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DESCRIPTION

[0001] The invention relates to a device according to the preamble of claim 1.

[0002] Such a device is for example known from US 3349412 and from US 2976543.

[0003] When sanitary spaces are installed or renovated it may be the case in determined situations that arranged in a floor or wall there is an outlet pipe to which a flexible layer, such as a sealing membrane, and a drain have to be connected. A coupling piece would then normally be arranged on the pipe. The sealing membrane can then be attached to this coupling piece. Further provided in a usual coupling piece is a rubber sleeve to which the drain can then be connected. It may however be the case that there is insufficient space to arrange such a coupling piece on the pipe.

[0004] It may also be the case that a flexible sleeve has to be connected in reliable manner to a pipe. A rubber sleeve is often used when for instance a pipe of a smaller diameter has to be connected to an existing pipe. This rubber sleeve must be arranged fixedly on the existing pipe in order to prevent the sleeve being pushed away when the pipe of smaller diameter is inserted.

[0005] In the prior art the rubber sleeves are usually made of a flexible plastic such as EPDM. The drawback of such a material is that there are few suitable adhesives with which other parts can be adhered. Adhesive is rapidly affected by the plasticizers in the EPDM, whereby the adhesion deteriorates. It is therefore very difficult to glue an EPDM sleeve directly into an existing housing or to adhere a sealing membrane to a sleeve.

[0006] It is further known to provide an O-ring in an outlet pipe whereby an outflow of for instance a drain can be connected sealingly to the outlet pipe. Should the O-ring be forgotten however, this is likely to go unnoticed, whereby a poor connection is obtained between drain and outlet pipe.

[0007] It is now an object of the invention to reduce or even obviate the above stated drawbacks.

[0008] This objective is achieved according to the invention with a device according to independent claim 1.

[0009] Provided according to the invention is a combination of a flexible sleeve and a peripheral flange arranged thereon on which a sealing membrane is arranged in reliable manner. The use of a sleeve ensures that the sleeve cannot be forgotten during assembly. This is because without a sleeve a drain will lie much too loosely in an outlet pipe. The installer will hereby be alerted to the fact that something is missing. In the case a sealing membrane is formed on the sleeve it is then also easily possible to check whether the sealing membrane

has been arranged or not.

[0010] The flexible sleeve has the additional advantage that a seal is hereby obtained over a determined length in the outlet pipe. Possible fouling of the outlet pipe wall or the sleeve will hereby have little effect.

[0011] In an embodiment not according to the invention the form-retaining peripheral flange is formed by a ring vulcanized onto a sealing membrane. The vulcanizing results in a firm connection between the sealing membrane and the sleeve. In addition, the rubber "fuses" and penetrates here into small cavities, such as between the fibres of a sealing membrane provided with a web, whereby capillary action cannot occur. It is optionally also possible to provide the sealing membrane with a web-free zone onto which the rubber can be vulcanized.

[0012] The vulcanized ring can be arranged on one side against the membrane, although the ring can also enclose the edge of the membrane. A further advantage is that the vulcanized ring can easily absorb possible stretch in the membrane.

[0013] The vulcanized ring is preferably arranged on either side of the sealing membrane. Arranging the vulcanized ring on either side ensures that the vulcanized rubber penetrates properly into the sealing membrane and moisture can no longer creep past the ring via the sealing membrane through capillary action.

[0014] An additional advantage of a vulcanized ring is that it can more easily be bent against a wall or can follow a recess in the floor. Because the sleeve is pressed into the outlet pipe and is fixed using an outflow of an outlet pipe, the deformed form-retaining ring cannot press the sleeve out of the pipe later.

[0015] In a possible further embodiment of the device not according to the invention the form-retaining peripheral flange is a metal plate. The flexible sleeve is preferably vulcanized onto the metal plate.

[0016] A strong connection is realized by vulcanizing the flexible sleeve onto the metal plate. The metal plate can then be used as a base surface for adhering for instance a sealing membrane.

[0017] In addition, a smaller overall height of the sleeve and the form-retaining peripheral flange is also obtained because of the vulcanizing.

[0018] The advantage of this device not according to the invention is that the cement floor with an outlet pipe therein can be made first. The slope in the cement floor can be made in simple manner and is not interrupted, as in the prior art, by flanges arranged on the outlet pipe. After the cement floor has been arranged the sleeve can be inserted into the outlet pipe, whereby a good seal is immediately obtained.

[0019] According to the present invention, the flexible sleeve has a peripheral edge and the form-retaining peripheral flange is formed by two ring parts which are arranged on each other and between which the peripheral edge of the flexible sleeve is enclosed.

[0020] Enclosing the peripheral edge of the flexible sleeve between two ring parts arranged on each other brings about a connection between two different materials in a mechanical manner. It is thus possible for the flexible sleeve to be of EPDM rubber while the ring parts are of a readily adherable material such as PVC.

[0021] In addition, a water-tight connection is obtained between the sleeve and the ring parts when the peripheral flange is compressed to some extent when the ring parts are brought together.

[0022] With this construction it is moreover possible to effect a reliable connection which can even be realized on site.

[0023] In an embodiment of the device according to the invention a cavity with a radially inward directed opening is formed between the ring parts and the peripheral flange of the flexible sleeve is directed radially outward.

[0024] Owing to the radial direction of the flange the connection between the peripheral flange and the ring parts will be minimally loaded when a pipe part or drain is inserted axially.

[0025] A thickened portion is preferably arranged on the peripheral flange. This thickened portion ensures that after the ring parts have been brought together the flange can no longer be pulled out of the ring parts as a result of a form-fitting seal between the thickened portion and the cavity in the ring parts.

[0026] In another embodiment of the device according to the invention a downward directed peripheral wall is provided on one of the ring parts for the purpose of coupling to a pipe.

[0027] The device according to the invention can be glued with the downward directed peripheral wall onto an existing pipe.

[0028] In a preferred embodiment of the device according to the invention a second downward directed peripheral wall is provided concentrically on one of the ring parts. The second downward directed peripheral wall makes it possible to arrange a specific embodiment according to the invention on pipes of two different diameters.

[0029] In yet another embodiment of the device according to the invention the ring parts are attached to each other by ultrasonic welding.

[0030] The flexible sleeve is preferably of EPDM rubber. In addition, a flexible layer can be arranged on the two ring parts arranged on each other. The advantage of an EPDM rubber

sleeve is that it can be vulcanized at a low temperature so that the sealing membrane is not damaged by the vulcanizing temperature.

[0031] These and other features of the invention are further elucidated with reference to the accompanying drawings.

Figure 1 shows a cross-sectional view of a first embodiment of a device according to the invention.

Figure 2 shows a cross-sectional view of a device according to the invention; no sealing membrane is shown.

Figure 3 shows a cross-sectional view of a device according to the invention; no sealing membrane is shown.

Figure 4 shows a cross-sectional view of an embodiment of a device not according to the invention.

Figure 5 shows a cross-sectional view of an embodiment of a device not according to the invention.

[0032] Figure 1 shows a cross-sectional view of a first embodiment 1 according to the invention. Device 1 has a rubber sleeve 2 which is provided on both the outer side and on the inner side with ridges. A peripheral flange 3 with a thickened portion 4 is provided on the upper side of sleeve 2.

[0033] Peripheral flange 3 is enclosed between an upper ring part 5 and a lower ring part 6 which are adhered to each other. A sealing membrane 7 can for instance be glued onto ring parts 5, 6 in simple manner because a material can be chosen for ring parts 5, 6 which differs from the material of sleeve 2.

[0034] In this embodiment device 1 is inserted into a pipe 8. The ridges on the outer side of rubber sleeve 2 provide for a watertight seal between sleeve 2 and pipe 8. The ridges on the outer side of rubber sleeve 2 can optionally be omitted if the diameter corresponds closely to the inner diameter of pipe 8. Ring parts 5, 6 ensure that sleeve 2 cannot be pushed away into pipe 8 when outflow 9 of a drain 10 is for instance inserted into sleeve 2.

[0035] The advantage of the device according to the invention is that rubber sleeve 2, and thereby sealing membrane 7, cannot be overlooked during installation, since otherwise the drain 10 can only too obviously not be inserted properly into pipe 8.

[0036] Figure 2 shows a device 20 according to the invention. Provided in this embodiment 20 is a sleeve 21 which has ridges 22 only on the inner side. A peripheral flange 23 with a thickened portion 24 is further provided on the upper side.

[0037] Peripheral flange 23 is enclosed and clamped between an upper ring part 25 and a lower ring part 26. Lower ring part 26 further has a downward directed peripheral wall 27 with which device 20 can be glued into a pipe 28.

[0038] Figure 3 shows a device 30 according to the invention. Device 30 here also has a sleeve 31 provided on the inner side with ridges 32.

[0039] Provided on the upper side of sleeve 31 is a flange 33 which is enclosed between an upper ring part 34 and a lower ring part 35.

[0040] The lower ring part 35 has two concentrically arranged, downward directed peripheral walls 36, 37. In this shown embodiment peripheral wall 36 engages on the outer side of a pipe 38. Sleeve 32 lies here on pipe 38. It is hereby possible to slide into device 30 another pipe with an inner diameter substantially the same as the inner diameter of pipe 38. The ridges 32 of sleeve 31 provide for a good seal here. In addition, it is possible to glue a sealing membrane to ring parts 34, 35.

[0041] More peripheral walls 36, 37 can optionally be provided which can be cut away depending on the diameter of pipe 38.

[0042] Figure 4 shows a cross-sectional view of an embodiment 40 of a device not according to the invention.

[0043] In this embodiment 40 a rubber sleeve 43 is vulcanized onto a metal plate 41 with a central opening 42. A sealing membrane 44 can be glued easily to metal plate 41.

[0044] During use the rubber sleeve 43 is pressed into an outlet pipe 45 or siphon. A good sealing of sealing membrane 44 on outlet pipe 45 is hereby obtained immediately.

[0045] A drain or shower drain 46 can then be inserted with outflow 47 from above into sleeve 43, whereby a good sealing of shower drain 46 on outlet pipe 45 is also realized.

[0046] Metal plate 41 can optionally be bent so that, when a drain is arranged close to a wall, sealing membrane 44 can run upward along the wall.

[0047] Figure 5 shows an embodiment 50 of a device not according to the invention. This embodiment 50 has a flexible sleeve 51 with a form-retaining flange 52 thereon which is vulcanized around a sealing membrane 53. The vulcanizing thus brings the rubber into direct contact with the sealing membrane such that moisture can no longer pass between the sealing membrane and the rubber. This is a particularly great advantage in the case of a sealing membrane provided with a web layer.

[0048] In a further variant the rubber sleeve can take a hollow form and be provided on the

upper side with small openings in order to nevertheless drain possibly leaking water that gets onto the sealing membrane to the outlet pipe via the small openings and the hollow sleeve.

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US3349412A [0002]
- US2976543A [0002]

Patentkrav

1. Indretning (1; 20; 30) til at forbindes til et rør (8; 28; 38), såsom et udløbsrør, idet indretningen omfatter:

- en fleksibel muffe (2; 22; 31); og
- en formstabil perifer flange (5, 6), som er anbragt på muffen (2; 22; 31), hvor den fleksible muffe (2; 22; 31) har en perifer kant (3; 23),

kendetegnet ved at

en tætningsmembran (7) er anbragt på den formstabile perifere flange (5, 6; 25, 26; 24, 35);

hvor den formstabile perifere flange (5, 6; 25, 26; 24, 35) er dannet af to ringdele (5, 6; 25, 26; 24, 35), som er anbragt på hinanden og mellem hvilke den perifere kant (3; 23) af den fleksible muffe (2; 22; 31) er omsluttet.

2. Indretning (1; 20; 30) ifølge krav 1, hvor et hulrum med en radialt indadrettet åbning er dannet mellem ringdelene (5, 6; 25, 26; 24, 35), og hvor den perifere kant (3; 23) af den fleksible muffe (2; 22; 31) er rettet radialt udad.

3. Indretning (1; 20; 30) ifølge et hvilket som helst af de foregående krav, hvor et fortykket afsnit (4; 24) er anbragt på den perifere flange (3; 23).

4. Indretning (20) ifølge et hvilket som helst af de foregående krav, hvor en nedadrettet perifer væg (27) er tilvejebragt på en af ringdelene (26) med det formål at kobles til et rør (28).

5. Indretning (30) ifølge krav 4, hvor en anden nedadrettet perifer væg (37) er tilvejebragt koncentrisk på en af ringdelene (35).

6. Indretning (1; 20; 30) ifølge et hvilket som helst af de foregående krav, hvor ringdelene (5, 6; 25, 26; 24, 35) er fastgjort til hinanden ved hjælp af ultralydssvejsning.

7. Indretning (1; 20; 30) ifølge et hvilket som helst af de foregående krav, hvor den fleksible muffe (2; 22; 31) er af EPDM-gummi.

DRAWINGS

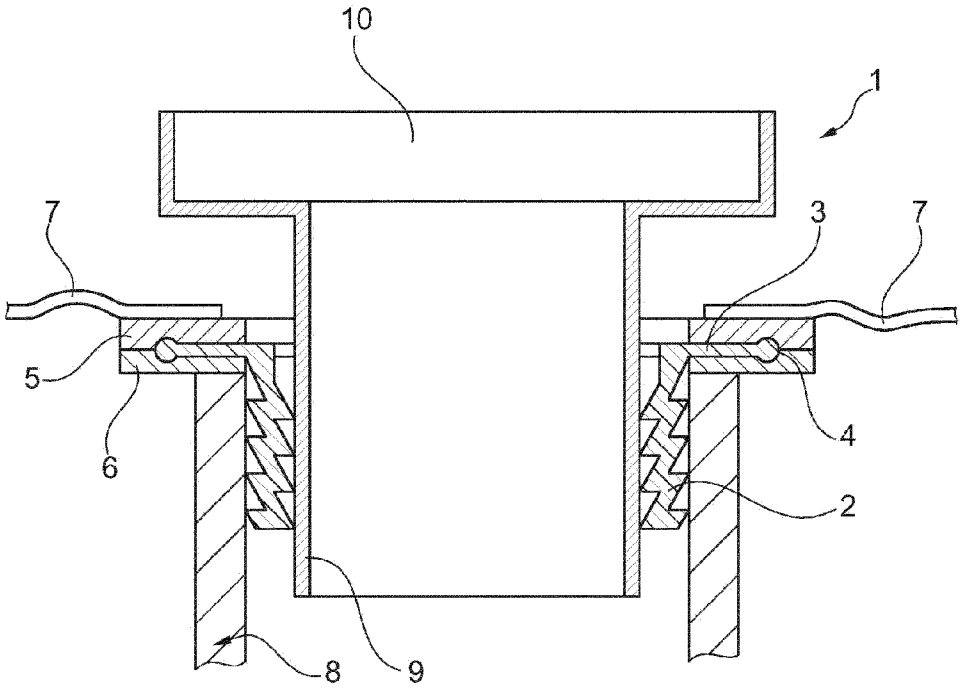


Fig. 1

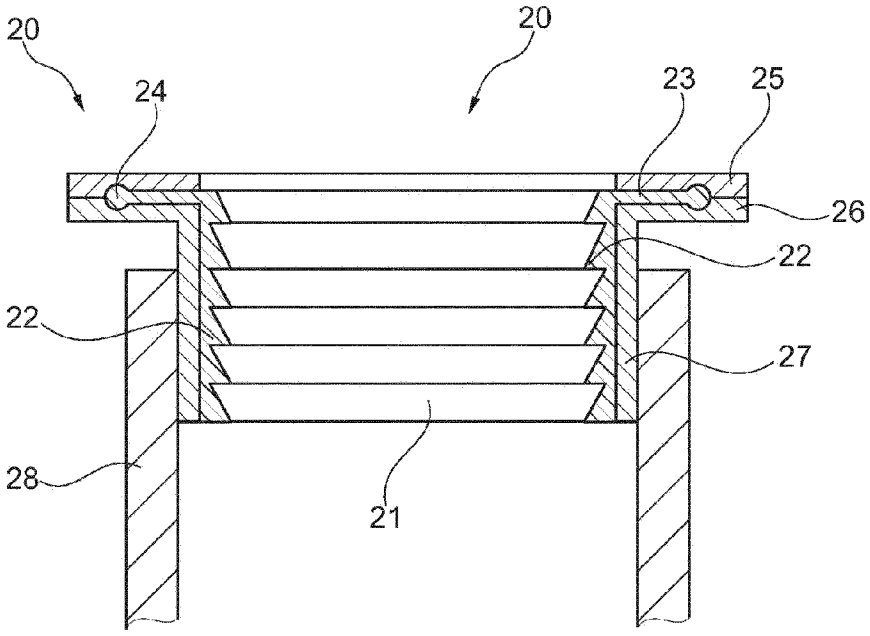


Fig. 2

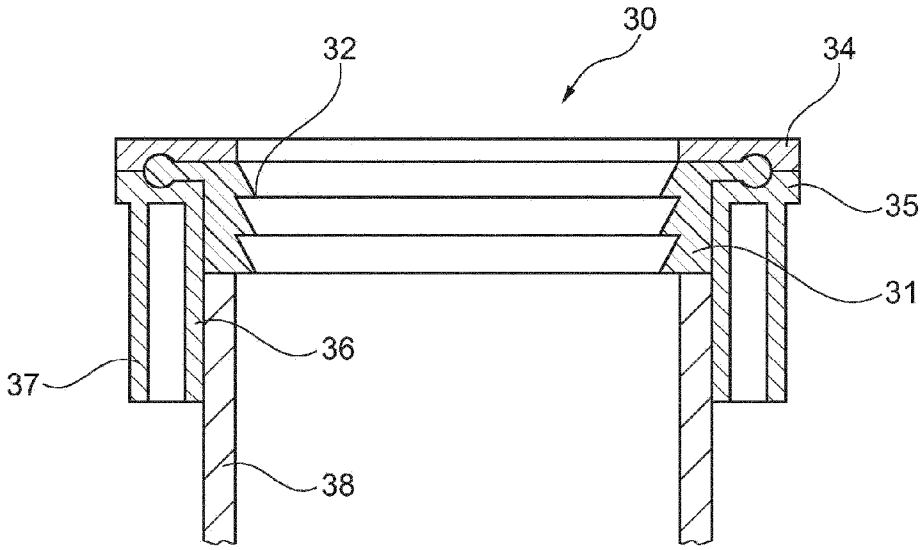


Fig. 3

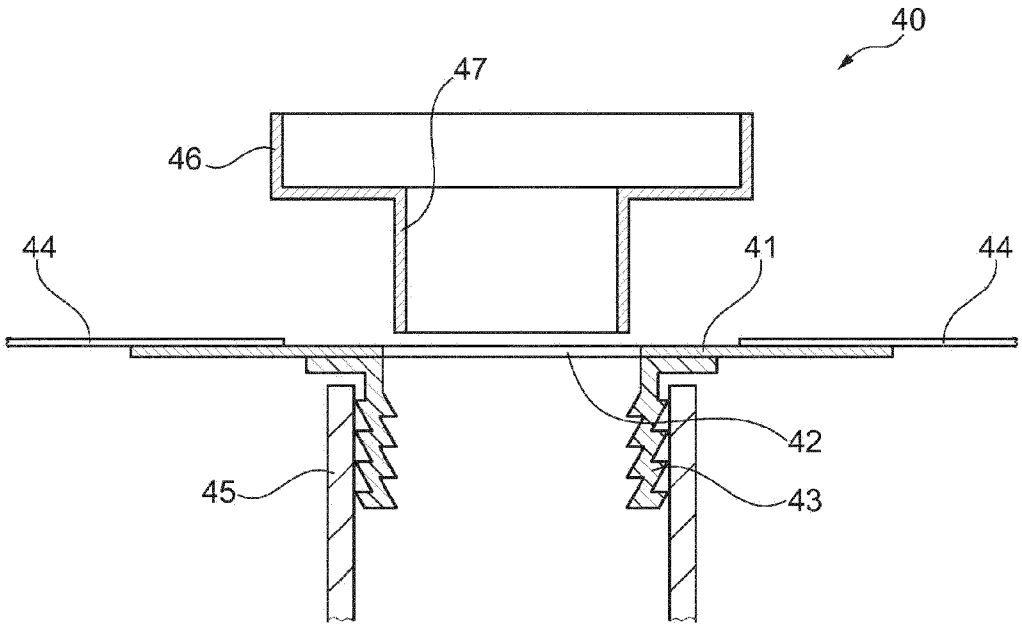


Fig. 4

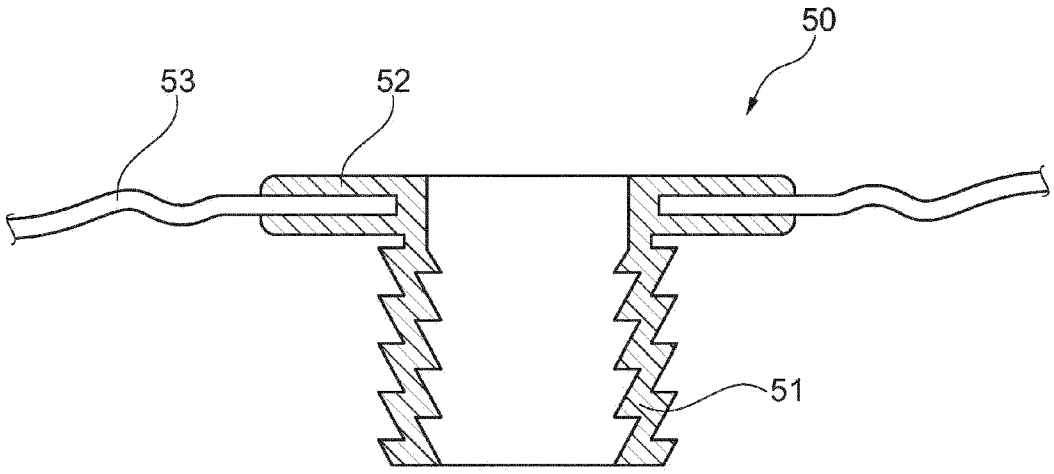


Fig. 5