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(54) Outlet assembly for sanitary systems

(57) An outlet assembly for sanitary system comprises an opening and closure mechanism (1) for evacuating water, a drain assembly (3) on which the opening and closing mechanism (1) is mounted, a siphon and a coupling connection to the wall embedded tube assembly, said siphon comprising an inner tube which is hydraulically coupled to the drain assembly (3) and arranged in an outer body, which is hydraulically coupled to the drain assembly (3) through a tube horizontally projecting from the siphon and vertically extended at the wall, thereby reducing to a minimum the space occupied under a sanitary fitting.

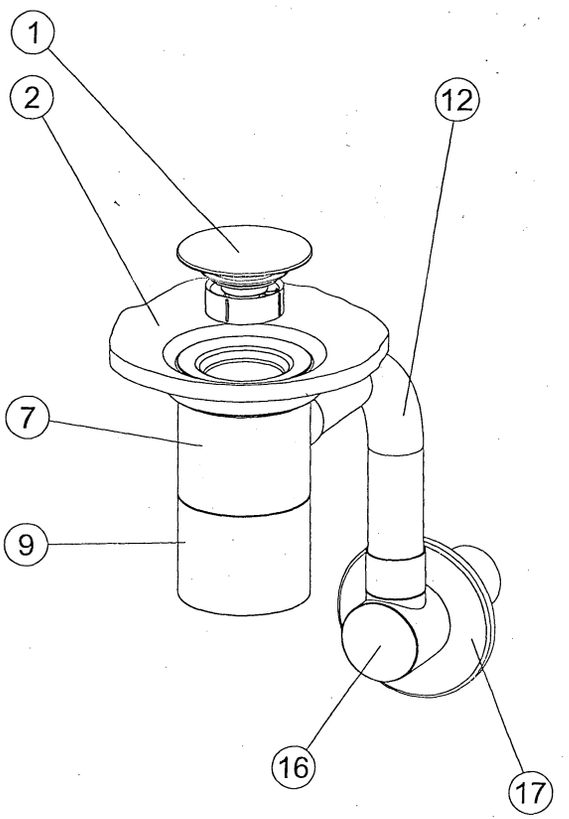

Fig 1

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Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to an outlet assembly for sanitary systems in general.

[0002] As is known, prior outlet assemblies conventionally comprise siphon elements, which represent hydraulic closing devices for preventing gases generated in sewage systems from being discharged in the environment, and being generally used in waste water inlet ports (sinks, water closets, and so on).

[0003] Said outlet systems usually has a U-shape tube configuration, to allow water to fully close the tube cross-section.

[0004] In particular, the load on said siphon must be designed as to prevent said siphon from being emptied, for example because of environmental pressure variations or discharging or outlet tube pressure variations.

[0005] Prior metal siphon elements are conventionally made by chilling; however, a broad diffusion being at present encountered by molded siphon elements.

[0006] Such a molding method is much more unexpensive than a chilling method but, however, it has the main drawback that it does not allow a siphon element with satisfactory loading properties to be easily made.

[0007] For "loading" it is intended the level difference between the water free surface (i.e. of the water filling the siphon element, corresponding to the lowest point of the outlet hole) and the threshold (corresponding to the lowest point of the top portion of the siphon).

[0008] Actually, in molded siphons, the loading or load is nearly zero, since the outlet lowest point is usually arranged at the same height of the threshold or sill.

[0009] Moreover, prior siphons and, in general, the outlet system in which they are installed, have a comparatively large size and a poor aesthetic aspect and, because of these reasons, they are frequently concealed to view by a column element, which provides mainly a covering function.

[0010] Thus, as a siphon assembly must be subjected to maintenance or servicing operations, for example for cleaning it or for removing an article fallen thereinto, it is necessary to perform a comparatively long and difficult disassembling assembly operation.

[0011] Another disadvantage of prior outlet systems is that it is very difficult to connect the outlet assembly to a preset wall attachment system.

SUMMARY OF THE INVENTION

[0012] Accordingly, the aim of the present invention is to provide such an outlet assembly for sanitary systems, which is improved with respect to the above mentioned prior art.

[0013] Within the scope of the above mentioned aim, a main object of the present invention is to provide such an outlet assembly for sanitary systems or fittings, which comprises an opening and closing mechanism for evacuating water therefrom, a drain on which said mechanism is mounted, a siphon and a connection coupling for providing connection with a wall embedded tubes system.

[0014] Yet another object of the present invention is to provide such an outlet assembly which is very operatively safe and, in the meanwhile, has a satisfactory aesthetic aspect, thereby allowing it to be left exposed to the view.

[0015] According to one aspect of the present invention, the above mentioned aim and objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by an outlet assembly for sanitary systems, characterized in that said outlet assembly comprises an opening and closing mechanism for evacuating water, a drain assembly on which said opening and closing mechanism is mounted, a siphon and a coupling connection with a wall embedded tube system, said siphon comprising an inner tube which is hydraulically coupled to an evacuating hole of the sanitary system and being arranged in an outer body, which is hydraulically coupled to the outlet by a coupling tube horizontally projecting from said siphon and vertically extending at the wall, thereby reducing to a minimum the space occupied under a sanitary fitting.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] Further characteristics and advantages of the present invention will become more apparent hereinafter from the following detailed disclosure of a preferred, though not exclusive, embodiment of the invention, which is illustrated, by way of an indicative, but not limitative, example in the accompanying drawings, where:

Figure 1 is a partially exploded perspective view of the outlet assembly according to the invention;
Figure 2 is a partially exploded side elevation view of the outlet assembly according to the invention; and
Figure 3 is a partially exploded and cross-sectioned side elevation view illustrating the subject outlet assembly.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0017] With reference to the number references of the above mentioned figures, the outlet assembly according to the invention comprises a siphon element installed under a sanitary fitting 2, for example a sink, not shown in the figures, and being fixed to a drain assembly 3.

[0018] Said drain assembly, in particular, comprises a recess or seat for housing an opening and closing mechanism 1, and can also comprise overflow holes, if required by the related sanitary fitting article.

[0019] The siphon body comprises a top portions 7

coupled, for example by threading, to the drain assembly 3, to the siphoning tube 10 and to the bottom portion 9.

[0020] The top or upper portion of the siphon 7 comprises a recess for receiving a gasket 5 therein.

[0021] As shown, a tube holder 15, on which a tube 12 is engaged, is affixed to the siphon.

[0022] Between the drain assembly 3 and sanitary fitting 2, an anti-friction washer 4 is arranged.

[0023] Between the top portion of the siphon 7 and the sanitary fitting, a gasket 5 is arranged.

[0024] A further gasket 8 provides hydraulic tightness between the top portion of the siphon 7 and the bottom portion thereof.

[0025] Between the top portion 7 and tube 10, providing the siphoning effect, a further gasket 6 is applied.

[0026] Thus, by vertically displacing the mechanism 1 arranged in the drain assembly 3, the system will be opened and closed.

[0027] As it should be apparent, said opening and closing mechanism can be easily removed and cleaned.

[0028] The system is coupled to the outlet tube, embedded in the wall, by the connection assembly 16, on which a tube holder 15 is mounted.

[0029] On said connection assembly 16 a covering rose assembly 17 can be arranged.

[0030] Between the two tube holders 15 a tube 12 is connected, the sealing of which is provided by sealing gaskets 13.

[0031] On the end portions of said tube 12 tube covering ring elements 14 for covering the connection regions and improving the aesthetic aspect of the assembly can be arranged.

[0032] The connection between the siphon 7 and the tube 12 and between the tube 12 and coupling 16 can also be performed in a different manner from that which has been shown, for example by threaded parts and joint covering caps.

[0033] In the thus designed outlet assembly, the outlet tube horizontally projects from the siphon and then is vertically directed through the wall.

[0034] Thus, it is possible to reduce to a minimum the necessary space under a sanitary fitting (for example a sink).

[0035] The subject outlet system can be advantageously used for reducing the siphon body height, thereby increasing the available or free space under the sanitary fitting.

[0036] For adjusting the height of the system, it is sufficient to properly cut through the tube 12 at the desired point.

[0037] In prior siphons, the position of said siphon will be determined by the height of the wall point at which the outlet tube enters the wall or masonry.

[0038] On the contrary, in the device according to the present invention, the siphon position will be always determined by the contact with the sanitary fitting, since the adjustment is performed on the tube.

[0039] Between the siphoning assembly and sanitary fitting, for example a sink, it would be possible to arrange different adapters such as an overflow ring element or a bearing ring element to meet requirements related to the shape, bearing construction, and provision of an overflow assembly of the sanitary fitting.

[0040] The outlet system can be easily and quickly cleaned by removing the device 1.

[0041] For providing a very accurate cleaning, it would be preferred to disassemble the bottom portion 9 and tube 10.

[0042] It has been found that the invention fully achieves the intended aim and objects.

[0043] In fact, the invention provides an integrated outlet assembly, comprising an opening and closing mechanism for evacuating water, a drain assembly mounting said mechanism, a siphon and a connection coupling for coupling the system to the wall embedded tube system.

[0044] The thus designed outlet assembly has a very reduced size and an aesthetic pleasant aspect and, moreover, can be easily serviced.

[0045] In practicing the invention, the used materials, as well as the size of the constructional parts can be any, depending on requirements and status of the art.

Claims

1. An outlet assembly for sanitary systems, **characterized in that** said outlet assembly comprises an opening and closing mechanism for evacuating water, a drain assembly on which said opening and closing mechanism is mounted, a siphon and a coupling connection with a wall embedded tube systems, said siphon comprising an inner tube which is hydraulically coupled to an evacuating hole of the sanitary system and being arranged in an outer body, which is hydraulically coupled to the outlet by a coupling tube horizontally projecting from said siphon and vertically extending at the wall, thereby reducing to a minimum the space occupied under a sanitary fitting.

2. An outlet assembly, according to claim 1, **characterized in that** said siphon is installed under a sanitary fitting such as a sink, and being fixed to the drain assembly of said sink.

3. An outlet assembly, according to claim 1 or 2, **characterized in that** said drain assembly comprises a seat for engaging therein said opening and closing mechanism.

4. An outlet assembly, according to one or more of the preceding claims, **characterized in that** said drain assembly comprises overflow holes, as required by the sanitary fitting.

5. An outlet assembly, according to one or more of the preceding claims, **characterized in that** the body of said siphon comprises a top portion coupled, for example by threading, to said drain assembly, by the inner tube, providing the siphoning effect, and by a bottom portion.

6. An outlet assembly, according to one or more of the preceding claims, **characterized in that** said top portion of said siphon comprises a recess for engaging a gasket therein.

7. An outlet assembly, according to one or more of the preceding claims, **characterized in that** a tube holder on which an outlet tube is engaged is fixed to said siphon.

8. An outlet assembly, according to one or more of the preceding claims, **characterized in that** between said drain assembly and sanitary fitting an anti-friction washer is arranged, whereas between the top portion of said siphon and said sanitary fitting, a top gasket is arranged.

9. An outlet assembly, according to one or more of the preceding claims, **characterized in that** a further gasket provides a hydraulic tightness between the top portion of said siphon and the bottom portion thereof, whereas the top gasket provides hydraulic tightness between the top portion and the tube providing the siphoning effect.

10. An outlet assembly, according to one or more of the preceding claims, **characterized in that** said mechanism arranged in said drain assembly can be vertically driven to open and close the system, and being adapted to be easily removed and cleaned.

11. An outlet assembly, according to one or more of the preceding claims, **characterized in that** the wall outlet tube system is coupled to said drain assembly by the connection on which said tube holder is affixed.

12. An outlet assembly, according to one or more of the preceding claims, **characterized in that** a covering rose assembly is arranged on said connection.

13. An outlet assembly, according to one or more of the preceding claims, **characterized in that** the outlet tube is arranged between said two tube holders, said outlet tube being sealed by an outlet tube sealing gasket.

14. An outlet assembly, according to one or more of the preceding claims, **characterized in that** said tube comprises end portions thereon tube covering ring elements are arranged for covering the connection regions, thereby providing the assembly with a satisfactory aesthetic aspect.

15. An outlet assembly, according to one or more of the preceding claims, **characterized in that** the coupling between the outlet tube and siphon and between said outlet tube and said connection is performed through threaded portions and joint covering caps.

16. An outlet assembly, according to one or more of the preceding claims, **characterized in that** said outlet assembly comprises one or more of the disclosed and/or illustrated characteristics.

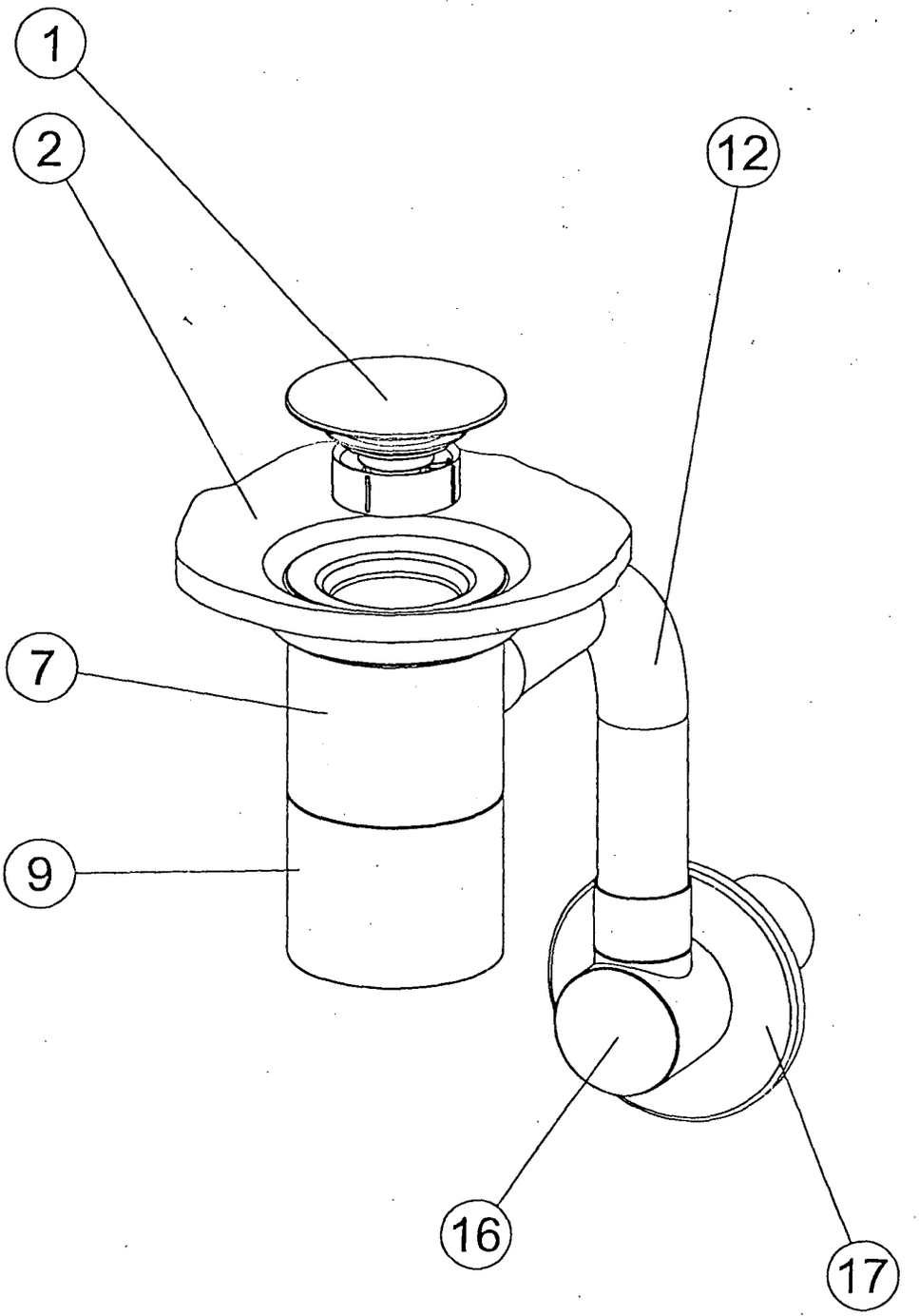

Fig 1

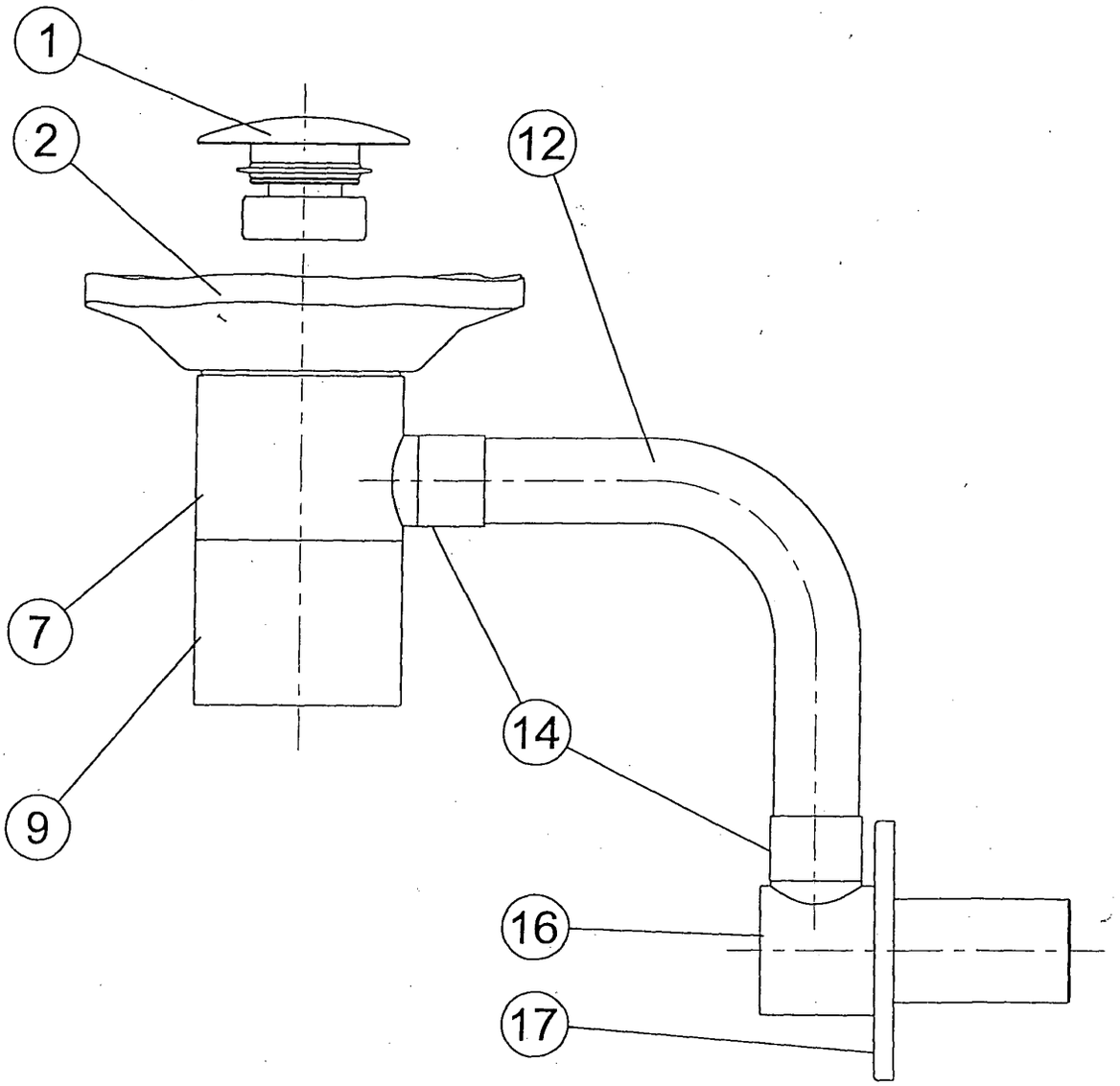

Fig 2

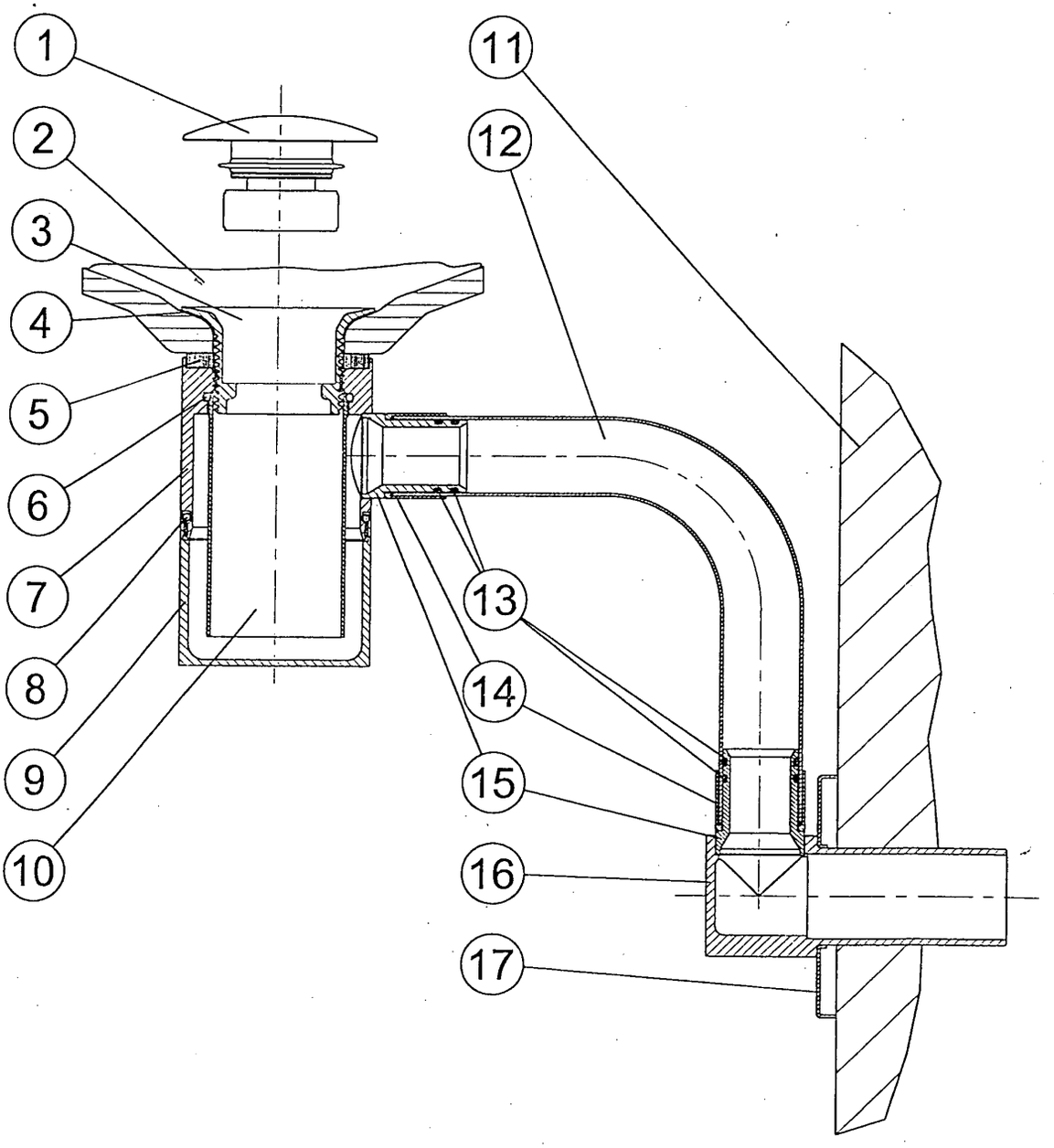

Fig 3

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 04 02 0983

DOCUMENTS CONSIDERED TO BE RELEVANT

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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	22 November 2004	Isailovski, M

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
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