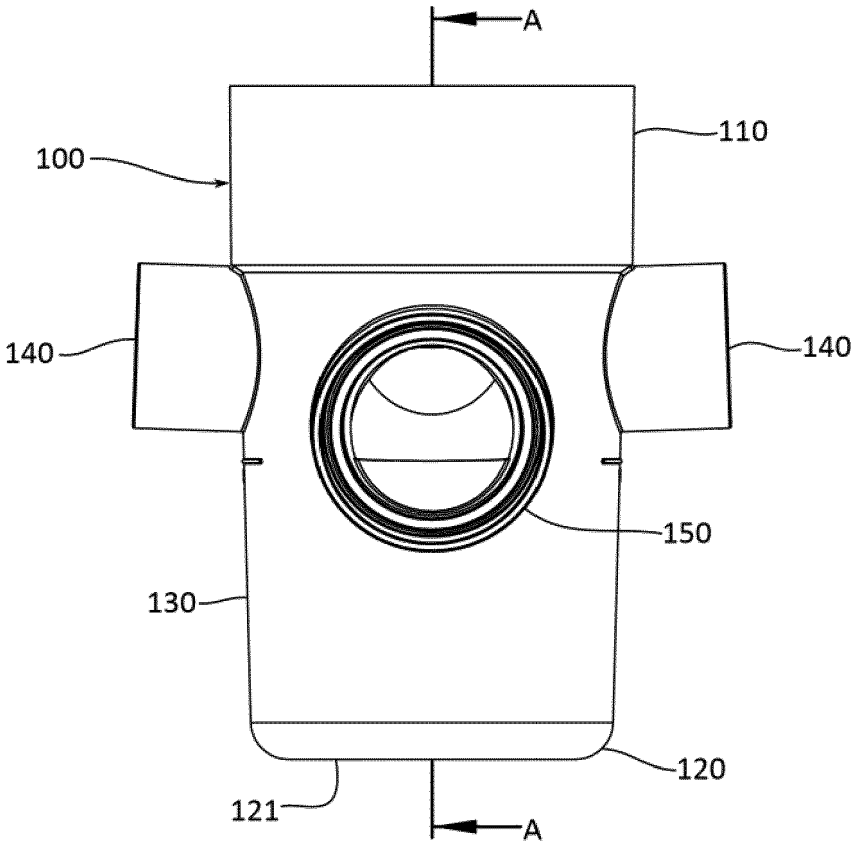

FIG. 1

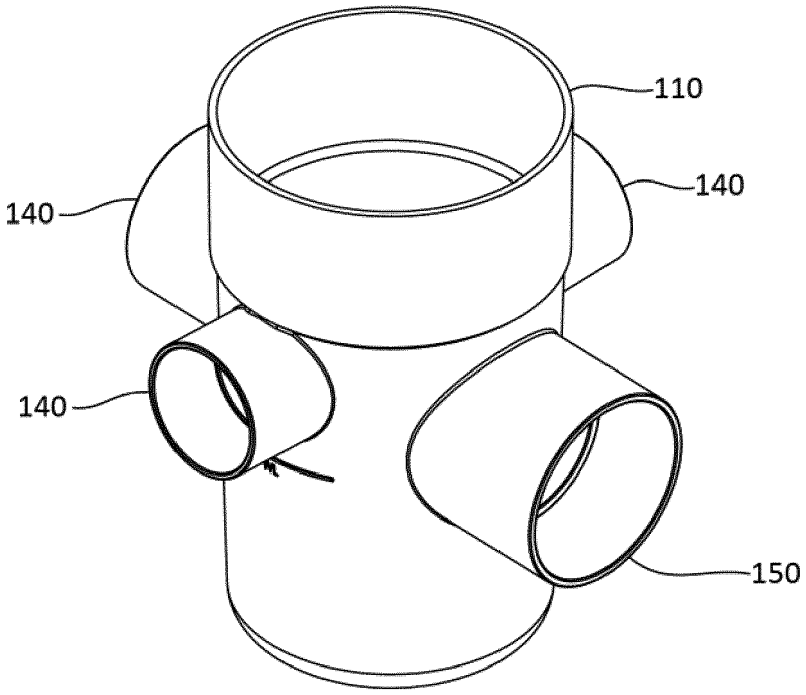

FIG. 2

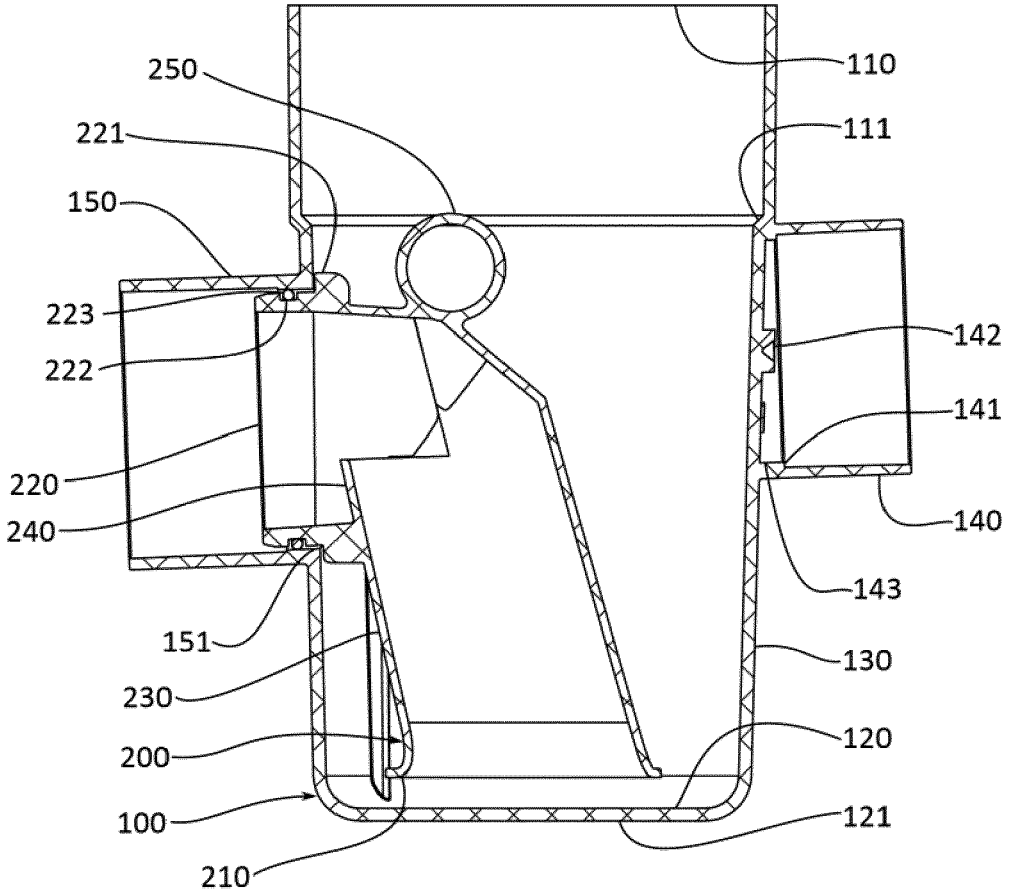
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FIG. 3

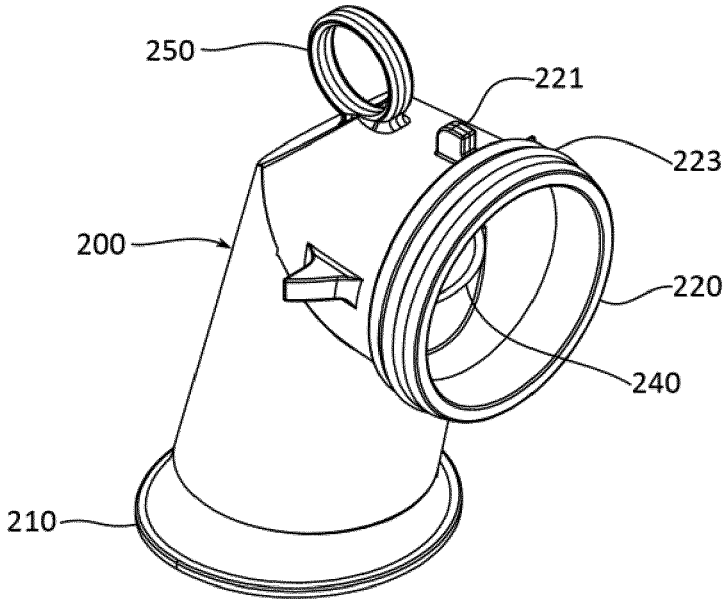
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FIG. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 20 17 7173

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	15 October 2020	Isailovski, Marko

CATEGORY OF CITED DOCUMENTS

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EUROPEAN SEARCH REPORT

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The present search report has been drawn up for all claims

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