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(54) **Improved Waste Trap**

(57) A waste trap (10) for a bath is described. The waste trap (10) comprises a first trap inlet (12) adapted to be connected to a bath outlet, a second trap inlet (16) adapted to be connected to a bath overflow and a trap

outlet (20) adapted to be connected to a waste pipe. The trap is arranged to form a water seal between the first trap inlet and the trap outlet, the height of the water seal, in use, being higher than at least part of the trap outlet.

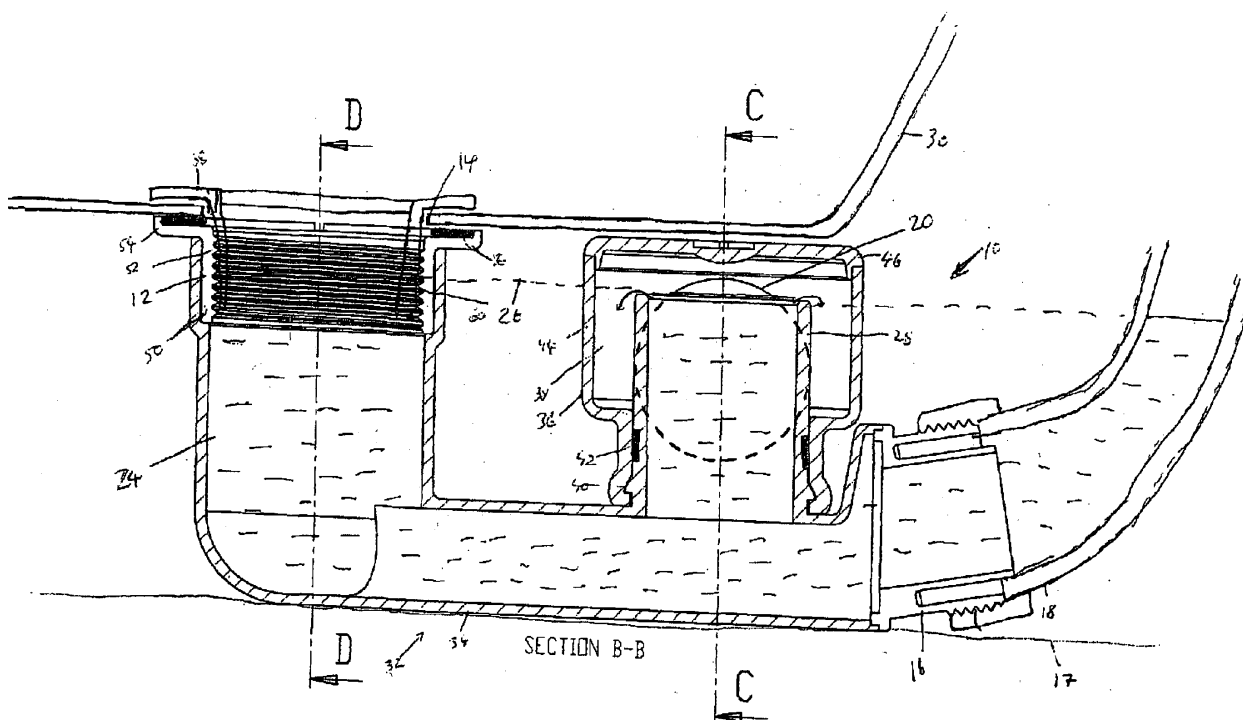


Figure 1

Description

Field of the Invention

[0001] The present invention relates to waste traps. Particularly, but not exclusively, the present invention relates to a waste trap for a bath.

Background to the Invention

[0002] A waste trap is generally provided between a bath outlet and a soil pipe to allow water from the bath to reach the soil pipe but to prevent, for example, noxious gases in the waste system entering the bathroom through the bath outlet.

[0003] The waste trap provides a barrier between the soil pipe and the bath outlet in the form of a water seal. Generally such a waste trap will have some sort of convoluted flow path which fills with water to a fixed depth sealing the bath outlet and the overflow outlet from the ingress of waste gases.

[0004] Regulations state that the water seal has to be a minimum depth of 50 millimetres. The depth of the trap itself is therefore determined by the minimum depth of the water seal plus the diameter of the waste pipe.

[0005] Current fashions in bath design are for baths which are as close to the floor as possible and there is a desire to minimise the gap between the base of the bath on the floor. However, current designs of waste trap cannot be accommodated in the reduced spaces which the bath designers specify. In some instances, this results in a hole or recess being made in the floor to accommodate the waste trap.

[0006] It is known to try and reduce the height of the trap by using a reduced diameter connection from the trap to the soil pipe, however this can have a detrimental effect on the flow rate through the trap.

Summary of the Invention

[0007] According to a first aspect of the present invention there is provided a waste trap for a bath, the trap comprising:

a first trap inlet adapted to be connected to a bath outlet;
a second trap inlet adapted to be connected to a bath overflow; and
a trap outlet adapted to be connected to a waste pipe; wherein the trap is arranged to form a water seal between the first trap inlet and the trap outlet, the height of the water seal, in use, being higher than at least part of the trap outlet.

[0008] In one embodiment, providing a waste trap in which the height of the water seal is higher than at least part of the trap outlet reduces the overall height of the trap, allowing the trap to be installed in smaller spaces

than a conventional trap.

[0009] Additionally, the trap may be arranged to form a water seal between the second trap inlet and the trap outlet, the height of the water seal, in use, being higher than at least part of the trap outlet

[0010] The trap may comprise a body.

[0011] The body may define the first trap inlet, the second trap inlet and the trap outlet.

[0012] The body may define a first convoluted flow path between the first trap inlet and the trap outlet.

[0013] The body may define a second convoluted flow path between the second trap inlet and the trap outlet.

[0014] The trap may include a weir.

[0015] The weir may have an upper edge higher than at least part of the trap outlet.

[0016] In one embodiment the height of the water seal is determined by the upper edge of the weir. By incorporating a weir, the height of the water seal in relation to the trap outlet can be raised and the overall depth of the water trap can be reduced. Furthermore by raising the water seal in relation to the trap outlet permits for a larger diameter of trap outlet to be accommodated without affecting the overall height of the trap and further improving the volume flow rate through the trap.

[0017] In one embodiment the weir is arranged such that water flows up and over the weir before flowing through the trap outlet.

[0018] In one embodiment the trap body comprises a first portion, defining the first trap inlet and the second trap inlet, and a second portion defining the trap outlet.

[0019] In this embodiment, the second body portion may be rotatably mounted to the first body portion. Such an arrangement adds flexibility to the waste trap as the second body portion can be moved with respect to the first body portion to accommodate different plumbing arrangements which may exist.

[0020] The weir may be defined by the first body portion.

[0021] Alternatively, the weir may be defined by the second body portion.

[0022] In a further alternative, the weir may be an insert.

[0023] In an embodiment, the weir may be tubular.

[0024] In this embodiment, the second body portion may be rotatably mounted to the tubular weir.

[0025] The second body portion may be adapted to be rotated by a tool.

[0026] The second body portion may define a feature adapted to be engaged by a tool.

[0027] The feature may be a recess adapted to receive, for example, a screwdriver or a coin.

[0028] The second body portion may comprise a chamber.

[0029] The chamber may comprise an upper section and a lower section.

[0030] The upper section may be spin welded to the lower section. The upper section may define a feature adapted to be engaged by a tool to permit the chamber

to be rotated with respect to the weir.

[0031] The chamber may be adapted to receive the weir.

[0032] Where the weir is tubular, the chamber may comprise a tubular portion of larger diameter than the tubular weir.

[0033] In one embodiment providing a chamber permits water flowing over the weir to flow into the chamber before exiting through the outlet. This maintains the volume flow rate of the trap by preventing a bottleneck between the weir and the trap outlet.

[0034] The weir may be spaced away from the outlet. If the weir is spaced away from the outlet, then the weir does not reduce the effective size of the outlet, maximising the volume flow rate through the outlet.

[0035] In one embodiment a chamber upper external surface is coplanar with the first trap inlet.

[0036] The trap body may be moulded.

[0037] The trap body may comprise a polymeric material.

[0038] The polymeric material may be polypropylene.

[0039] Alternatively polymeric material may be any suitable material such as polycarbonate.

Brief Description of the Drawings

[0040] An embodiment of the present invention will now be described with reference to the accompanying drawings in which:

Figure 1 is a section view through a waste trap for a bath, shown in use with a bath, according to a first embodiment of the present invention;

Figure 2 is a front view of the trap of Figure 1;

Figure 3 is a top view of the trap of Figure 1.

Detailed Description of the Drawings

[0041] Referring to the figures, a bath trap, generally indicated by reference numeral 10, is shown. The bath trap 10 comprises a first trap inlet 12, connected to the outlet 14 of a bath 15, a second trap inlet 16 connected to a bath overflow 18 and a trap outlet 20 connected to a waste pipe 22 (not visible on figure 1 but shown in broken outline on figure 3). The trap 10 is shown sandwiched between the bath and the floor 17.

[0042] The trap 10 is arranged to form a water seal 24 between the first trap inlet 12 and the trap outlet 20, the height 26 of the water seal 24 being higher than at least part of the trap outlet 20. As can be seen from figure 1, the height of the water seal, indicated by the broken line 26, is higher than the majority of the trap outlet 20 and particularly, the water seal 24 is higher than the portion of the trap outlet 20 shown in broken outline.

[0043] It will also be noted that the water seal 24 formed between the second trap inlet 16, the overflow pipe 18 and the trap outlet 20 is also higher than at least part of the trap outlet 20, and particularly, the water seal 24 is

higher than the portion of the trap outlet 20 shown in broken outline.

[0044] Such an arrangement reduces the overall height of the trap 10 allowing the trap 10 to be installed in smaller spaces than a conventional trap. This reduction in height is made possible by the provision of a tubular weir 28 which is situated adjacent the trap outlet 20.

[0045] The trap 10 comprises a body 32 having a first body portion 34 and a second body portion 36. The first body portion 34 is moulded from polypropylene and defines the first trap inlet 12, the second trap inlet 16 and the tubular weir 28. The second body portion 36 is also moulded from polypropylene and is rotatably mounted to the first body portion 34. The second body portion 36 defines a chamber 38 for receiving water flowing over the weir 28. The chamber 38 is of larger internal diameter than the external diameter of the tubular weir 28 and is in fluid communication with trap outlet 20, which is also defined by the second body portion 36.

[0046] The second body portion 36 is locked to the first body portion 34 by complementary engaging lug and recess arrangement 40 about which the second body portion 36 can rotate with respect to the first body portion 34. Allowing the second body portion 36 to rotate facilitates fitting the trap and particularly connecting the trap outlet 20 to the waste pipe 22, thereby increasing the utility of the trap 10.

[0047] A watertight seal is formed between the first and second body sections 34, 36 by an elastomeric seal 42.

[0048] The second body portion is manufactured in two parts, a lower half 44 and a lid 46. The lid 46 is spun welded to the second body portion lower half 44. As can be seen most clearly from figure 3, the lid 46 defines a cross hair recess 48 adapted to receive a tool (not shown) which can rotate the second body portion 36 with respect of the first body portion 34. The tool may be a coin or a screwdriver, for example. Rotatably mounting the second body portion 36 to the first body portion 34 increases the flexibility and utility of the trap 10.

[0049] Referring back to figure 1, the trap inlet 12 comprises a threaded sleeve 50 attached to the first body portion 34 by an adhesive. The threaded sleeve 50 defines an internal thread 52 and includes a flange 54. The flange 54 is adapted to receive an elastomeric seal gasket 56. In use, the trap 10 is secured to the bath 30 by locating the first inlet 12, and particularly the flanging gasket 54, 56 adjacent the bath outlet 14. A joining member 58, defining an external thread 60, is then screwed into the threaded sleeve 50. The engagement between the threaded sleeve 50 and the joining member 58 draws the two components together until the bath outlet 14 is trapped between the joining member 58 and the inlet piece 50 and a seal is formed between the bath outlet 14 and the gasket 56.

[0050] Various modifications and improvements may be made to the above described embodiment without departing from the scope of the invention. For example, the lid 46 of the second body portion 36 could be remov-

able to facilitate adjustment or cleaning of the trap 10.

Claims

1. A waste trap for a bath, the trap comprising:

a first trap inlet adapted to be connected to a bath outlet;
a second trap inlet adapted to be connected to a bath overflow; and
a trap outlet adapted to be connected to a waste pipe;
wherein the trap is arranged to form a water seal between the first trap inlet and the trap outlet, the height of the water seal, in use, being higher than at least part of the trap outlet.

2. The waste trap of claim 1, wherein the trap is arranged to form a water seal between the second trap inlet and the trap outlet, the height of the water seal, in use, being higher than at least part of the trap outlet

3. The waste trap of either of claims 1 or 2, wherein the trap comprises a body.

4. The waste trap of claim 3, wherein the body defines the first trap inlet, the second trap inlet and the trap outlet.

5. The waste trap of claim 4, wherein the body defines a first convoluted flow path between the first trap inlet and the trap outlet.

6. The waste trap of either of claims 4 or 5, wherein the body defines a second convoluted flow path between the second trap inlet and the trap outlet.

7. The waste trap of any preceding claim, wherein the trap includes a weir.

8. The waste trap of claim 7, wherein the weir has an upper edge higher than at least part of the trap outlet.

9. The waste trap of claim 8, wherein the height of the water seal is determined by the upper edge of the weir.

10. The waste trap of any of claims 7 to 9, wherein the weir is arranged such that water flows up and over the weir before flowing through the trap outlet.

11. The waste trap of any of claims 7 to 10, wherein the trap body comprises a first portion, defining the first trap inlet and the second trap inlet, and a second portion defining the trap outlet.

12. The waste trap of claim 11, wherein the second body

portion is rotatably mounted to the first body portion.

13. The waste trap of either of claims 11 or 12, wherein the weir is defined by the first body portion.

14. The waste trap of either of claims 11 or 12, wherein the weir is defined by the second body portion.

15. The waste trap of any of claims 11 to 13, wherein the weir is an insert.

16. The waste trap of any of claims 11 to 14, wherein the weir is tubular.

17. The waste trap of claim 16, wherein the second body portion is rotatably mounted to the tubular weir.

18. The waste trap of claim 17, wherein the second body portion is adapted to be rotated by a tool.

19. The waste trap of claim 18, wherein the second body portion defines a feature adapted to be engaged by a tool.

20. The waste trap of claim 19, wherein the feature is a recess adapted to receive, for example, a screwdriver or a coin.

21. The waste trap of any of claims 11 to 20, wherein the second body portion comprises a chamber.

22. The waste trap of claim 21, wherein the chamber comprises an upper section and a lower section.

23. The waste trap of claim 22, wherein the upper section is spin welded to the lower section.

24. The waste trap of either of claims 22 or 23, wherein the upper section defines a feature adapted to be engaged by a tool to permit the chamber to be rotated with respect to the weir.

25. The waste trap of any of claims 21 to 24, wherein the chamber is adapted to receive the weir.

26. The waste trap of claim 25, wherein where the weir is tubular, the chamber comprises a tubular portion of larger diameter than the tubular weir.

27. The waste trap of either of claims 25 or 26, wherein the weir is spaced away from the outlet.

28. The waste trap of any of claims 25 to 27, wherein a chamber upper external surface is coplanar with the first trap inlet.

29. The waste trap of any proceeding claim, wherein the trap body is moulded.

30. The waste trap of any proceeding claim, wherein the trap body comprises a polymeric material.

31. The waste trap of claim 30, wherein the polymeric material is polypropylene.

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32. The waste trap of claim 30, wherein the polymeric material is any suitable material such as polycarbonate.

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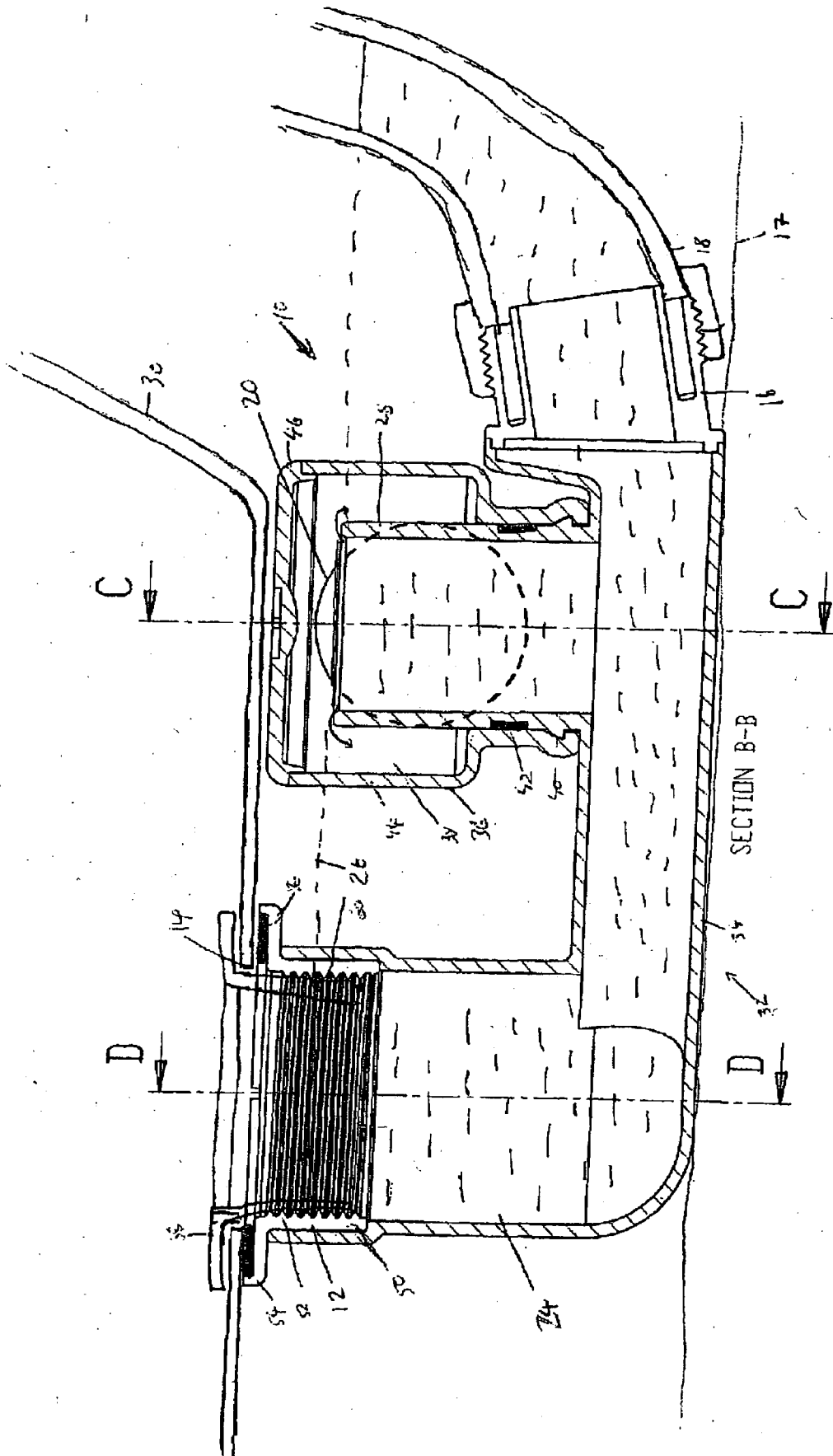


Figure 1

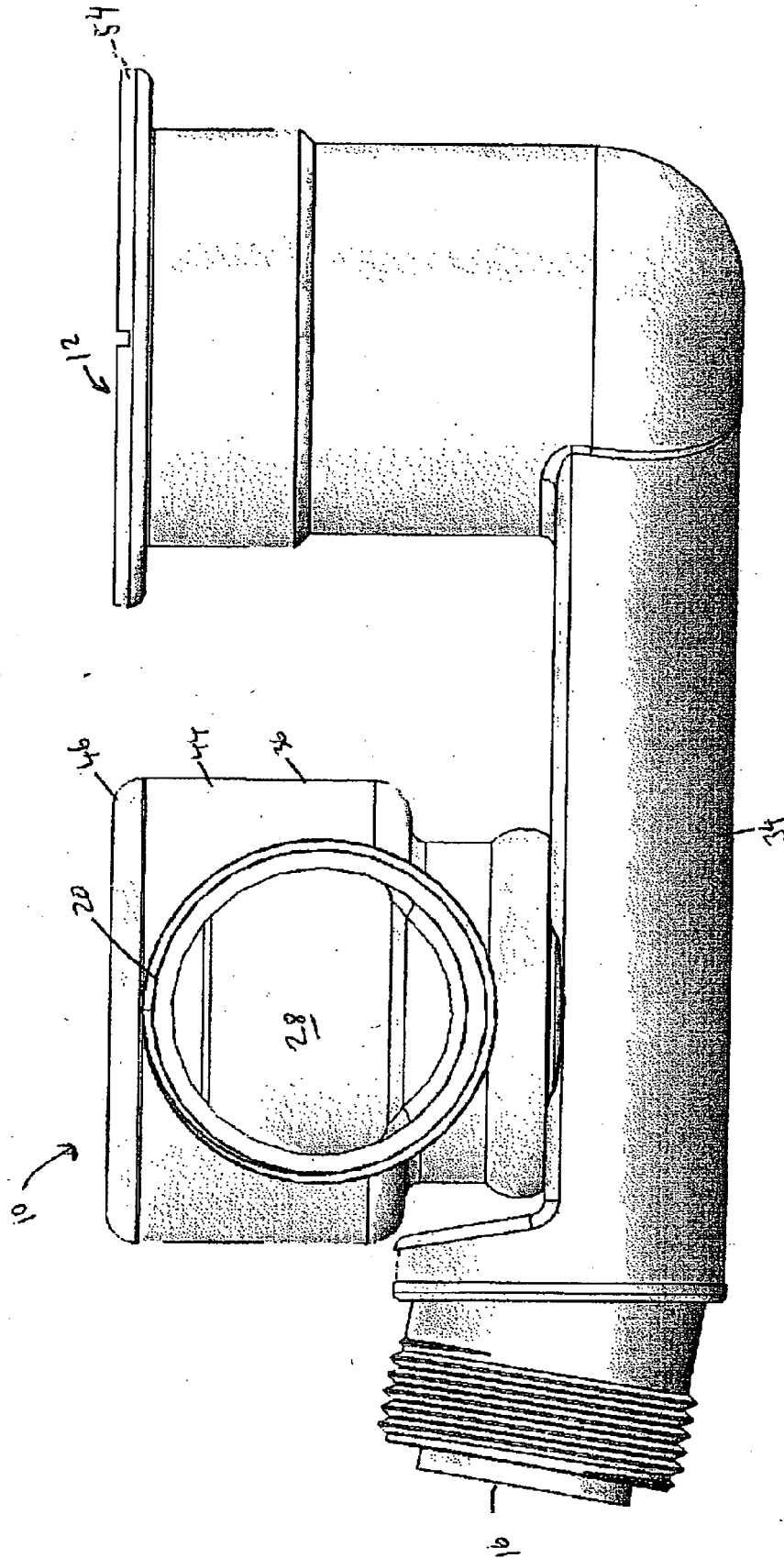


Figure 2

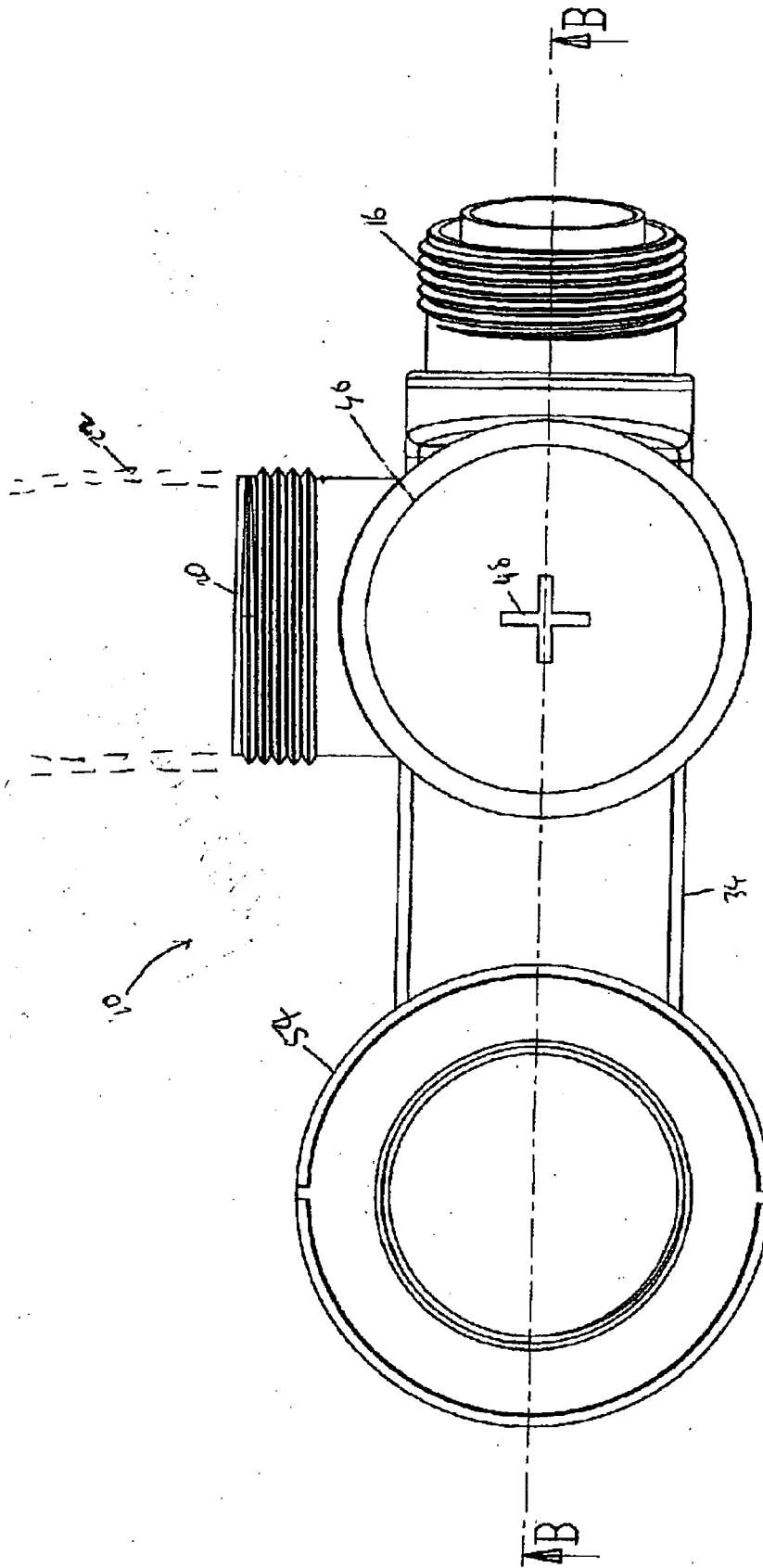


Figure 3



EUROPEAN SEARCH REPORT

Application Number
EP 11 25 0546

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 10 2008 023894 A1 (DESCH KURT MICHAEL [DE]) 2 April 2009 (2009-04-02) * figures 4-6 *	1-32	INV. E03C1/232
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A	US 497 465 A (BURGOIN, E. L.) 16 May 1893 (1893-05-16) * the whole document *	1	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			E03C
Place of search		Date of completion of the search	Examiner
Munich		9 January 2012	Flygare, Esa
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 11 25 0546

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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09-01-2012

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82