

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
14.11.2018 Bulletin 2018/46

(51) Int Cl.:
E03C 1/04 (2006.01)

(21) Application number: **18171036.9**

(22) Date of filing: 07.05.2018

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
 GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
 PL PT RO RS SE SI SK SM TR**
 Designated Extension States:
BA ME
 Designated Validation States:
KH MA MD TN

(71) Applicant: **Rasmussen, Jørgen**
6091 Bjert (DK)

(72) Inventor: **Rasmussen, Jørgen**
6091 Bjert (DK)

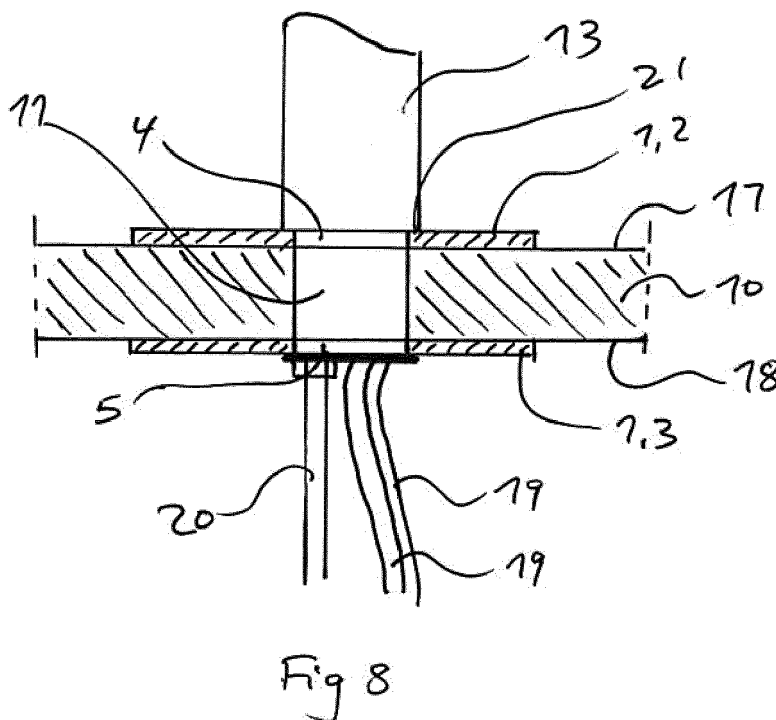
(74) Representative: **Olesen, Birthe Bjerregaard et al**
Patrade A/S
Ceresbyen 75
8000 Aarhus C (DK)

(30) Priority: 08.05.2017 DK PA201700321

(54) **REPAIR KIT**

(57) A repair kit (1) for installation in connection with the mounting of fixtures in countertops (10), wherein the repair kit (1) comprises at least a first sheet (2) with at least one fixture opening (4), whereby a repair kit for installation in connection with fixture mounting in counter-

tops is achieved, where the cover sheet can be used as a preventive measure or as a repair kit in connection with installation of a fixture in a countertop, thus ensuring that no subsequent damage to the countertop will occur.



Description

Field of the invention

[0001] The present invention relates to a repair kit for installation in connection with fixture mounting on countertops.

[0002] The invention, furthermore, relates to a particular use of a repair kit.

Background of the invention

[0003] It is known that a fixture may be installed in a countertop. It is also quite generally known that countertops may have to be replaced because of leaks that appeared between the fixture and the countertop, especially if the countertops are made of laminated fiberboard, in that the fiberboard crumbles and cracks as a result of the action of water or dampness. Therefore, at this time, repair is not an obvious option, if the countertop has already been damaged.

[0004] Said leaks occur over time, when the gasket or the gasket material used, originally placed between the fixture and the countertop, no longer has the intended sealing effect, which is not immediately visible to the user before it is too late, the leaks having already damaged the countertop, and the fixture is no longer completely secured to the countertop.

[0005] A repair kit for use in connection with fixture mounting on countertops is known. The repair kit comprises a first sheet with at least one opening for a fixture and a second sheet with an opening for passing through the fixture's connection couplings and attachment means. These are, however, not versatile in use. One might therefore find that the repair kit is not usable for the current installation of the fixture as regards the sink.

Object of the invention

[0006] It is therefore an object of the invention to provide a repair kit for use in connection with fixture mounting in countertops, where the cover sheet can be used for preventive purposes. This is done by installing the cover sheet as part of the first installation of a fixture in a countertop, thus ensuring that there will be no later occurrence of damage to the countertop.

[0007] A further object of the invention is to provide a repair kit for installation in connection with the fixture mounting in countertops, where the cover sheet can be used as a repair kit. This is done by installing the cover sheet in connection with the reinstallation of a fixture in a damaged countertop, thereby ensuring that that no additional damage to the countertop will occur at a later time.

[0008] Damage to the countertop may occur due to leakage between the fixture and the countertop, whereby the countertop sustains damage and thus requires replacement.

Description of the invention

[0009] According to a first aspect of the invention, the above-mentioned object is achieved with a repair kit for use in connection with fixture mounting in countertops, as described in the introduction and in the preamble of claim 1, where the repair kit comprises at least one first sheet with at least one fixture opening, and where the repair kit additionally comprises at least another sheet with at least one opening for passing through at least the fixture's connection couplings and attachment means. The repair kit is characterized in that at least the first sheet's fixture opening are positioned asymmetrically.

[0010] This makes it possible to use the first sheet as a cover sheet, which is installed on top of the countertop, and to insert and install a fixture in the fixture opening.

[0011] In a preferred embodiment, the repair kit is used by attaching the first sheet to the top surface of the countertop and passing the fixture's connection couplings and attachment means through the first sheet's at least one fixture opening and the countertop, after which the fixture's attachment means is tightened against the bottom surface of the countertop.

[0012] The repair kit may be used in connection with both laminated countertops and solid countertops.

[0013] The attachment of the first sheet on the top surface of the countertop in a preferred embodiment can be done with silicone. Alternatively, other appropriate sealants can be used.

[0014] Furthermore, this makes it possible to use the second sheet as a bottom sheet, which is installed under a countertop, where, among other things, the connection couplings of the fixture and its attachment means can pass through the opening. Since fiberboard generally fragments on its bottom surface, it is thus a great advantage to be able to use the second sheet as a backstop, when attaching a fixture on the bottom surface of a countertop.

[0015] Thus, in a preferred embodiment the repair kit is used by attaching the first sheet to the countertop's top surface and passing the fixture's connection couplings and attachment means through the first sheet's at least one fixture opening and, furthermore, through the countertop and at least one opening in the second sheet, where the second sheet is positioned against the bottom surface of the countertop, and where the attachment means for the fixture is attached to the second sheet and to the countertop.

[0016] In an alternative embodiment, the second sheet may have several openings, for example, one for the fixture's connection couplings and another for the fixture's attachment means.

[0017] The second sheet, which is placed on the bottom surface of the countertop, does not need to be attached prior to the attachment of the fixture, but can, for example, be fixed with silicone in order to simplify the installation, when placement is difficult, and where there is usually not much space for an installer. Alternatively,

other suitable means for attachment or fixation can be used.

[0018] The present invention in another aspect, furthermore, relates to a repair kit where at least the first sheet is a rectangle.

[0019] This makes it possible to place one of the edges against a traditional rectangular sink.

[0020] As it is most appropriate from a financial and production viewpoint to make the first sheet and the second sheet alike, the second sheet may thus also be rectangular and preferably of the same dimensions.

[0021] In placing the second sheet under the countertop, where the second sheet is not directly visible, its shape is not so important for this reason, so long as its function remains the same.

[0022] As for the first sheet, however, its appearance is more important. If the sink is round, for example, the first sheet can have a concave side, which corresponds to the sink. Alternatively, for esthetic reasons, at least the first sheet alone can be round, triangular, polygonal, heart-shaped or shaped like many other figures according to taste and preference, as long as it does not interfere with the function of the sheet.

[0023] As mentioned above, the repair kit is characterized in that at least the fixture opening in the first sheet is positioned asymmetrically.

[0024] This makes it possible to have an opening in a rectangular repair kit, which makes the cover sheet more flexible, in that in a preferred embodiment, there are at least two options for installing the cover sheet on a countertop. This is the case when an opening is positioned at the same distance from two opposite sides, but at different distances from the other two opposite sides.

[0025] Alternatively, the opening can make the cover sheet even more flexible, in that it in another preferred embodiment, there are four options for installing the cover sheet on a countertop. This is the case, when an opening is positioned such that it lies neither on a midline, nor on a diagonal line.

[0026] The present invention, in a fourth aspect, also relates to a repair kit, where at least the first sheet is made of stainless steel.

[0027] This makes it possible to use a material that does not rust or corrode in a damp environment, when the repair kit comes into contact with water.

[0028] Alternatively, copper, brass, composite materials, or other materials that are suitable and capable of withstanding the effects of dampness and water without cracking and otherwise sustaining damage may be used.

[0029] The present invention, in a fifth aspect, also relates to a repair kit, where at least the first sheet is laminated.

[0030] This makes it possible to incorporate the cover sheet into the countertop from the beginning and preferably by the manufacturer, where, for example, this can be done in connection with incorporating a sink into a countertop. Alternatively, a laminated cover sheet can be installed on top of the existing countertop, both as part

of a first installation of a fixture and in connection with replacement of a fixture in a damaged countertop.

[0031] In a preferred embodiment, the laminate can be of the same type as the countertop; however, alternatively, the laminate can also be in a contrasting color or be a completely different laminate.

[0032] The present invention, in a sixth aspect, also relates to a repair kit, where the dimensions of at least the first sheet are 120 mm x 120 mm with a thickness of 1.5 mm.

[0033] This makes it possible to use at least the first sheet of the repair kit with a majority of and the most common installations of fixtures in countertops, with the preferred dimensions of the first plate being 120 mm x 120 mm. There are, however, a large number of alternative options, such as 115 mm x 115 mm, 110 mm x 110 mm, or rectangles, such as 120 mm x 115 mm, 120 mm x 100 mm, and so on.

[0034] In a preferred embodiment, the first sheet and the second sheet are made alike and thus have the same dimensions, which makes their manufacture easier and thus also less expensive.

[0035] In other alternative embodiments, the first sheet has the dimensions of 120 mm x 120 mm, while the second sheet has the dimensions of 100 mm x 100 mm. The fact that the second sheet in a preferred embodiment has dimensions that are smaller than those of the first plate is due to the fact that it is more convenient to install the second sheet under the countertop, and that it is not absolutely required for the function of the second sheet or its visual appearance that it be in contact with the sink.

[0036] As for the thickness of the material for at least the first sheet, a material thickness of 1.5 mm is preferred, in that such a thickness will be stable, but not look like a foreign object in the shape of a large and unwieldy lump. Other material thicknesses can naturally also be used, depending on whether or not the sheet is incorporated into the countertop during the manufacture of the countertop or whether or not it is retrofitted on top of the countertop as part of a repair. Moreover, the choice of material is key to the material's thickness.

[0037] In another alternative embodiment, the material thickness may taper from, for example, the middle of the repair kit outwards to at least one of the sides, which can make the transition from at least the first sheet to the countertop even smaller.

[0038] The present invention in a seventh aspect, furthermore, relates to a repair kit, where at least the diameter of the fixture opening in the first sheet is in the 30-40 mm range, however, preferably 35 mm.

[0039] This makes it possible to install a fixture such that it abuts the cover sheet, but such that the connection couplings and attachment means of the fixture can pass through the opening.

[0040] The opening may be greater or smaller, for example, with a diameter in the 30-40 mm range, depending on the selected fixture, but for typical fixture sizes in Denmark an opening diameter of 35 mm is preferred. If the

diameter opening is greater than or smaller than 35 mm, a typical fixture in Denmark may not abut the repair kit.

[0041] As for the size of the opening in the second sheet, the same limitations do not apply as long as the opening is large enough for the connection couplings and the attachment means to pass through the opening.

[0042] The present invention in an eighth aspect, furthermore, relates to the use of a repair kit for preventive installation in connection with the installation of fixtures in new countertops.

[0043] This makes it possible to install a repair kit and thus prevent damage to countertops from leaks and the effects of water on the countertop at, in and around the passage opening in the countertop, which the cover sheet in the form of the first sheet will thus shield. The second plate does not have the same shielding function, as water is not normally able to impact and damage the countertop due to the placement of the second sheet on the bottom surface of the countertop.

[0044] The present invention in a ninth aspect, furthermore, relates to the use of a repair kit, when used in connection with the installation of fixtures in damaged countertops.

[0045] This makes it possible to install a repair kit as a repair kit for countertops that have already been damaged due to leakages and water damages on the countertop, at, in, or around the passage opening in the countertop. When installing a repair kit, the first sheet will thus be able to protect against additional damage caused by liquids and moisture in the countertop, while an optional second sheet, due to its placement on the bottom surface of the countertop, will provide a stable and functional backstop, attaching the fastening means for the fixture. Since a current countertop made of fiberboard, for example, usually disintegrates at the bottom surface of the countertop, it is therefore a great advantage to be able to use the second sheet.

Description of the figures

[0046]

- Fig. 1 shows a repair kit with a centrally positioned opening
- Fig. 2 shows a repair kit with an asymmetrically positioned opening
- Fig. 3 shows a repair kit with an asymmetrically positioned opening
- Fig. 4 shows a damaged countertop
- Fig. 5 shows a countertop with a sink, fixture, and repair kit
- Fig. 6 shows a countertop with a sink, fixture, and repair kit
- Fig. 7 shows the second sheet of an installed repair kit
- Fig. 8 shows a fixture installed in a repair kit in a countertop

[0047] In the description of the figures, identical or cor-

responding elements are denoted with the same reference number in the various figures. Thus, an explanation of all the details in connection with each single figure/embodiment will not be provided.

5

Reference numeral list

[0048]

- 10 1 Repair kit
- 2 First sheet
- 3 Second sheet
- 4 Fixture opening
- 5 Opening, second sheet
- 15 6 First surface
- 7 Second surface
- 8 Third surface
- 9 Fourth surface
- 10 Countertop
- 20 11 Opening, countertop
- 12 Sink
- 13 Fixture
- 14 Edge, sink
- 15 Material thickness, repair kit
- 25 16 Fiberboard, countertop
- 17 Top surface, countertop
- 18 Bottom surface, countertop
- 19 Connection couplings
- 20 Attachment means
- 30 21 Flange, fixture

Detailed description of the invention

[0049]

35

Figure 1 shows a repair kit 1, which comprises at least a first sheet 2, but may also comprise a second sheet 3. The figure shows an embodiment in which, in the first sheet, there is a fixture opening 4, and in the second sheet, an opening 5 for passing through at least the connection couplings and attachment means, which are centrally positioned in the repair kit 1, such that the distances to a first surface 6 and a second surface 7 are equal, while the distances to the third surface 8 and the fourth surface 9 are also equal.

40

Figure 2 shows a repair kit 1 in an embodiment, where the fixture opening 4 in the first sheet and the opening 5 in the second sheet are positioned asymmetrically, such that the distances to the first surface 6 and the second surface 7 differ, while the distances to the third surface 8 and the Second surface 9 are equal.

45

50

55

Figure 3 shows a repair kit 1 in an embodiment, where the fixture opening 4 in the first sheet and the opening 5 in the second sheet are positioned asym-

metrically, such that the distances to the first surface 6 and the second surface 7 differ, and the distances to the third surface 8 and the fourth surface 9 likewise differ.

Figure 4 shows a damaged countertop 10 with an opening 11 and several cracks 12 in the countertop.

Figure 5 shows a countertop 10 with a sink 12, a fixture 13 and a repair kit 1. As can be seen from the figure, a repair kit 1 is installed here with a first sheet 2 as shown and described with reference to figure 2, whereby the fixture opening 4 in the first sheet (see Fig. 2) is positioned asymmetrically in sheet 2, and the surface 7 abuts the edge 14 of the sink.

Figure 6 likewise shows a countertop 10 with a sink 12, a fixture 13 and a repair kit 1 comprising a first sheet 2. The figure clearly shows that the repair kit 1 and the first sheet 2 have a material thickness 15. The figure also shows a section through the countertop 10, from which it can be seen that the countertop 10 is a fiberboard 16, which has a top surface 17 that is laminated.

Figure 7 shows the second sheet 3 of an installed repair kit installed on the bottom surface 18 of the countertop, where it can be seen that the connection couplings 19 and the attachment means 20 for the fixture penetrate the opening 5. Since a countertop 10 made from fiberboard 16 generally disintegrates on the bottom surface, it is therefore of great advantage, especially in repair work, to be able to use the second sheet 3.

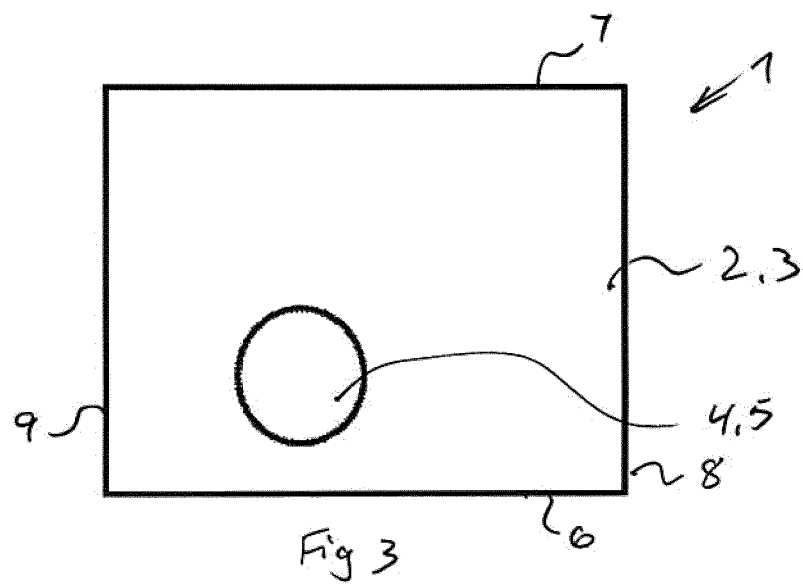
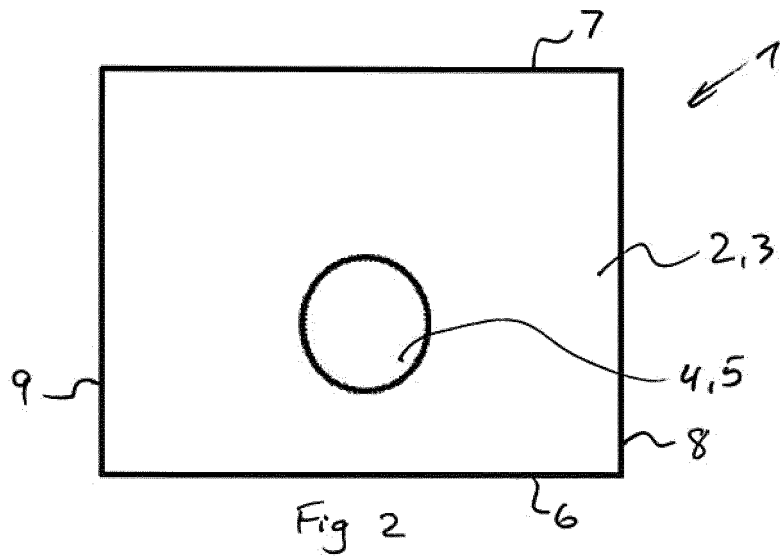
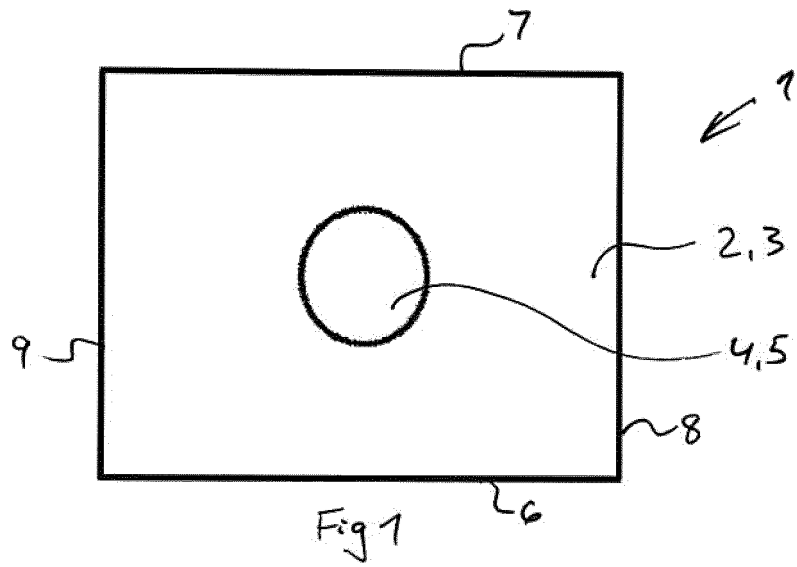
[0050] When the second sheet 3 is used as a backstop in attaching a fixture 13 from the bottom surface 18 of a countertop, good and durable attachment is ensured, both on a new countertop 10, especially on a countertop that has been exposed to water and moisture causing the countertop to crack and crumble around the opening 11 in the countertop 10.

[0051] Fig. 8 is a schematic representation of a fixture 13 mounted in a repair kit 1 in a countertop 10, where the countertop 10 is shown with an top surface 17 and an bottom surface 18, besides an opening 11. As can be seen from the figure, the repair kit 1 comprises both a first sheet 2 with a fixture opening 4 on the top surface 17 of the countertop and a second sheet 3 with an opening 5 for passage of at least the connecting couplings 19 and the attachment means 20 for the fixture. It can also be seen from the figure that the fixture 13 has a flange 21 for abutting against the first sheet 2, that the connection couplings 19 and the attachment means 20 for the fixture are passed through the fixture opening 4 in the first sheet, the opening 11 in the countertop 10 and also through the opening 5 in the second sheet for passage of at least the connection couplings 19 and the attach-

ment means 20 for the fixture.

Claims

1. A repair kit (1) for installation in connection with the mounting of fixtures in countertops (10), wherein the repair kit (1) comprises at least a first sheet (2) with at least one fixture opening (4), and the repair kit (1) additionally comprises at least a second sheet (3) with at least one opening (5) for passage of at least the connection couplings (19) of the fixture and the attachment means (20) for the fixture, **characterized in that** at least the fixture opening (4) in the first sheet is (4) is positioned asymmetrically.
2. The repair kit (1) according to claim 1, **characterized in that** at least the first sheet (2) is rectangular.
3. The repair kit (1) according to either of the claims 1 and 2, **characterized in that** at least the first sheet (2) is made of stainless steel.
4. The repair kit (1) according to any of the claims 1 to 3, **characterized in that** at least the first sheet (2) is laminated.
5. The repair kit (1) according to any of the claims 1 to 4, **characterized in that** the dimensions of at least the first sheet are 120 mm x 120 mm with a material thickness of 1.5 mm.
6. The repair kit (1) according to any of the claims 1 to 5, **characterized in that** at least the diameter of the fixture opening (4) in the first sheet is in the 30-40 mm range, however, preferably 35 mm.
7. The use of a repair kit (1) according to any of the claims 1 to 6 for preventive installation in connection with fixture mounting in new countertops (10).
8. The use of a repair kit (1) according to any of the claims 1 to 6 as a repair kit in connection with fixture mounting in damaged countertops (10).



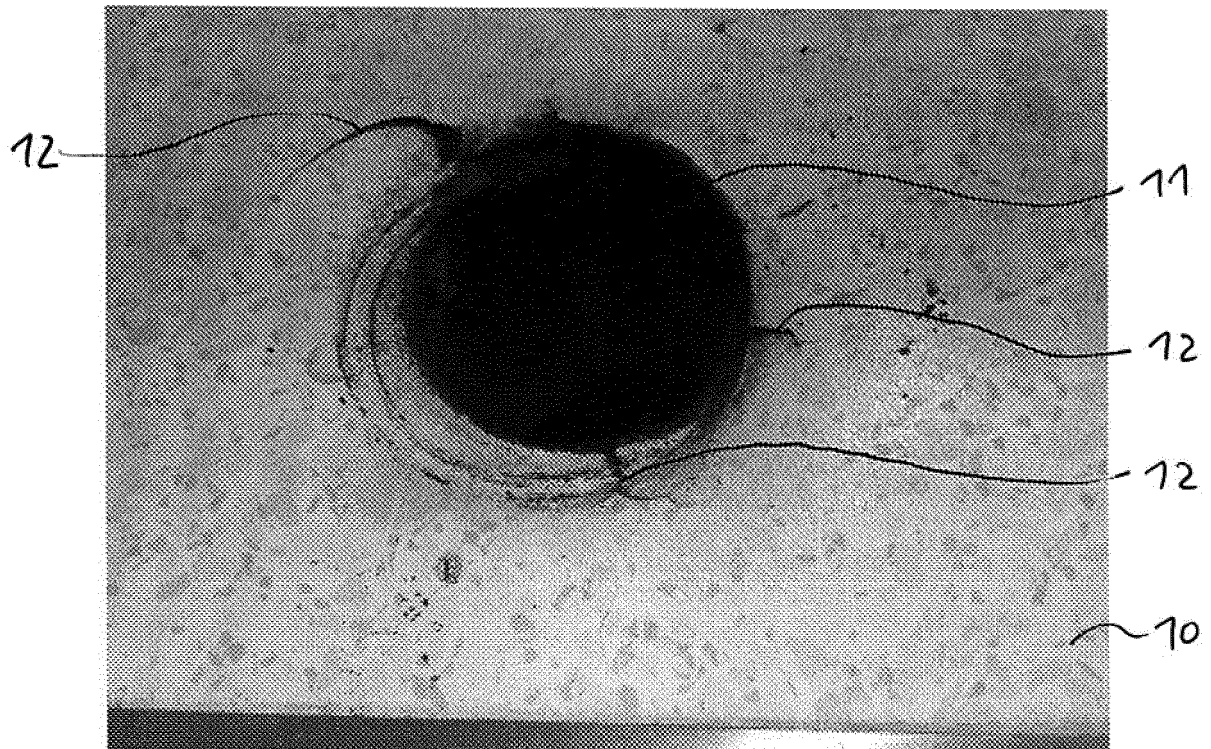


Fig 4



Fig 5

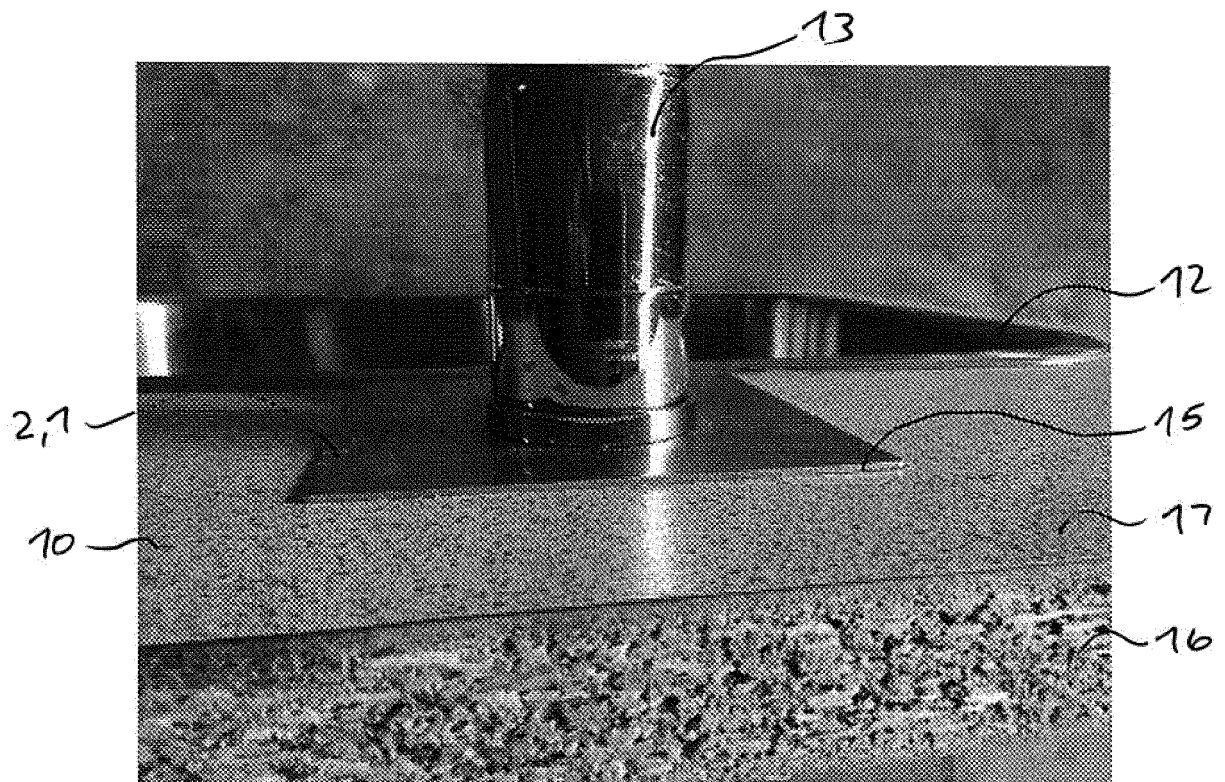


Fig 6

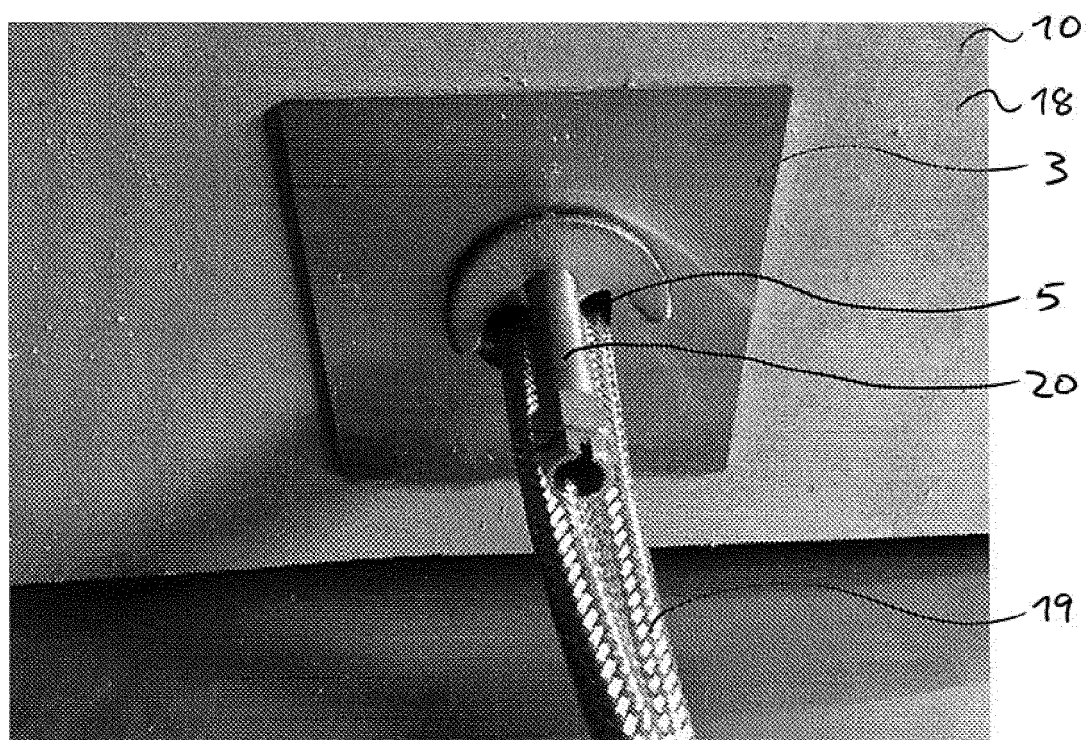


Fig 7

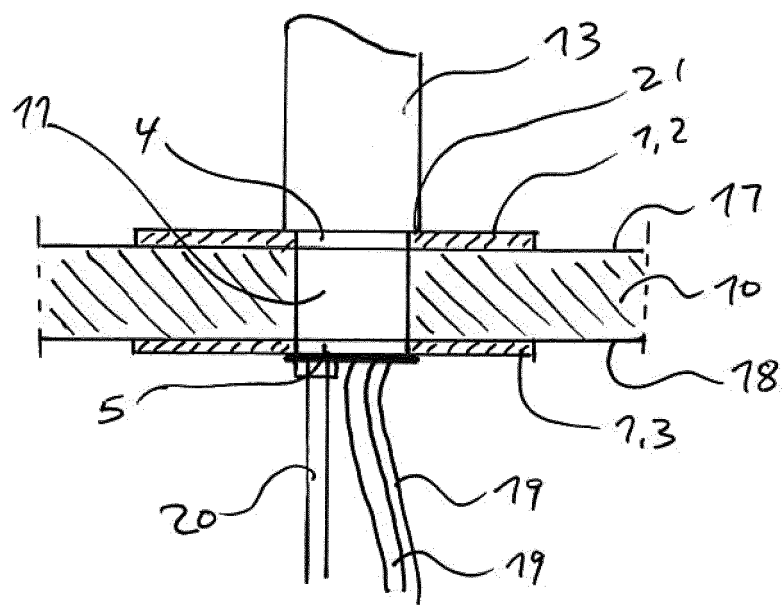


Fig 8



EUROPEAN SEARCH REPORT

Application Number
EP 18 17 1036

5

10

15

20

25

30

35

40

45

50

55

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	US 7 210 493 B1 (WANG SEUNG TAE [US]) 1 May 2007 (2007-05-01)	1-4,7,8	INV. E03C1/04
A	* the whole document *	5,6	
X	GB 2 494 952 A (BONAR DECLAN [GB]) 27 March 2013 (2013-03-27) * figures 4-6 *	1,2,7	
A	US 2002/062601 A1 (GILLERAN WILLIAM J [US]) 30 May 2002 (2002-05-30) * figures 6,7 *	1	
X	US 2004/065367 A1 (THOMAS KURT JUDSON [US]) 8 April 2004 (2004-04-08) * figure 2 *	1,7	
A	DE 197 44 771 A1 (KLUDI ARMATUREN SCHEFFER VERTR [DE]) 15 April 1999 (1999-04-15) * figures 5,6 *	1,7	
			TECHNICAL FIELDS SEARCHED (IPC)
			E03C
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 12 September 2018	Examiner Leher, Valentina
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			

EPO FORM 1503 03.02 (P04C01)

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

EP 18 17 1036

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

12-09-2018

10

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 7210493 B1	01-05-2007	US 7210493 B1	01-05-2007
		WO 2007081999 A1	19-07-2007

GB 2494952 A	27-03-2013	NONE	

US 2002062601 A1	30-05-2002	US 2002062601 A1	30-05-2002
		US 2003084628 A1	08-05-2003

US 2004065367 A1	08-04-2004	CA 2441041 A1	04-04-2004
		CN 1497110 A	19-05-2004
		MX PA03009065 A	10-09-2004
		US 2004065367 A1	08-04-2004

DE 19744771 A1	15-04-1999	NONE	

15

20

25

30

35

40

45

50

55

EPO FORM P0459

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