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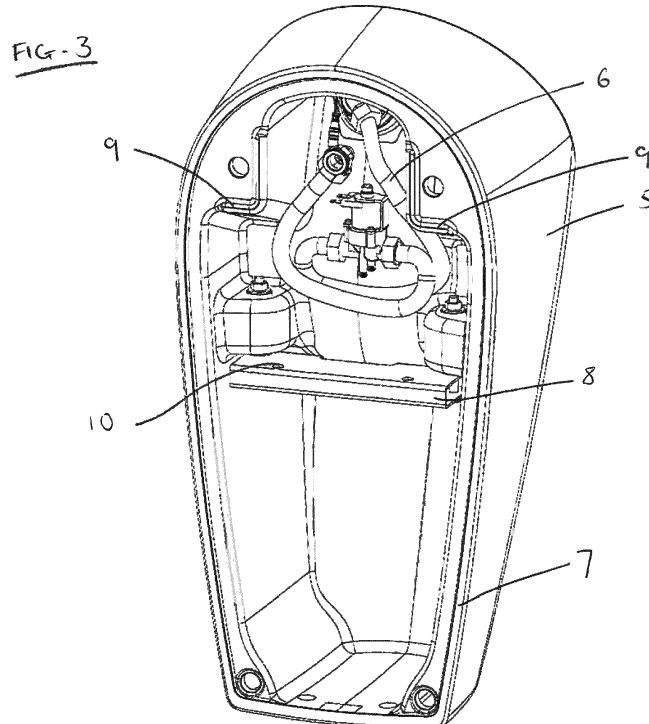
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(54) **URINAL MOUNTING ARRANGEMENT**

(57) The present invention is concerned with a sanitary-ware mounting arrangement. The sanitary ware mounting arrangement comprises a coupling wherein the coupling comprises a first portion configured to engage in use with a sanitary-ware product and a second portion located within a movement guide. The movement guide

comprises a channel allowing translation of the sanitary-ware product away from a mounting surface. The sanitary-ware product is rotatable with respect to the movement guide following the translation of the sanitary-ware product away from the mounting surface.



Description**BACKGROUND**

5 **[0001]** The present invention relates particularly, but not exclusively, to a mounting arrangement for use in attaching a urinal to a mounting surface, for example a wall. The mounting arrangement provides easy access to the rear and internal volume of the urinal. The invention may be used in situations where it is necessary to access the rear of the urinal, for example to perform routine maintenance and alleviate blockages. The invention allows the rear of the urinal to be accessed without the urinal being required to be completely removed from the wall. Thus the urinal can be easily and efficiently maintained, whilst maintaining connection of water supply.

10 **[0002]** The invention further relates to an installation template and a seal for the urinal.

[0003] In existing urinals, it is necessary to fully remove the urinal from the surface on which it is mounted in order to access the pipes on the rear of the urinal to clear blockages and perform routine maintenance or cleaning. Thus the person carrying out the maintenance or cleaning of the urinal is required to lift the urinal from a bracket on the wall and put the urinal to the side, for example on the floor, while the maintenance is being carried out.

15 **[0004]** The process of removing the urinal from the wall can lead to injury of the person doing the lifting or damage of the urinal unit itself. Due to the weight of the urinal, it is necessary to have specifically trained personnel to remove it from the wall. Additionally, there are hygiene concerns associated with the lifting of the urinal and the placing of the urinal on the floor whilst the maintenance is carried out. Furthermore, if the urinal is left on the floor, damage of the urinal is likely to occur.

20 **[0005]** When the urinal is completely removed from the wall, it is necessary that it is correctly re-installed once the maintenance has been completed. Commonly, the urinal is re-installed incorrectly which can lead to problems with pipes being incorrectly attached or aligned. Therefore, this process is susceptible to human error and failings in the re-connection of specific parts of the urinal.

25 **[0006]** The inventors have devised an alternative mounting arrangement for connection of the urinal to the wall. This mounting arrangement is in the form of a bracket which allows easy access to the rear of the urinal for maintenance and cleaning. Furthermore, the urinal is not required to be lifted fully from the wall therefore the maintenance and cleaning can be carried out without the need for someone capable of carrying the unit. Therefore, the maintenance of the urinal can be simply carried out by a single operator or the like.

30 **[0007]** The mounting arrangement of the present invention involves the urinal remaining attached to the wall while maintenance is being carried out. The coupling to the wall prevents the urinal falling to floor during removal, preventing damage to the ceramic of the urinal or injury to user. Furthermore, the amount and time for which the person carrying out the maintenance has to touch the front of the urinal is reduced. Thus the system of the present invention provides a way in which to make maintenance of the urinal more hygienic as well as more efficient.

35 **[0008]** Furthermore, the inventors have developed a novel seal which prevents a gap being formed between the urinal and the wall. Thus, when installed, the seal prevents small objects reaching the rear of the urinal which may damage the piping. The seal is attached to an installation template on which markings are provided in order to prevent incorrect installation of the urinal. Additionally, it is no longer necessary for mastic sealants to be used to close the void between ceramic and wall. The use of the seal of the present invention protects damage of the wall or the ceramic of the urinal.

40 **[0009]** It will be recognised from the disclosure herein that the invention is also suitable for use in other applications where it is desirable to connect a sanitary-ware unit to a mounting surface, for example a wall and provide easy access to the back of the unit.

SUMMARY OF THE INVENTION

45 **[0010]** Aspects of the invention are set out in the accompanying claims.

[0011] Viewed from a first aspect there is provided a sanitary-ware mounting arrangement. The sanitary-ware mounting arrangement comprises a coupling wherein the coupling comprises a first portion configured to engage in use with a sanitary-ware product and a second portion located within a movement guide. The movement guide comprises a channel allowing translation of the sanitary-ware product away from a mounting surface. The sanitary-ware product is rotatable with respect to the movement guide following the translation of the sanitary-ware product away from the mounting surface.

50 **[0012]** The word 'channel' is used to mean an elongate hole in which the first portion of the coupling is able to move. The channel may also be referred to as a 'slot'. The word 'engage' is used to mean contact with in such a way that movement of the sanitary-ware product causes movement of the coupling.

55 **[0013]** An arrangement is thereby provided that allows the rear of a sanitary-ware product which is attached to a mounting surface to be accessed by rotation of the sanitary-ware product following movement of the sanitary-ware product away from the mounting surface without the complete removal of the sanitary-ware product from the mounting surface. Advantageously the sanitary-ware product, for example a urinal, can be moved and rotated without engaging

or contacting the wall during the rotation. This prevents any possible damage to the product.

[0014] The movement guide may comprise a housing and a recess configured to receive the second portion of the coupling.

[0015] The word 'housing' is used to refer to an area in which the second portion of the coupling is located. The word 'recess' is used to mean a depressed/recessed region which is sized such that it can receive and contain the second portion of the coupling. When the second portion of the coupling is positioned in the recess, it is supported on all sides and is thus able to securely rotate whilst controlling the range of tilt of the ceramic in the vertical plane.

[0016] The channel may be formed in an upwardly facing surface of the housing and the second portion of the coupling may be located in use within the housing. Thus, the movement of the second portion of the coupling can be controlled within the housing by the movement of the first portion of the coupling.

[0017] The wording 'upwardly facing' in this context refers to the orientation of the housing when the mounting arrangement is in use.

[0018] The second portion of the coupling may have a larger cross sectional width than the width of the channel such that in use the second portion of the coupling is prevented from passing through the channel and out of the movement guide. In effect the cooperation of the second portion and the channel is such that the second portion can move within the channel but cannot move outside of the channel; it is only permitted to move along the direction of the channel and into the channel.

[0019] Thus the movement of the coupling with respect to the housing can be limited because once the second portion of the coupling reaches the inside surface of the upwardly facing portion of the housing, it cannot move any further in an upwards direction because the second portion of the coupling is sized so that it does not fit through the channel.

[0020] The first portion of the coupling may be adapted for engagement in use with a part of the sanitary-ware product.

[0021] In this way, movement of the sanitary-ware product results in movement of the coupling due to the engagement between the two. Thus the second portion of the coupling moves within the housing.

[0022] The coupling may comprise an elongate element wherein the elongate element extends in use through a through hole in the part of the sanitary-ware product.

[0023] The first portion of the coupling may be configured to engage in use with the sanitary-ware product through a connector or securing means. The connector may be attached to the first portion of the coupling at an end distal from the second portion of the coupling wherein the connector may be configured to prevent movement of the end of the first portion of the coupling through the through hole of the sanitary-ware product. Furthermore, the interaction between the coupling and the sanitary-ware product controls the range of tilt of the sanitary-ware product.

[0024] Therefore, the connector ensures that the coupling remains in engagement with the sanitary-ware product.

[0025] The first portion may be configured to engage in use with the sanitary-ware product by the abutment of the connector and the part of the sanitary-ware product.

[0026] The coupling may comprise a stepped shaft, wherein the second portion of the coupling has a larger diameter than the first portion of the coupling. Thus, the smaller diameter portion is moveable in an upwards and downwards direction and the larger diameter portion can be prevented from leaving the housing.

[0027] The wording 'stepped shaft' is used to mean an elongate element with a varying diameter. In one arrangement, this could be in the form of a bolt wherein the head and shaft of the bolt have different diameters to each other.

[0028] The securing means may be a clip pin. The clip pin is positioned in a through hole which passes through the cross section of the first portion of the coupling.

[0029] The second portion of the coupling may have a circular cross section.

[0030] In this way, the second portion is able to easily rotate within the housing.

[0031] The second portion of the coupling may have a polygonal cross section.

[0032] The abutment of the second portion of the coupling with a wall of the housing may limit translation of the sanitary-ware product away from the mounting surface.

[0033] Thus, when using the arrangement, the user is able to ascertain when the coupling and therefore the sanitary-ware product is in the correct place for rotation of the sanitary-ware product. Furthermore, with the arrangement, it is possible to control the range of vertical tilting of the sanitary-ware product.

[0034] The abutment of the second portion of the coupling with an end of the channel may limit translation of the sanitary-ware product away from or closer to the mounting surface.

[0035] In this way, the user is able to ascertain when the sanitary-ware product has been moved away from/towards the mounting surface to the correct extend for rotation/reconnection of the sanitary-ware product with the mounting surface.

[0036] The coupling may be configured to rotate to an angle of at least 30 degrees with respect to the movement guide.

[0037] The coupling may be configured to rotate to an angle of at least 45 degrees with respect to the movement guide.

[0038] Thus the user is able to easily access the rear non user facing surface of the sanitary-ware product for cleaning and maintenance.

[0039] The sanitary-ware product may be arranged in use to be coupled to the mounting surface wherein the mounting

surface is a wall.

[0040] The sanitary-ware mounting arrangement may additionally comprise an installation template wherein the installation template is located in use between the mounting surface and the sanitary-ware product and wherein the installation template indicates a location for attaching the movement guide.

[0041] Therefore, incorrect installation of the sanitary-ware product is prevented.

[0042] The sanitary-ware mounting arrangement may additionally comprise a seal, wherein the seal is shaped to be received in use in a recess of the sanitary-ware product.

[0043] The word 'recess' in this context is used to mean a depressed channel in the sanitary-ware product which is sized for holding the recess. The use of the seal of the present invention prevents the need for a single use mastic sealant. Furthermore, the seal protects both the sanitary-ware product and the mounting surface due to its position between the two.

[0044] The seal may be a polymeric compression seal.

[0045] The seal may be attached in use to the installation template.

[0046] Thus the seal will be correctly positioned in the recess of the sanitary-ware product. Furthermore, the seal prevents contact of the sanitary-ware product with the mounting surface which therefore prevents damage of either the mounting surface or the sanitary-ware product.

[0047] The sanitary-ware product may be a urinal.

[0048] Thus the system of the present invention provides a more hygienic way of accessing the rear of the urinal.

[0049] Viewed from another aspect there is provided a method of accessing a rear surface of a sanitary-ware product mounted on a mounting surface, the method comprising lifting the sanitary-ware product off at least one connector and moving the sanitary-ware product away from the mounting surface without removing the sanitary-ware product from the mounting surface.

[0050] Viewed from yet another aspect there is provided a method of accessing the rear of a sanitary-ware product mounted on a mounting surface, the method comprising the steps of:

- lifting the sanitary-ware product from the mounting surface;
- moving the sanitary-ware product away from the mounting surface; and
- rotating the sanitary-ware product, wherein the sanitary-ware product remains attached to the mounting surface.

[0051] The word 'rear' is used to mean a non-user facing surface. For example, the surface of the sanitary-ware product which, in use, is connected to the mounting surface.

[0052] Thus a method is provided for accessing the rear of the urinal without fully removing the urinal from the mounting surface. Thus maintenance of the urinal can be performed by a single person without difficulty.

[0053] The method may further comprise disengaging the sanitary-ware product from the mounting surface before lifting the sanitary-ware product, wherein the disengaging comprises disengaging may comprise removing a grate valve and adaptor and removing an anti theft bolt.

[0054] Therefore, the urinal is not able to be removed from the mounting surface without disengaging the sanitary-ware product and without prior knowledge of the method of disengagement.

[0055] Viewed from still yet another aspect, there is provided a urinal system comprising a urinal and an installation template, wherein the urinal is connected by a pivot to the installation template.

[0056] The installation template provides guidance to the user of where parts of the urinal system should be installed. Therefore, this prevents incorrect installation of the urinal.

[0057] The pivot may be asymmetrically connected to the installation template. In this way, the pivot can be used to rotate the urinal away from the wall in order to access the rear of the urinal.

DRAWINGS

[0058] Aspects of the invention will now be described, by way of example only, with reference to the accompanying figures in which:

Figure 1 shows the installation template of the invention;

Figure 2A shows a perspective view of the installation template of figure 1 with the outlet pipe, top bracket and movement guide installed thereon;

Figures 2B and 2C show the waste pipe of Figure 2A before and after connection to the first bracket;

Figure 3 shows a perspective view of the rear of the urinal for attachment to the top bracket of figure 2;

Figures 4A and 4B show perspective views of a lower portion of the urinal when installed on the installation template with an anti-theft bolt installed (figure 4A) and removed (figure 4B);

Figures 5A and 5B show front perspective views of the bowl of the urinal with a grate valve and adaptor installed (figure 5A) and removed (figure 5B);

Figures 6A-C show cross sectional views of the movement of the coupling in the guide during removal of the urinal from the wall; and

Figure 7A-D show perspective views of the urinal as it is removed from the top bracket for rear access.

[0059] While the present teachings are susceptible to various modifications and alternative forms, specific embodiments are shown by way of example in the drawings and are herein described in detail. It should be understood, however, that drawings and detailed description thereto are not intended to limit the scope to the particular form disclosed, but on the contrary, the scope is to cover all modifications, equivalents and alternatives falling within the spirit and scope defined by the appended claims.

[0060] As used in this specification, the words "comprises", "comprising", and similar words, are not to be interpreted in an exclusive or exhaustive sense. In other words, they are intended to mean "including, but not limited to".

[0061] It will be recognised that the features of the aspects of the invention(s) described herein can conveniently and interchangeably be used in any suitable combination. It will also be recognised that the invention covers not only individual embodiments but also combinations of the embodiments that have been discussed herein.

DESCRIPTION

[0062] The present teaching relates generally to an arrangement for attaching a sanitary-ware product to a wall and a method of use of the arrangement for accessing the back of the sanitary-ware product without removing it from the wall.

[0063] In the present example, the sanitary-ware product is a urinal system 5. In other examples, the sanitary-ware product may be a WC or basin.

[0064] An embodiment will be described in which the design of the device allows the access and maintenance of the rear of a urinal 5.

[0065] Figure 1 shows an installation template 1 for a urinal 5. The installation template 1 is for attaching to a wall to provide guidance to the installer of where to position the parts of the urinal 5. In some embodiments, a transparent or translucent template is used which can be made of a self-supporting plastic. The template may include markings to provide an indication of where parts of the urinal 5 should be installed. Thus it is possible to ensure that the urinal 5 is correctly installed. When the urinal 5 is moved away from the wall, the installation template 1 is revealed.

[0066] As can be seen from the installation template 1 of figure 1, lines are included on the template which indicate where particular parts for connection of the urinal 5 to the wall are required to be attached. At the top part of the installation template 1 is a top bracket receiving section 2, for receiving the top bracket 11, discussed further later. Further down the installation template 1 are two movement guide receiving sections 3. These are for receiving a movement guide 15, discussed further later. The user is able to choose on installation which of the two movement guide receiving sections 3 is to be used. This decision is based on which direction it is desired for the urinal 5 to be rotated from the wall. Again, this will be discussed in further detail later. In other examples, the installation template 1 may have only one movement guide receiving section 3.

[0067] The installation template 1 additionally comprises a seal 4. In the present example, the seal 4 has a U-shape and surrounds most of the external perimeter of the installation template 1. In some examples, the seal 4 is made of a polymer for example rubber or polymer for surface conformity. In the present example, the seal 4 has a thickness of 6mm. However, the seal 4 may have a greater or lesser thickness than this. In the present example, the seal 4 is fixed directly to the installation template 1. In other examples, the seal 4 may be fixed directly to the wall or to the urinal 5.

[0068] Figure 2A shows the installation template 1 of figure 1 with parts of the urinal system 5 installed thereon. A top bracket 11 is positioned on the installation template 1 and secured in place by, for example, bolts. Other connection means could also be used. The top bracket 11 comprises two connectors, for example hooks 12, which extend away from the top bracket 11 and which are configured to support a urinal 5. In the present example, the hooks 12 extend from the top bracket 11 at an angle of approximately 30 to 50 degrees to the wall. For example, the hooks 12 may extend at an angle of approximately 45 degrees to the wall.

[0069] An inlet pipe 13 is shown. This is used to carry water to the urinal 5 for flushing. The end of the inlet pipe 13 is configured to be attached to a flexible hose 6 on the back of the urinal 5.

[0070] When assembling the urinal system 5, the movement guide 15 is positioned on the installation template 1 in one of the movement guide receiving sections 3 and secured in place by bolts. Alternatively, other means could be used

to secure the movement guide 15, for example screws or other fixations. The movement guide 15 comprises a housing 21, a coupling 17 and a guide 26 (not seen in this figure). The housing 21 and the guide 26 are fixably connected to the wall when the urinal 5 is in use via the installation template 1. The guide 26 is fixably connected to the inside of the housing 21 (see figures 7A-C). In the present example, this connection is made by welding the guide 26 to the inside of the housing 21. However, the guide 26 may be connected to the housing 21 in other ways.

[0071] The coupling 17 is configured to move with respect to the housing 21, guide 26 and installation template 1. The housing 21 comprises a slot 16 which extends in an orthogonal direction to the installation template 1 when the movement guide 15 is installed on the installation template 1. The coupling 17 is configured to move in the slot 16 when the urinal 5 is moved away from the wall.

[0072] In the present example, the coupling 17 has a hole extending through it. In the present example, a clip pin 20 is located in the hole. This can be seen in figure 2A. The purpose of the clip pin 20 will be discussed further later.

[0073] In figure 2A, the coupling 17 is shown positioned in the slot 16 in the position it would be in when the urinal 5 is in use and connected to the wall.

[0074] A waste pipe 14 is fixed to the housing 21 by means of a first bracket 31. The waste pipe 14 comprises a first portion 19 which extends parallel to the installation template 1 when installed and a second portion 18 which extends orthogonal to the installation template 1. An end of the bracket 31 is connected to the housing 21 whilst the other end of the bracket 31 surrounds the first portion 18 of the waste pipe 14. In this way, the waste pipe 14 is prevented from moving away from the housing 21. Furthermore, the first bracket 31 supports and holds the waste pipe in position under the urinal, ready for attachment to the urinal.

[0075] The first bracket 31 additionally allows positional adjustment of the waste pipe 14 in a horizontal direction to ensure alignment of the waste pipe 14 with the outlet hole in the urinal. As shown in figure 2B and 2C, the first bracket 31 is inserted into the housing 21 and the distance to which it is inserted into the housing enables control of the positioning of the waste pipe 14 in the left to right direction. Furthermore, the waste pipe 14 can slide in the first bracket 31 from or closer to the wall.

[0076] The first bracket 31 may also support the weight of the waste pipe 14. Thus load stresses on the urinal outlet by the waste pipe 14 are reduced and a water tight seal is ensured throughout the waste pipe.

[0077] Figure 3 shows a back view of a urinal 5 for installation on the installation template 1 of figures 1 and 2. The urinal 5 comprises hangers 9 for receiving the hooks 12 of the top bracket 11 shown in figure 2. The perimeter of the urinal 5 has a recess 7 which is configured to receive the seal 4. This recess 7 may have a depth of approximately 5mm. When the seal 4 is received by the recess 7, the seal 4 prevents entry of any small objects down the back of the urinal 5. When the urinal 5 is installed on the wall, the interaction between the seal 4 and the recess 7 provides a gap of approximately 3mm between the urinal 5 and the wall. This gap prevents the wall from being damaged by contact with the urinal 5. For example, if the urinal 5 is installed on a tiled wall, the urinal 5 does not contact with the tiles.

[0078] The urinal 5 additionally comprises a hollow box section 8. In the present example, the box section 8 extends across the width of the urinal 5 and is fixably connected to the urinal 5. The box section 8 adds rigidity and strength to the urinal 5. The box section 8 comprises a hole 10 which extends through its upper and lower surfaces and is configured to receive the coupling 17 (not shown in this figure). In some examples, the hollow box section 8 is replaced with a single or shaped plate.

[0079] Figure 3 further shows the flexible hose 6 for connection to the inlet pipe 13 to provide water to the urinal 5 for flushing. The inlet pipe 13 is connected to an electronic valve or directly to a flush spreader in non-electric urinals. The flexible hose 6 remains attached to the inlet pipe 13 throughout the movement of the urinal 5.

[0080] As can be seen from figure 3, the urinal 5 has a bottom plate through which a hole is formed. The hole is configured to receive an anti theft bolt 21 (not shown in this figure).

[0081] Figures 4A and 4B show the bottom plate of the urinal 5 when installed on the installation template 1. As can be seen in figure 4A, an anti theft bolt 21 is installed in a bracket which is connected to the wall via the installation template 1 with a bolt. The anti theft bolt 21 prevents the urinal 5 being lifted from the bracket hooks 12 before the anti theft bolt 21 has been removed. Figure 4B shows the lower portion of the urinal 5 with the anti theft bolt 21 removed.

[0082] Figures 5A and 5B show a partial view of the front of the bowl of the urinal 5. The urinal 5 comprises a spreader 22 which is used to provide water to the bowl of the urinal 5 to flush it. The urinal 5 also comprises an outlet hole 25 for draining the urinal 5 of urine or other liquids. In figure 5A, a grate valve 23 and adaptor 24 are positioned in the outlet. In figure 5B, the grate valve 23 and adaptor 24 have been removed from the outlet. In the present example, the adaptor 24 has a screw thread. In order to release the adaptor 24 from the urinal 5, the adaptor 24 must be unscrewed. In some examples, the adaptor 24 may further comprise a locking system which requires a key to open it.

[0083] Figure 6A shows a cross sectional view of the urinal 5. In this view, the guide 26 is shown. The view in figure 6A shows the urinal 5 in the position the urinal 5 is in when in use.

[0084] As can be seen from this figure, the coupling 17 has a smaller diameter portion 28 and a larger diameter portion 27. The smaller diameter portion 28 is sized such that it is movable in the hole formed in the box section 8 and in the slot 16. The larger diameter portion 27 is sized to have a diameter larger than that the width of the slot 16. In this way,

the movement of the coupling 17 in the housing 21 is controlled because the coupling 17 is prevented from moving upwards out of the housing 21 due to the larger diameter portion 27 being prevented from moving through the slot 16.

[0085] Figure 6B shows the movement of the coupling with respect to the guide 26. Figure 6C shows a close up views of the movement guide 15 and the movement of the coupling 17 with respect to the guide 26. As can be seen from figures 6B and 6C, the guide 26 has a raised portion 30. When the hangers 9 of the urinal 5 are lifted off the hooks 12 and moved away from the wall, the coupling 17 is positioned on the raised portion 30 of the guide 26. When the coupling 17 is moved to the end of the slot 16 by the urinal 5 being moved further from the wall, the coupling 17 is able to drop down on release of the urinal 5 into a rotation position. In this position, the larger diameter portion 27 of the coupling 17 is supported on its sides by the guide 26 and the walls of the housing 21. The coupling 17 is supported from below by a protruding portion 29 of the guide 26.

[0086] In the rotation position, it is possible to rotate the urinal 5 with respect to the movement guide 15. In the present example the coupling 17 is fixably attached to the box section 8. Thus rotation of the urinal 5 (and thus the box section 8) causes rotation of the coupling 17 in the guide 26. The larger diameter portion 27 is thus shaped and sized in order to be rotatable in the rotation position. For example, the larger diameter portion 27 may be circular. In other examples, the larger diameter portion 27 may have a polygonal cross section.

[0087] In other examples, the larger diameter portion 27 may be non rotatable with respect to the guide 26 and the smaller diameter portion is rotatable with respect to the box section 8. In this way, when the urinal 5 and thus the box section 8 are rotated, the smaller diameter portion of the coupling 17 acts as a pivot for the box section 8 to rotate around.

[0088] As can also be seen in figure 6C, the clip pin 20 rests on an upper surface of the box section 8. Thus, lifting of the box section 8 (due to lifting of the urinal 5 to which it is connected) causes the coupling 17 to also be lifted due to the clip pin 20 resting on the upper surface of the box section 8.

[0089] A method of using the device for accessing the back of the urinal 5 without removing the urinal 5 from the wall will now be discussed using figures 7A-7D.

[0090] Figure 7A shows a back view of the urinal 5 when installed on the installation template 1 with the hooks 12 which extend from the top bracket 11 being received by the hangers 9. This is the position the urinal 5 is in when in use. In order to access the back of the urinal 5, the following steps are carried out:

The anti theft bolt 21 is removed from its respective bracket (see figure 4A). The grate valve 23 and adaptor 24 are then removed from the outlet of the urinal bowl, for example by unscrewing the adaptor 24. It is possible to carry out these steps in the opposite order. For example, the grate valve 23 and adaptor 24 (not shown) may be first removed and then the anti theft bolt 21. In some examples, the anti theft bolt 21 may not be used. When these steps have been carried out, it is possible for the user to lift the urinal 5 off the hooks 12.

[0091] Next, the urinal 5 is lifted by the user. When the urinal 5 is lifted, the hooks 12 are no longer received by the hangers 9. As is shown in figure 7A, the coupling 17 extends through the hole in the box section 8. The hole extending through the coupling 17 is maintained above the box section 8 due to the clip pin 20 abutting with the box section 8.

[0092] When the urinal 5 is lifted by the user, the box section 8 also moves upwards due to its fixable connection with the urinal 5. The upwards movement of the box section 8 causes the coupling 17 to be moved upwards due the clip pin 20 resting on the surface of the box section 8. Figure 7B shows the back view of the urinal 5 following the lifting action by the user.

[0093] The urinal 5 is then moved away from the installation panel and the wall in a direction orthogonal to the wall so as to be positioned in the position shown in Figure 7C. As this movement is carried out, the coupling 17 moves in the housing slot 16. The urinal 5 is pulled outwards from the wall until the coupling 17 reaches the end of the slot 16.

[0094] It may be possible to combine these movements so that the urinal 5 is movable upwards and away from the wall at substantially the same time.

[0095] When the coupling 17 reaches the end of the slot 16, the urinal 5 is then moved downwards. It is then possible for the user to rotate the urinal 5 with respect to the wall and the installation portion. A top view of the urinal 5 following the rotation is shown in figure 7D. In some examples, the urinal 5 is rotatable to an angle of about 30 degrees. In other examples, the urinal 5 is rotatable to an angle of about 45 degrees with respect to the wall. In other examples, the urinal 5 may be rotatable to an angle of greater than about 45 degrees or less than about 30 degrees.

[0096] The rotation of the urinal 5 to this extent enables maintenance of the rear of the urinal 5. For example, it is possible to access the waste outlet, water inlet, flush mechanism and spreader for routine maintenance. When the movement guide 15 is mounted in the right hand movement guide receiving section 3 as shown in figure 2, the urinal 5 is rotatable in an anticlockwise direction (as is shown in figure 7D) and the rear can be accessed from the left of the urinal 5. If it is desirable for the urinal 5 to be rotatable in a clockwise direction and accessible from the right, the movement guide 15 can be attached in the left hand movement guide receiving section 3 shown in figures 1 and 2.

[0097] The clip pin 20 is in place to prevent the coupling 17 dropping downwards through the box section 8. In other examples, alternatives to the clip pin 20 could be used. For example, any part which is able to prevent the coupling 17 from travelling through the box section 8 can be used. In some examples, instead of the coupling 17 and the clip pin 20, a bolt and nut may be used. In this example, the head of the bolt would be sized to have a larger diameter than the width

of the slot 16. The shank of the bolt would take the place of smaller diameter portion of the coupling 17. When the head of the bolt is installed in the housing 21 and the shank extends through the box section 8, a nut is installed on the end of the bolt above the box section 8. Thus the nut acts as in place of the clip pin 20 and prevents the bolt dropping downwards through the box section 8.

[0098] When a nut and bolt is used in place of the coupling 17, the bolt is prevented from rotating with respect to the box section 8 and the head of the bolt rotates with respect to the guide 26 when the urinal 5 is rotated. In other examples, a combination of a groove and circlip may be used in place of the clip pin 20 or bolt and nut.

[0099] In order to reassemble the urinal 5 for use, it is necessary for the user to reverse the steps taken for removing the urinal 5 from the wall to access the rear. For example, first the user must rotate the urinal back towards the wall. Then, the user must lift the urinal 5 up and move it closer to the wall so that the coupling 17 is positioned on the raised portion 30 on the guide 26. The hooks 12 are then positioned to be received by the hangers 9. The urinal 5 is then moved further towards the wall until the urinal 5 contacts with the seal 4 and dropped down so that the hooks 12 are received by the hangers 9 and the urinal 5 is supported by the hooks 12. The anti theft bolt 21 and grate valve 23 and adaptor 24 are then reattached.

[0100] The various embodiments described herein are presented only to assist in understanding and teaching the claimed features. These embodiments are provided as a representative sample of embodiments only, and are not exhaustive and/or exclusive. It is to be understood that advantages, embodiments, examples, functions, features, structures, and/or other aspects described herein are not to be considered limitations on the scope of the invention as defined by the claims or limitations on equivalents to the claims, and that other embodiments may be utilised and modifications may be made without departing from the spirit and scope of the claimed invention. Various embodiments of the invention may suitably comprise, consist of, or consist essentially of, appropriate combinations of the disclosed elements, components, features, parts, steps, means, etc., other than those specifically described herein. In addition, this disclosure may include other inventions not presently claimed, but which may be claimed in future.

Claims

1. A sanitary-ware mounting arrangement, comprising
a coupling wherein the coupling comprises a first portion configured to engage in use with a sanitary-ware product and
a second portion located within a movement guide,

wherein the movement guide comprises a channel allowing translation of the sanitary-ware product away from a mounting surface, and
wherein the sanitary-ware product is rotatable with respect to the movement guide following the translation of the sanitary-ware product away from the mounting surface.
2. The sanitary-ware mounting arrangement of claim 1, wherein the movement guide comprises a housing and a recess configured to receive the second portion of the coupling.
3. The sanitary-ware mounting arrangement of claim 2, wherein the channel is formed in an upwardly facing surface of the housing and wherein the second portion of the coupling is located in use within the housing.
4. The sanitary-ware mounting arrangement of claims 1 to 3, wherein the second portion of the coupling has a larger cross sectional width than the width of the channel such that in use the second portion of the coupling is prevented from passing through the channel and out of the movement guide, and wherein the second portion of the coupling has a larger diameter than the first portion of the coupling.
5. The sanitary-ware mounting arrangement of claims 1 to 4, wherein the first portion of the coupling is adapted for engagement in use with a part of the sanitary-ware product.
6. The sanitary-ware mounting arrangement of claim 5, wherein the coupling comprises an elongate element wherein the elongate element extends in use through a through hole in the part of the sanitary-ware product.
7. The sanitary-ware mounting arrangement of claims 5 or 6, wherein the first portion of the coupling is configured to engage in use with the sanitary-ware product through a connector, wherein the connector is attached to the first portion of the coupling at an end distal from the second portion of the coupling, wherein the connector prevents movement of the end of the first portion of the coupling through the through hole of the sanitary-ware product.

8. The sanitary-ware mounting arrangement of claims 1 to 7, wherein abutment of the second portion of the coupling with an end of the channel limits translation of the sanitary-ware product away from or closer to the mounting surface.
- 5 9. The sanitary-ware mounting arrangement of claims 1 to 8, wherein the coupling is configured to rotate to an angle of at least 30 degrees or to an angle of at least 45 degrees with respect to the movement guide.
- 10 10. The sanitary-ware mounting arrangement of claims 1 to 9, additionally comprising an installation template wherein the installation template is located in use between the mounting surface and the sanitary-ware product and wherein the installation template indicates a location for attaching the movement guide.
11. The sanitary-ware mounting arrangement of claims 1 to 10, additionally comprising a seal, wherein the seal is shaped to be received in use in a recess of the sanitary-ware product, and optionally wherein the seal is attached in use to the installation template.
- 15 12. A method of accessing a rear surface of a sanitary-ware product mounted on a mounting surface, the method comprising lifting the sanitary-ware product off at least one connector and moving the sanitary-ware product away from the mounting surface without removing the sanitary-ware product from the mounting surface.
- 20 13. A method of accessing the back of a sanitary-ware product mounted on a mounting surface, the method comprising:
lifting the sanitary-ware product from the mounting surface;
moving the sanitary-ware product away from the mounting surface; and
rotating the sanitary-ware product,
wherein the sanitary-ware product remains attached to the mounting surface.
- 25 14. The method of claim 13, further comprising disengaging the sanitary-ware product from the mounting surface before lifting the sanitary-ware product, wherein the disengaging comprises:
removing a grate valve and adaptor; and
removing an anti theft bolt.
- 30 15. A urinal system comprising:
a urinal; and
an installation template;
wherein the urinal is connected by a pivot to the installation template.
- 35 16. The urinal of claim 15, wherein the pivot is asymmetrically connected to the installation template.
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FIG. 1

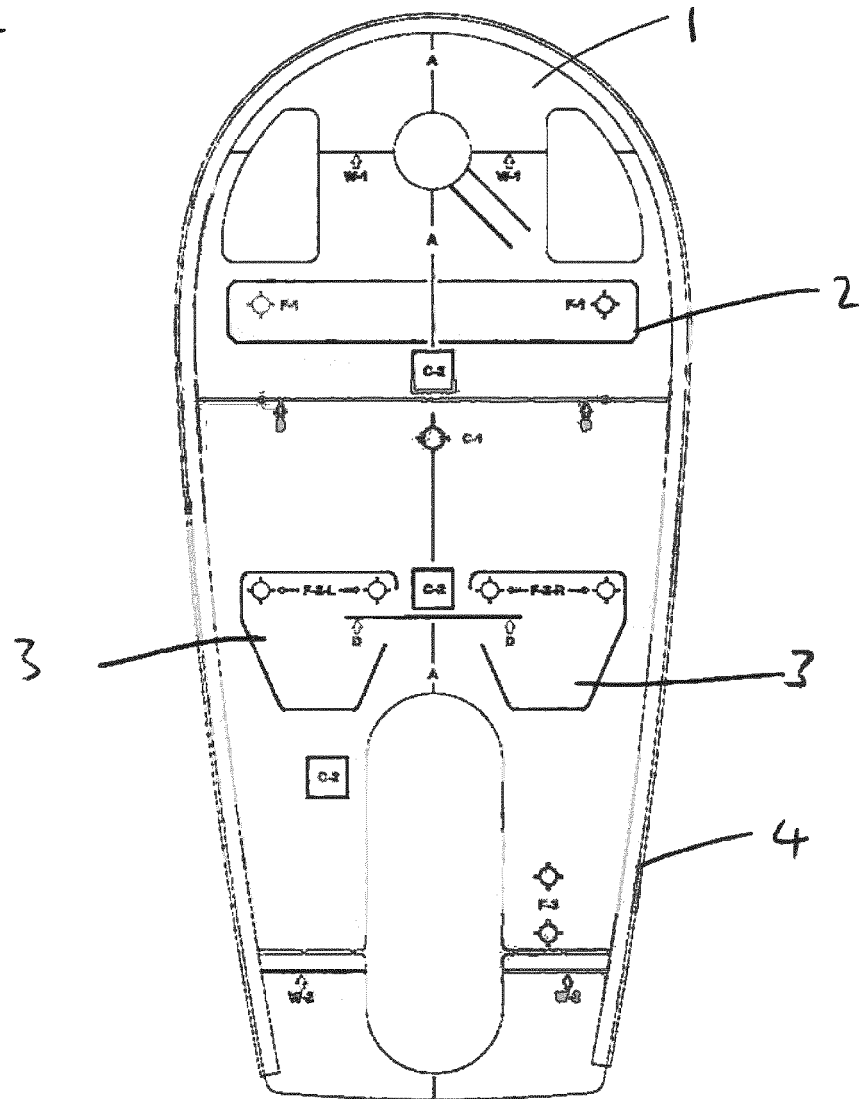


FIG. 2A

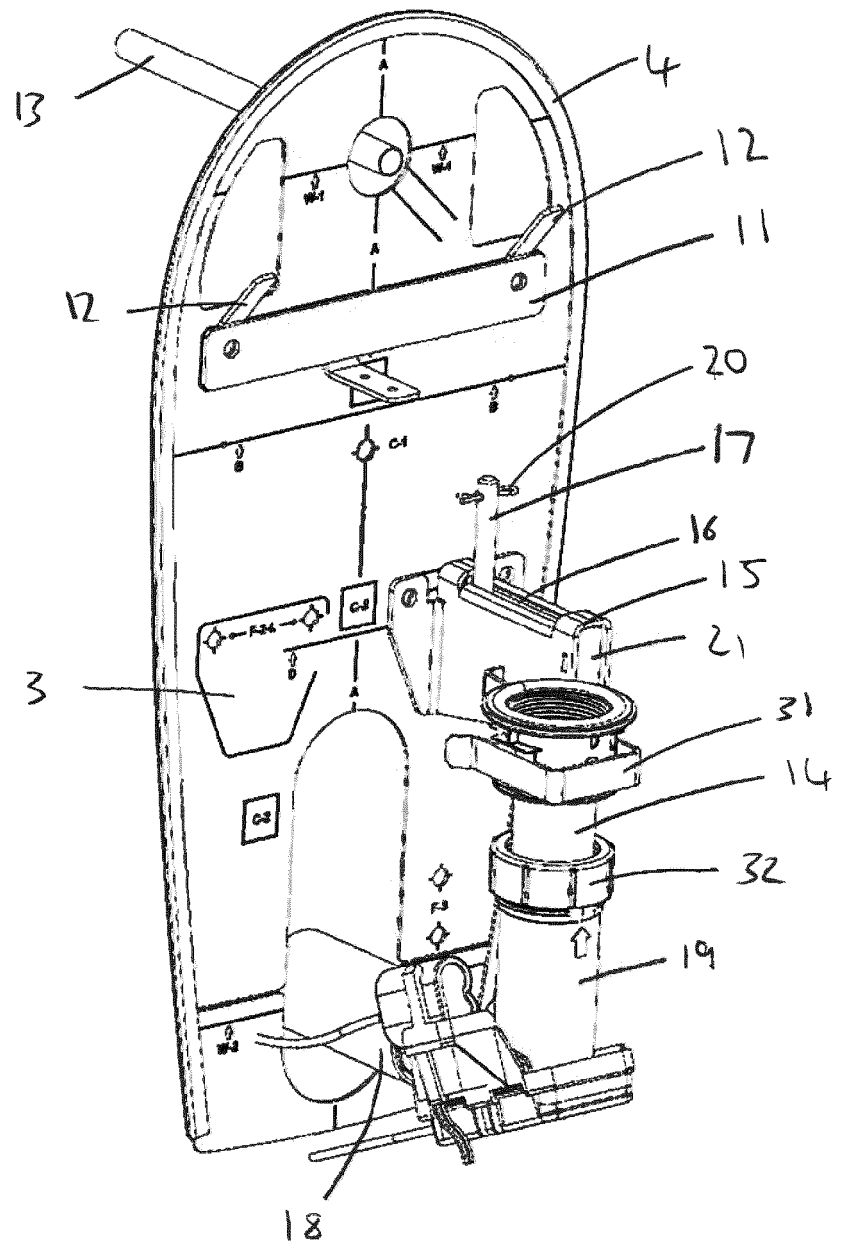


FIG. 2B

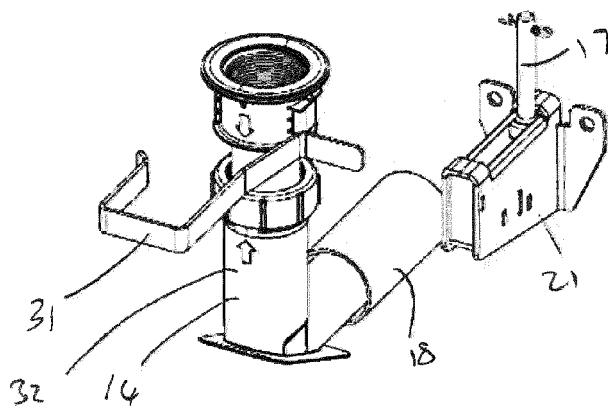


FIG. 2C

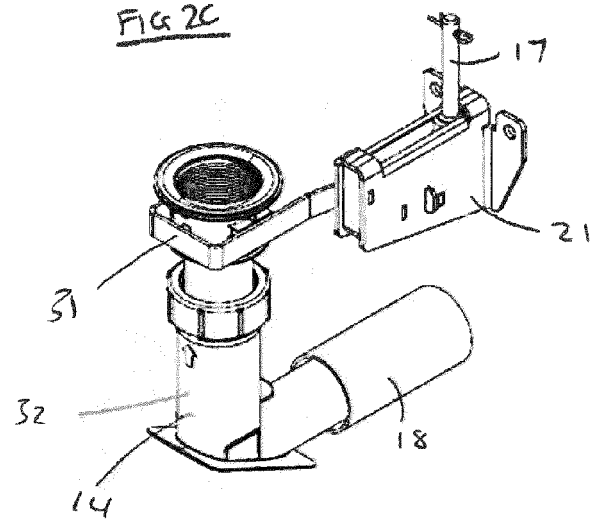


FIG. 3

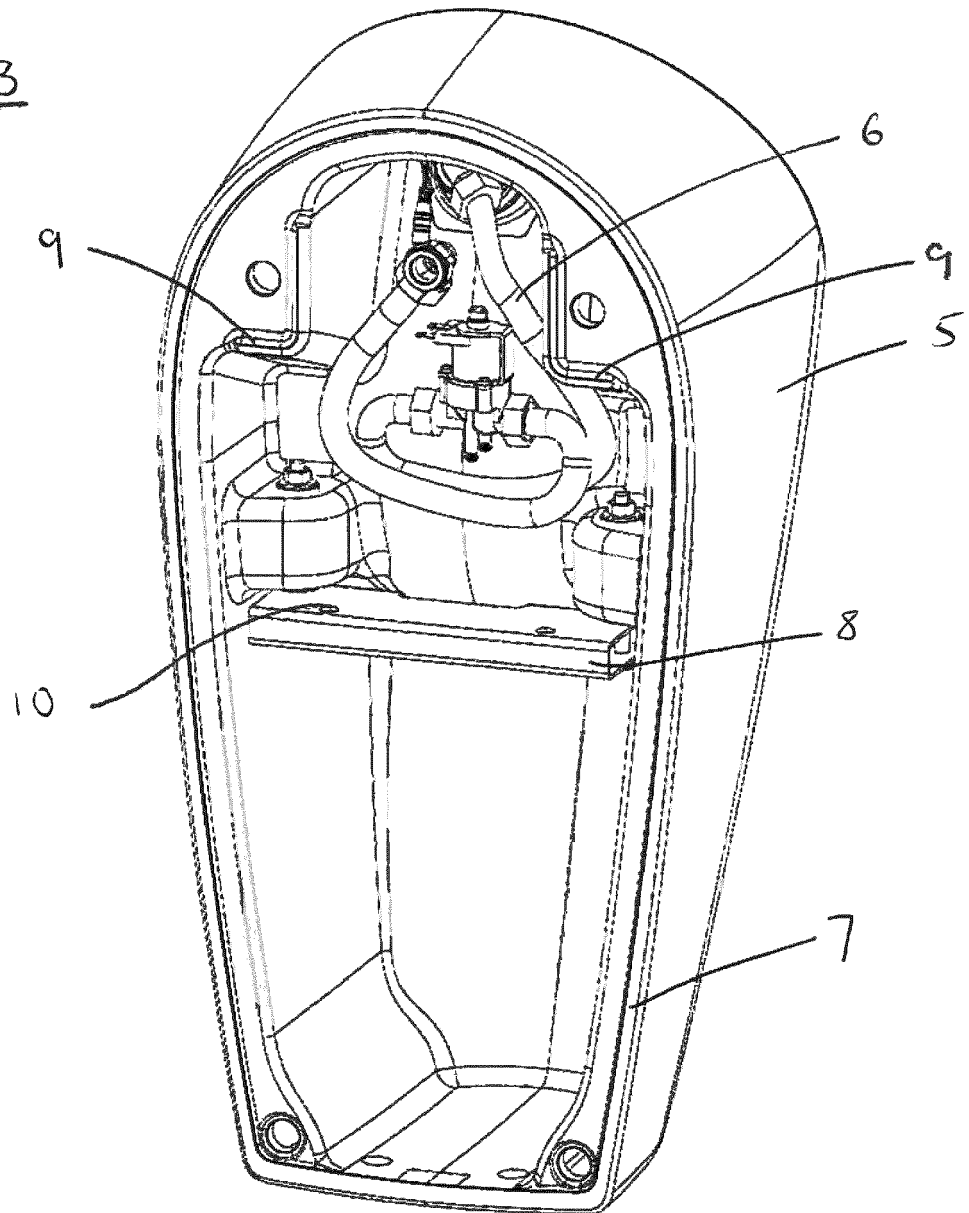


FIG. 4A

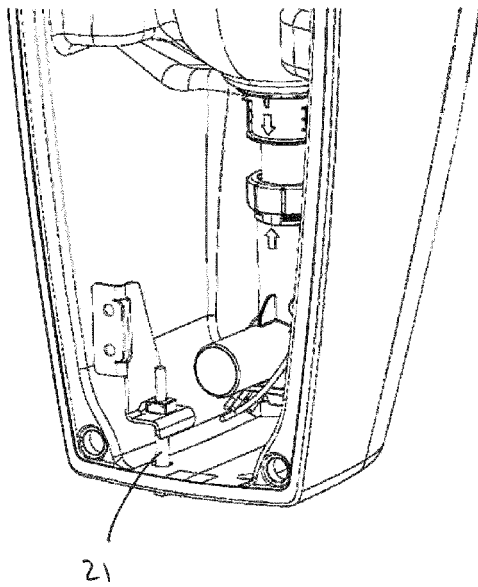


FIG. 4B

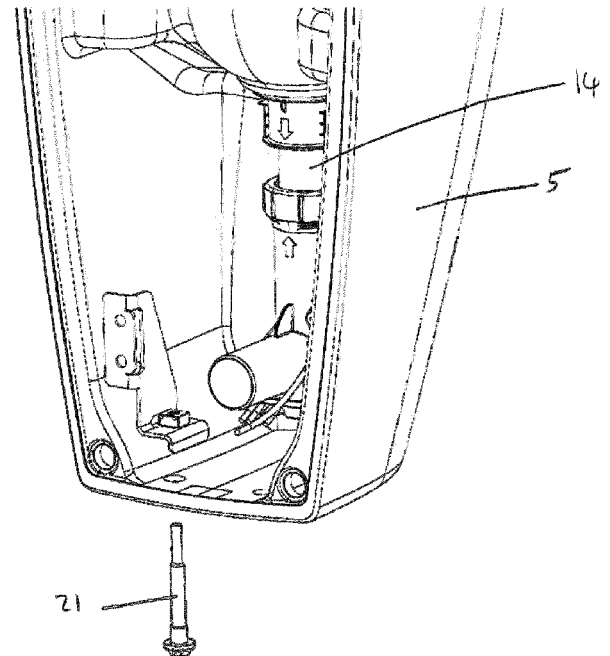


FIG. 5A

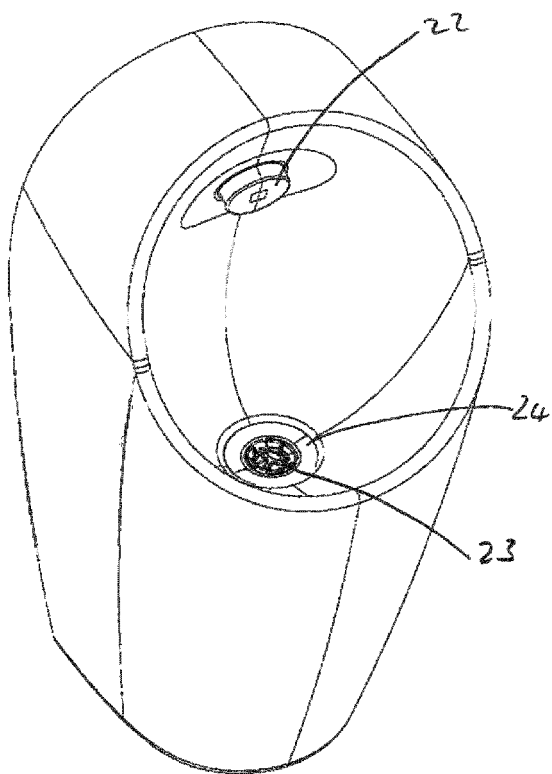


FIG. 5B

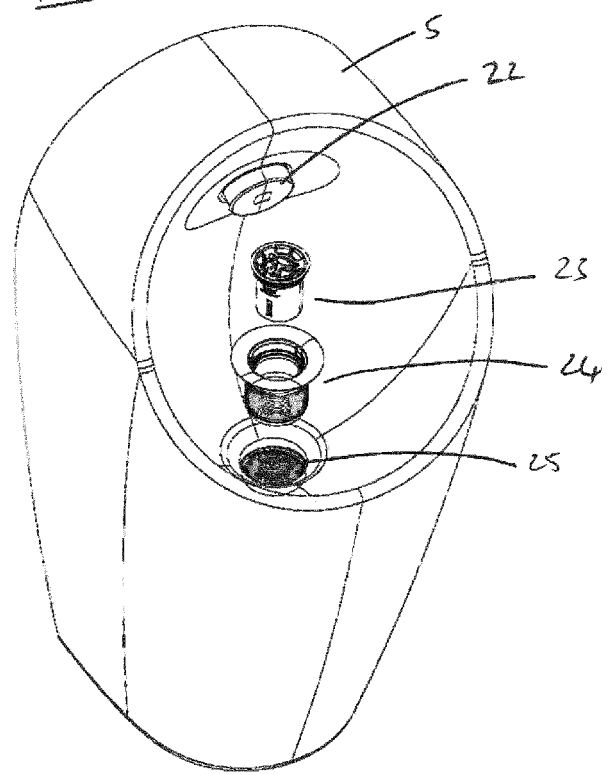


FIG. 6A

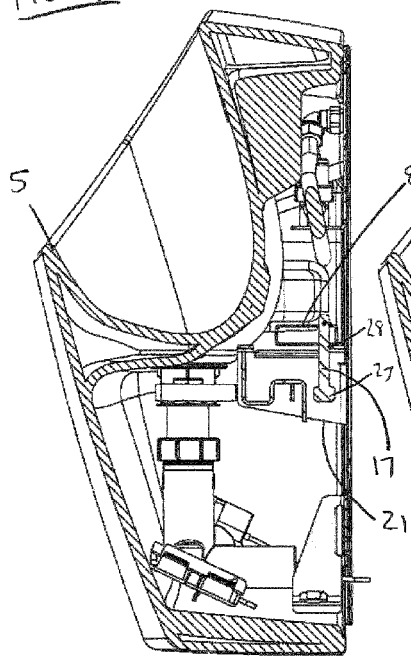


FIG. 6B

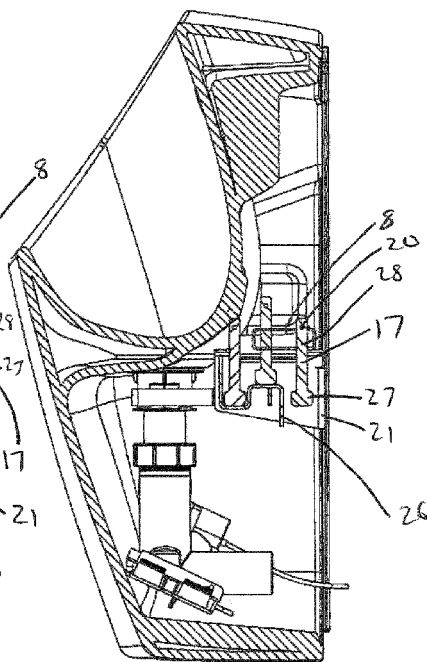
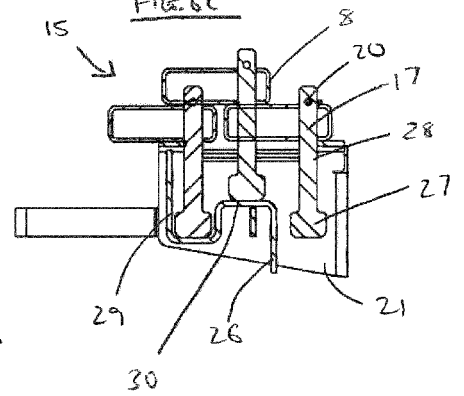


FIG. 6C



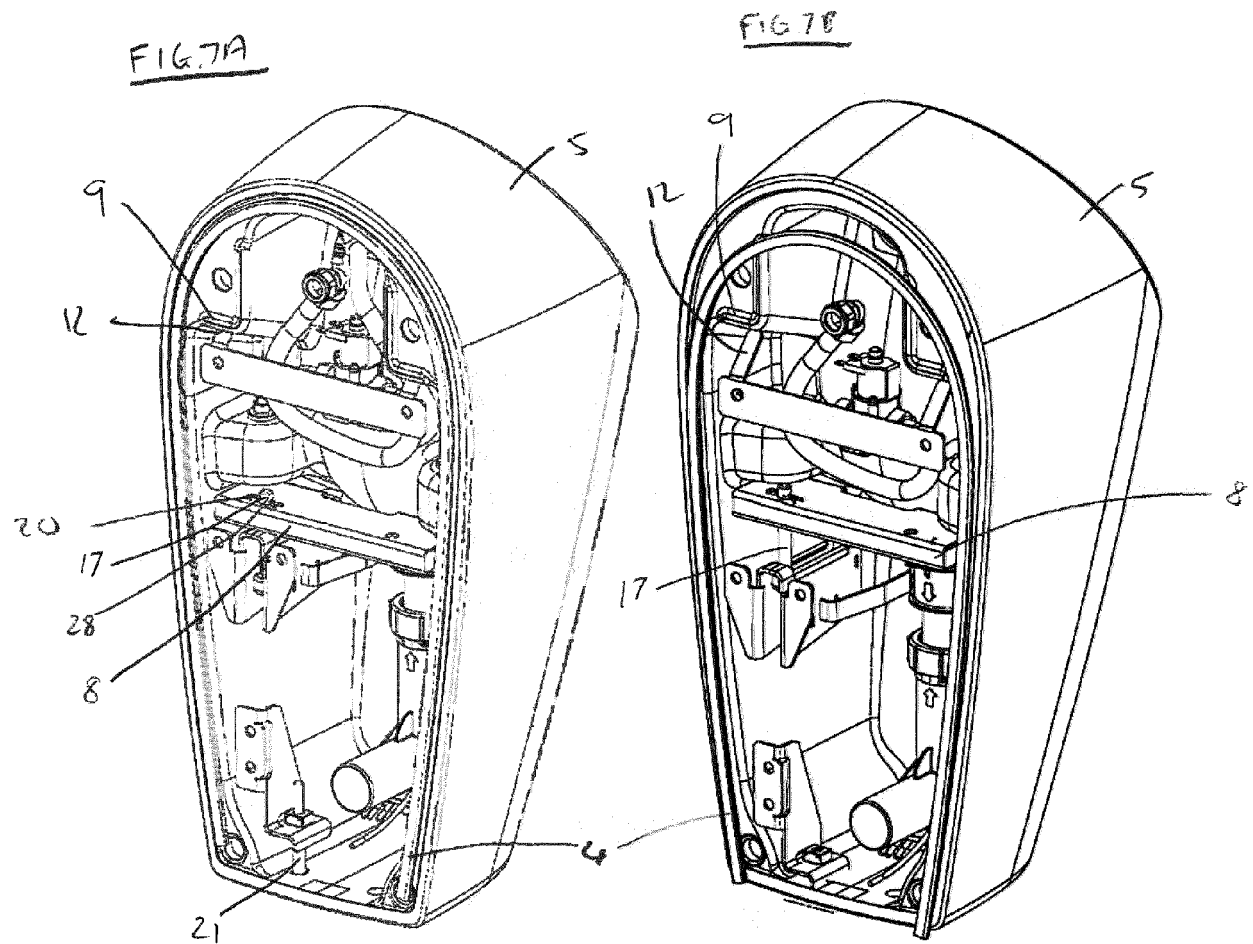


FIG. 7C

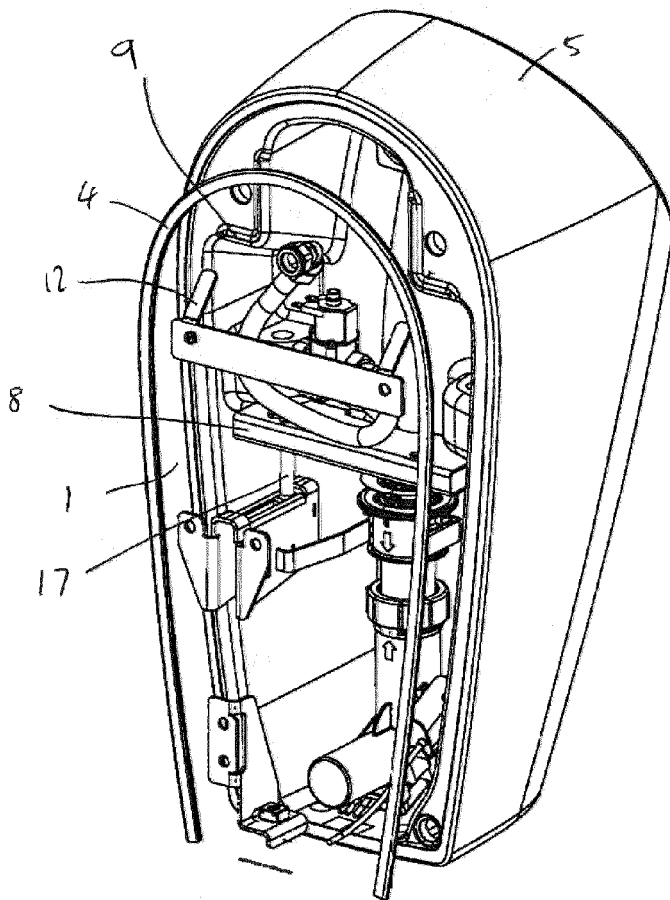
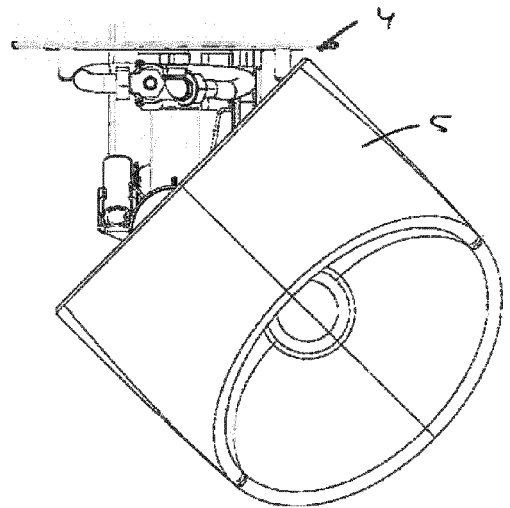


FIG. 7D





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 Application Number
 EP 20 16 1615

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Y	* paragraph [0016]; figures 2,3,5 * -----	10,11	E03D11/14 E03D13/00
X	EP 0 798 423 A2 (MASE ANTONIO [IT]) 1 October 1997 (1997-10-01)	15,16	
Y	* figure 3 * -----	10,11	
A	US 5 206 961 A (RUEGG URS [CH]) 4 May 1993 (1993-05-04) * the whole document * -----	1-16	
			TECHNICAL FIELDS SEARCHED (IPC)
			E03C E03D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 6 July 2020	Examiner Bourgoin, J
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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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 20 16 1615

5 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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06-07-2020

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