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(54) **Auxiliary device for the installation of plate-shaped products for covering floor and/or walls**

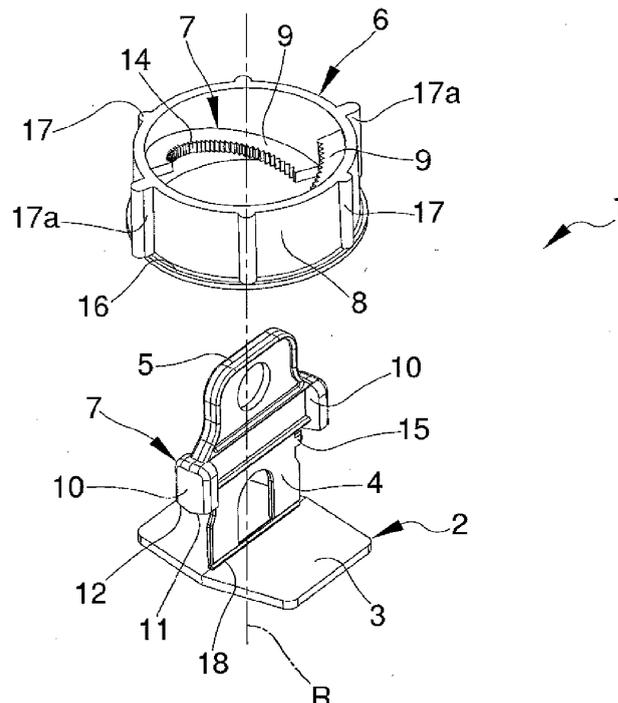
(57) The auxiliary device (1) for the installation of plate-shaped products (M) for covering floors and/or walls comprises:

- a first element (2) having:
- a substantially flat base body (3) for supporting two or more adjacent plate-shaped products (M) and
- a gripping body (4) which is associated substantially at right angles with the base body (3), the base body (3) being suited to support the plate-shaped products (M)

from opposite sides of the gripping body (4);

- a second element (6) associable with the gripping body (4) for fastening the plate-shaped products (M) between the base body (3) and the second element (6) to define the coplanarity of the plate-shaped products (M); and
- screw connection means (7) suited to allow the coupling by screwing of the second element (6) on the first element (2) around a rotation axis (R) substantially at right angles to the base body (3).

Fig. 1



Description

[0001] The present invention relates to an auxiliary device for the installation of plate-shaped products for covering floors and/or walls.

[0002] It is known that during laying and installation operations of plate-shaped products on floors and/or walls, such as tiles, bricks, sheets or the like, it is usually necessary to position the plate-shaped products at a reciprocal relative distance.

[0003] For this purpose, spacing devices are usually used, made up of cross-shaped, T-shaped or other-shaped plastic bars, which are suitable for ensuring the correct reciprocal positioning of the tiles.

[0004] If on the one hand however, such spacing devices make it possible to position the plate-shaped products very precisely with respect to their reciprocal arrangement on the surface to be covered, on the other, it cannot but be noted that they do not also ensure the perfect coplanarity of the top surfaces (i.e., the visible surfaces) of the installed plate-shaped products.

[0005] It must be remembered in fact that the surface to be covered is not always perfectly level, the thickness of the plate-shaped products cannot be constant from tile to tile and the layer of adhesive placed in between the surface to be covered and the plate-shaped products can show some lack of uniformity.

[0006] For all these reasons, the plate-shaped products tend to take up a position which is not perfectly level and the user is inconveniently forced to correct the height of each single plate-shaped product using specific equipment and great skill.

[0007] In this respect, it must be added that the need for perfect coplanarity of the surface is particularly felt when very regular and perfectly smoothed plate-shaped products are used because in this case the absence of positioning uniformity, even minor, appears immediately clear.

[0008] In this respect, from the document IT 1 334 260, the use is known of a spacing device which, besides spacing out the ceramic products, allows ensuring level installation.

[0009] Such device comprises a series of flat fins, suitable for creating ceramic product supporting areas, and an arc which stands perpendicular to the flat fins and which is shaped so as to allow the stable and forced insertion and positioning of a tapered-profile element between the arc itself and the underlying tiles.

[0010] During installation, the tiles are tightened between the underlying fins and the tapered-profile element which is forcibly blocked under the arc.

[0011] This spacing device also has drawbacks however including the fact that the insertion and the coupling of the tapered-profile element in the space below the arc is not always practical and easy.

[0012] Furthermore, to ensure the necessary stability of the tapered-profile element and prevent it from releasing itself during installation, thus compromising the in-

stallation operation of the plate-shaped products, the tapered-profile element must be forcibly pushed underneath the arc and the user is not always able to apply such force without the inconvenient use of special pliers or other tools. The main aim of the present invention is to provide an auxiliary device for the installation of plate-shaped products for covering floors and/or walls with which it is possible, in a practical, easy and functional way, to ensure the exact coplanarity of the plate-shaped products.

[0013] Another object of the invention is to provide an auxiliary device for the installation of plate-shaped products for covering floors and/or walls with which it is possible to simplify the laying and installation operations of plate-shaped products.

[0014] Not the last object of the present invention is to provide an auxiliary device for the installation of plate-shaped products for covering floors and/or walls which can be used without using special pliers or other tools.

[0015] Another object of the present invention is to provide an auxiliary device for the installation of plate-shaped products for covering floors and/or walls which allows to overcome the mentioned drawbacks of the state of the art within the ambit of a simple, rational, easy and effective to use as well as low cost solution.

[0016] The above objects are achieved by the present auxiliary device for the installation of plate-shaped products for covering floors and/or walls, comprising:

- at least a first element having:
 - a substantially flat base body for supporting at least two adjacent plate-shaped products and
 - a gripping body which is associated substantially at right angles with said base body, said base body being suited to support said plate-shaped products from opposite sides of said gripping body;
- at least a second element associable with said gripping body for fastening said plate-shaped products between said base body and said second element to define the coplanarity of said plate-shaped products;

characterized by the fact that said first element and said second element comprise screw connection means suited to allow the coupling by screwing of said second element on said first element around a rotation axis substantially at right angles to said base body.

[0017] Other characteristics and advantages of the present invention will become more evident from the description of some preferred, but not sole, embodiments of an auxiliary device for the installation of plate-shaped products for covering floors and/or walls, illustrated purely as an example but not limited to the annexed drawings in which:

Figure 1 is an exploded view of a preferred embodiment of the device according to the invention; Figures 2a and 2b show, in a succession of views from above, the screwing of the device of figure 1; Figure 3 is an axonometric view of the device of figure 1 during the installation of two plate-shaped products; Figure 4 is a section view of the device of figure 1 during the installation of two plate-shaped products; Figure 5 is another section view of the device of figure 1 during the installation of two plate-shaped products; Figure 6 is a section view similar to that of figure 5 during the installation of two plate-shaped products with different thickness; Figure 7 is an exploded view of an alternative embodiment of the device according to the invention; Figure 8 is an axonometric view of the device of figure 7 during the installation of two plate-shaped products.

[0018] With particular reference to the embodiment shown in figures from 1 to 6, globally indicated by I is an auxiliary device for the installation of plate-shaped products for covering floors and/or walls.

[0019] The device 1 comprises a first element 2 substantially made in a single body and comprising:

- a substantially flat base body 3 on which at least two adjacent plate-shaped products M can be rested and
- a gripping body 4, which is associated at right angles with the base body 3. The gripping body 4 has a substantially plate shape and rests on a lying plane substantially at right angles to the base body 3.

[0020] The upper part of the gripping body 4 extends upwards to define a grip 5 suitable for allowing it to be gripped by the user.

[0021] The base body 3 is suitable for supporting the plate-shaped products M from opposite sides of the gripping body 4, with the edges of the plate-shaped products M substantially parallel the one with the other and with the gripping body 4 and slightly at a distance the one from the other, at least by the thickness of the gripping body 4.

[0022] In this respect, it is underlined that the present device 1 can also act as a spacing element if the distance to be created between the two adjacent plate-shaped products M corresponds to the thickness of the gripping body 4; it cannot however be ruled out that the device 1 be used in combination with traditional spacing bars, which establish the correct distance between one plate-shaped product M and the other, while the device 1 remains dedicated to ensuring their exact coplanarity.

[0023] For this purpose, the device 1 comprises a second element 6 associable with the gripping body 4 for the fastening, i.e., the compression, of the plate-shaped products M between the base body 3 and the second

element 6 to define the coplanarity of the plate-shaped products M.

[0024] More in detail, the first element 2 and the second element 6 comprise screw connection means 7 suitable for permitting the coupling by screwing of the second element 6 on the first element 2 around a rotation axis R substantially at right angles to the base body 3.

[0025] In the particular and preferred embodiment shown in the figures from I to 6, the second element 6 consists of a ring-nut body 8, i.e., a circular-section cylinder-shaped ring.

[0026] The screw connection means 7 comprise at least one substantially helical ramp 9 associated with the ring-nut body 8 and at least one fastening body 10 associated with the gripping body 4 and suitable for engaging the ramp during the screwing of the second element 6 onto the first element 2.

[0027] More in particular, the ramp 9 is arranged inside the ring-nut body 8, which can be fitted around the gripping body 4.

[0028] The fastening body 10 comprises a first inclined edge 11, which is turned substantially facing the base body 3, has substantially the same inclination as the ramp 9 and is suitable for wedging on this for tightening the ring-nut body 8. Furthermore, the fastening body 10 comprises a second inclined edge 12 which, with respect to the lying plane of the gripping body 4, is substantially symmetric with the first inclined edge 11.

[0029] The first element 2 is therefore substantially symmetric and specular with respect to the above lying plane, which makes considerably easier its use and manufacture which, e.g., can be done by simple injection moulding of plastic material wherein the opening and closing plane of the moulds coincides with the plane of symmetry.

[0030] Usefully, in the particular embodiment shown in the figures from 1 to 6, the screw connection means 7 comprise two ramps 9, arranged on diametrically opposite sides of the ring-nut body 8, and two fastening bodies 10, arranged on substantially opposite sides of the gripping body 4.

[0031] Each ramp 9 extends by an extension angle below 180° and the projections of ramps 9 on a surface at right angles to the rotation axis R are substantially at a distance from one another, to define two corresponding fitting seats 13 through which the fastening bodies 10 can be passed during assembly.

[0032] Each ramp 9 has a side notch 14, i.e., turned towards the inside of the ring-nut body 8, which is engageable by a corresponding locking blade 15 associated with the gripping body 4.

[0033] The locking blades 15 lie on the lying plane of the gripping body 4 and extend at right angles to the rotation axis R and skip engage the side notches 14 of the ramps 9 during the screwing up of the ring-nut body 8.

[0034] The locking blades 15, on the one side, hinder the unscrewing of the ring-nut body 8 once the tightening position of the plate-shaped products M has been

reached and, on the other side, aid the user in assessing the effectiveness of the screwing up, inasmuch as they emit a characteristic sound at every skip made on the side notches 14.

[0035] The ring-nut body 8 comprises a padded annular surface 16 which is suitable for coming into contact with the plate-shaped products M and the purpose of which is to increase the contact surface for tightening the plate-shaped products M. The ring-nut body 8 also comprises at least an external ribbing 17 which extends on the side surface of the ring-nut body 8 and is suitable for making it easier to grip by the user.

[0036] More in detail, in the particular embodiment shown in the figures from 1 to 6, the ring-nut body 8 comprises a plurality of external ribbings 17.

[0037] At least one of the external ribbings, indicated by the reference number 17a to distinguish it from the others, is placed in correspondence to one of the fitting seats 13 and has a different thickness with respect to the others.

[0038] More in particular, there are two external ribbings 17a of different thickness and these are located in correspondence to both the fitting seats 13.

[0039] Usefully, the particular shape of the external ribbings 17, 17a allows the user to identify, both by touch and visually, the relative position of the fitting seats 13 and to make their coupling with the fastening bodies 10 easier.

[0040] Once the installation of the plate-shaped products M has been completed, i.e., when these are stably glued to the surface to be covered, the base body 3 remains trapped between the plate-shaped products M and the surface to be covered, while the gripping body 4, together with the ring-nut body 8, has to be removed.

[0041] For this purpose, the first element 2 is made of a breakable material suitable for allowing the removal by fracture of the gripping body 4 once the installation of the plate-shaped products M has been completed.

[0042] To make this operation easier, the first element 2 usefully comprises a weakened section 18 suitable for favouring the removal by fracture of the gripping body 4.

[0043] The weakened section 18 is defined in correspondence to the connection point of the base body 3 with the gripping body 4.

[0044] The operation of the device 1 shown in the figures from 1 to 6 is the following.

[0045] The first element 2 is positioned on the pre-glued surface to be covered in correspondence to the edge of one of the plate-shaped products M already positioned on the surface, being careful to place the base body 3 underneath such edge.

[0046] At this point, the other plate-shaped product M is positioned on the remaining portion of the base body 3, in a configuration wherein the gripping body 4 stands up between the two plate-shaped products M beyond their visible surfaces.

[0047] The ring-nut body 8 is then fitted around the gripping body 4, aligning the fastening bodies 10 with the

fitting seats 13 (figure 2a), and then rotated around the rotation axis R (figure 2b) until it engages the first inclined edges 11 of the fastening bodies 10 against the ramps 9, in a tightening configuration wherein the plate-shaped products M remain compressed between the base body 3 and the padded annular surface 16 of the ring-nut body 8.

[0048] Depending on the thickness of the plate-shaped products M, the screwing up of the ring-nut body 8 is more or less deep (figures 5 and 6).

[0049] Once the installation has stabilised, the gripping body 4 and the ring-nut body 8 are removed by means of a traction action of enough intensity to cause the breakage of the weakened section 18.

[0050] The ring-nut body 8 can be subsequently reused.

[0051] In the alternative embodiment shown in the figures 7 and 8, the device 1 still consists of a first element 2, split into a base body 3 and into a gripping body 4, and of a second element 6 which can be coupled with the first element 2 by means of screw connection means 7 for the purpose of tightening the two or more plate-shaped products M between the base body 3 and the second element 6 to ensure the coplanarity thereof.

[0052] In this embodiment, the gripping body 4 is shaped to define an arc-shaped body. The second element 6, on the other hand, comprises a contrast plate 19, suitable for entering into contact with the plate-shaped products M, and a support stem 20, which supports the contrast plate 19.

[0053] The screw connection means 7 are defined by an external threading 21, which is obtained on the side surface of the support stem 20, and an internal threading 22, which is obtained in a corresponding hollow disc 23 associated with the arc-shaped body 4 and which is suitable for being engaged by the external threading 21 during the screwing up of the second element 6 on the first element 2.

[0054] For this purpose, the hollow disc 23 comprises at least one side opening 24 which permits the interlocking of the support stem 20.

[0055] This way, the first element 2 can be positioned separately to the second element 6, which can be coupled with the hollow disc 23 subsequently by inserting the support stem 20 through the side opening 24.

[0056] Once the first element 2 and the second element 6 have been coupled together, the contrast plate 19 finds itself housed inside the arc-shaped body 4 and can be pushed against the visible surfaces of the plate-shaped products M by simply screwing up the second element 6.

[0057] To make this operation easier, the second element 6 has a manoeuvring body 25, shaped like a disc, a lever, a key or the like, which is associated with the extremity of the support stem 20 on the opposite side of the contrast plate 19. The operation of the device 1 shown in the figures from 7 to 8 is similar to that of the previous embodiment.

[0058] The first element 2 is positioned on the pre-glued surface to be covered in correspondence to the edge of a plate-shaped product M already positioned on the surface, while the other plate-shaped product M is positioned on the remaining portion of the base body 3.

[0059] The second element 6 is then coupled to the first element 2 by inserting the support stem 20 through the side opening 24 and then screwed up by making it rotate around the rotation axis R.

[0060] In the tightened configuration, the plate-shaped products M remain compressed between the base body 3 and the contrast plate 19 ensuring the coplanarity thereof.

[0061] Once the installation has stabilised, the arc-shaped body 4 and the second element 6 are removed by means of a traction action of enough intensity to cause the breakage of the gripping body 4 which, similarly to the previous embodiment, is made of a breakable material.

[0062] The second element 6 can be subsequently re-used.

Claims

1. Auxiliary device (1) for the installation of plate-shaped products (M) for covering floors and/or walls, comprising:

- at least a first element (2) having:

- a substantially flat base body (3) for supporting at least two adjacent plate-shaped products (M) and

- a gripping body (4) which is associated substantially at right angles with said base body (3), said base body (3) being suited to support said plate-shaped products (M) from opposite sides of said gripping body (4);

- at least a second element (6) associable with said gripping body (4) for fastening said plate-shaped products (M) between said base body (3) and said second element (6) to define the coplanarity of said plate-shaped products (M); **characterized by** the fact that said first element (2) and said second element (6) comprise screw connection means (7) suited to allow the coupling by screwing of said second element (6) on said first element (2) around a rotation axis (R) substantially at right angles to said base body (3).

2. Device (1) according to the claim 1, **characterized by** the fact that said second element (6) comprises a ring-nut body (8).

3. Device (1) according to one or more of the preceding claims, **characterized by** the fact that said screw connection means (7) comprise at least a substantially helical ramp (9) associated with said ring-nut body (8) and a fastening body (10) associated with said gripping body (4) and suited to engage said ramp (9) during the screwing of said second element (6) on said first element (2).

4. Device (1) according to one or more of the preceding claims, **characterized by** the fact that said ramp (9) is arranged inside said ring-nut body (8), which can be fitted around said gripping body (4).

5. Device (1) according to one or more of the preceding claims, **characterized by** the fact that said ramp (9) comprises a side notch (14) which can be engaged by a locking blade (15) associated with said gripping body (4).

6. Device (1) according to one or more of the preceding claims, **characterized by** the fact that said fastening body (10) comprises a first inclined edge (11) having substantially the same inclination as said ramp (9) and suited to wedge on it.

7. Device (1) according to the claim 6, **characterized by** the fact that said fastening body (10) comprises a second inclined edge (12) that, with respect to the lying plane of said gripping body (4), is substantially symmetrical to said first inclined edge (11).

8. Device (1) according to one or more of the preceding claims, **characterized by** the fact that said screw connection means (7) comprise two of said ramps (9) arranged on diametrically opposite sides of said ring-nut body (8) and two of said fastening bodies (10) arranged on substantially opposite sides of said gripping body (4).

9. Device (1) according to the claim 8, **characterized by** the fact that the projections of said ramps (9) on a plane at right angles to said rotation axis (R) are substantially at a distance to define two corresponding fitting seats (13) for fitting said fastening bodies (10).

10. Device (1) according to one or more of the preceding claims, **characterized by** the fact that said ring-nut body (8) comprises a padded annular surface (16) suited to come into contact with said plate-shaped products (M).

11. Device (1) according to one or more of the preceding claims, **characterized by** the fact that said ring-nut body (8) comprises at least an external ribbing (17, 17a) which extends laterally and is suited to make the gripping easier by a user.

12. Device (1) according to the claim 11, **characterized by** the fact that said ring-nut body (8) comprises a plurality of said external ribbings (17, 17a) and at least one (17a) of them is placed in correspondence to one of said fitting seats (13) and has a different thickness than the others. 5
13. Device (1) according to one or more of the preceding claims, **characterized by** the fact that said gripping body (4) comprises at least a grip (5) suited to allow the gripping by a user. 10
14. Device (1) according to one or more of the preceding claims, **characterized by** the fact that said first element (2) is made of a breakable material suited to allow the removal by breaking of said gripping body (4) once the installation of said plate-shaped products (M) has been completed. 15
15. Device (1) according to the claim 14, **characterized by** the fact that said first element (2) comprises at least a weakened section (18) suited to favour said removal by fracture of the gripping body (4). 20

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Fig. 1

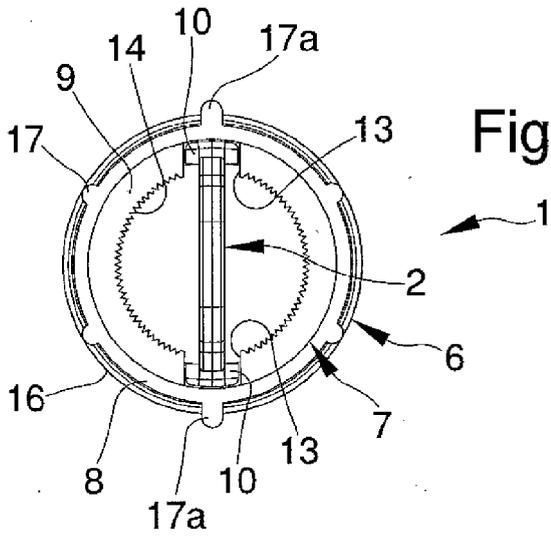
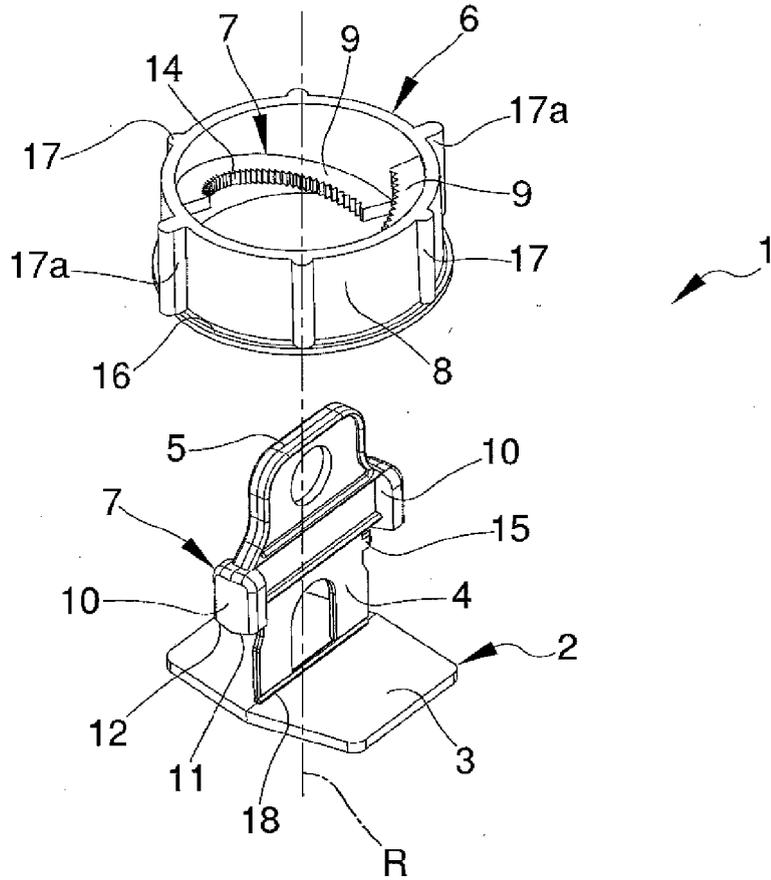


Fig. 2a

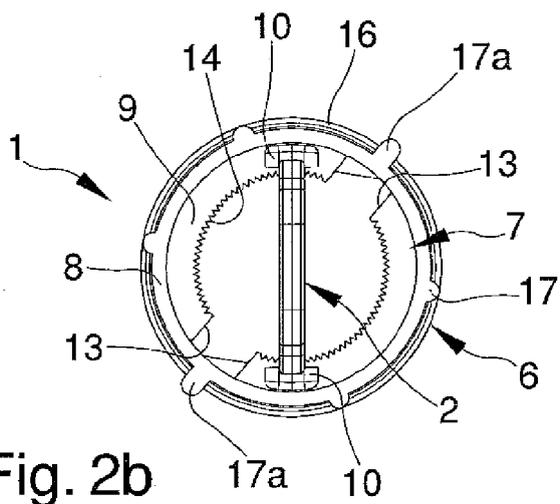


Fig. 2b

Fig. 3

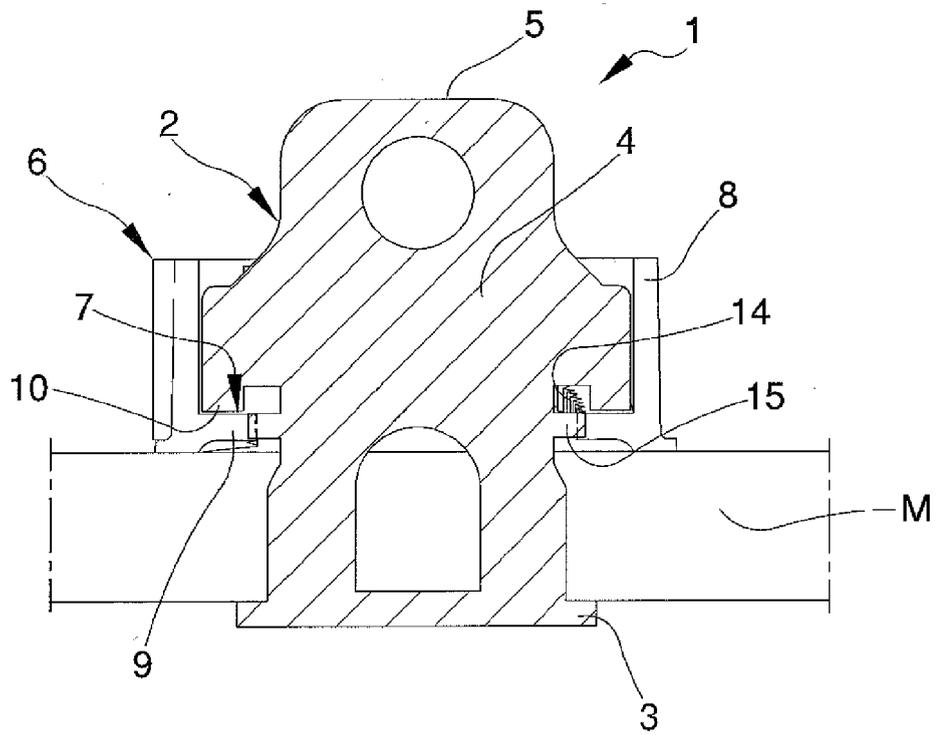
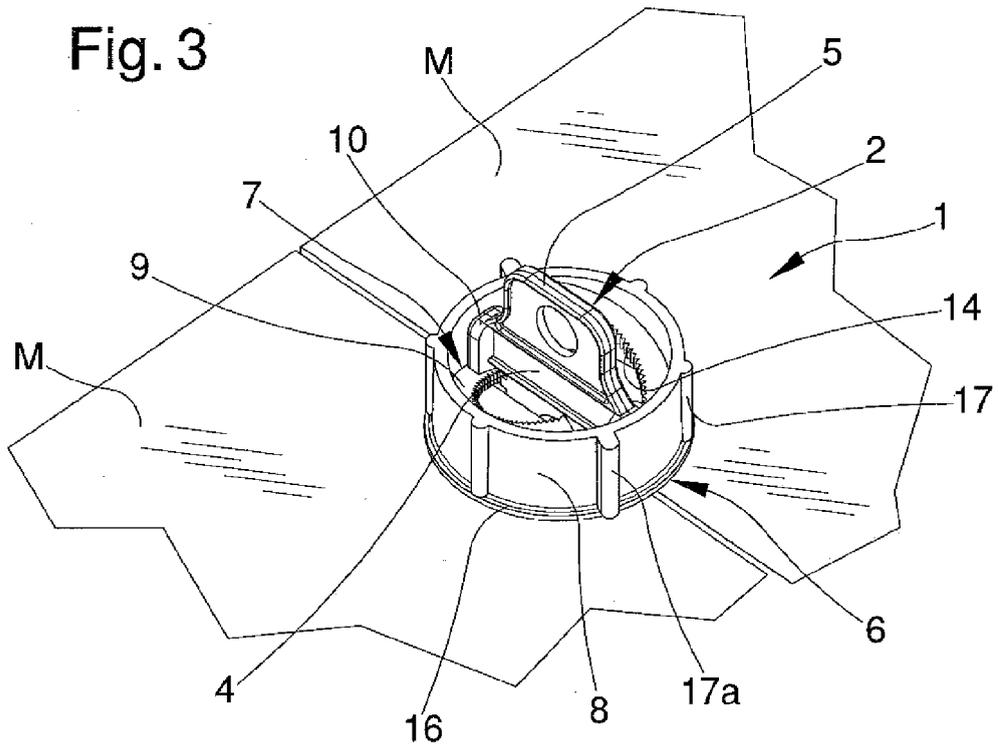


Fig. 4

Fig. 5

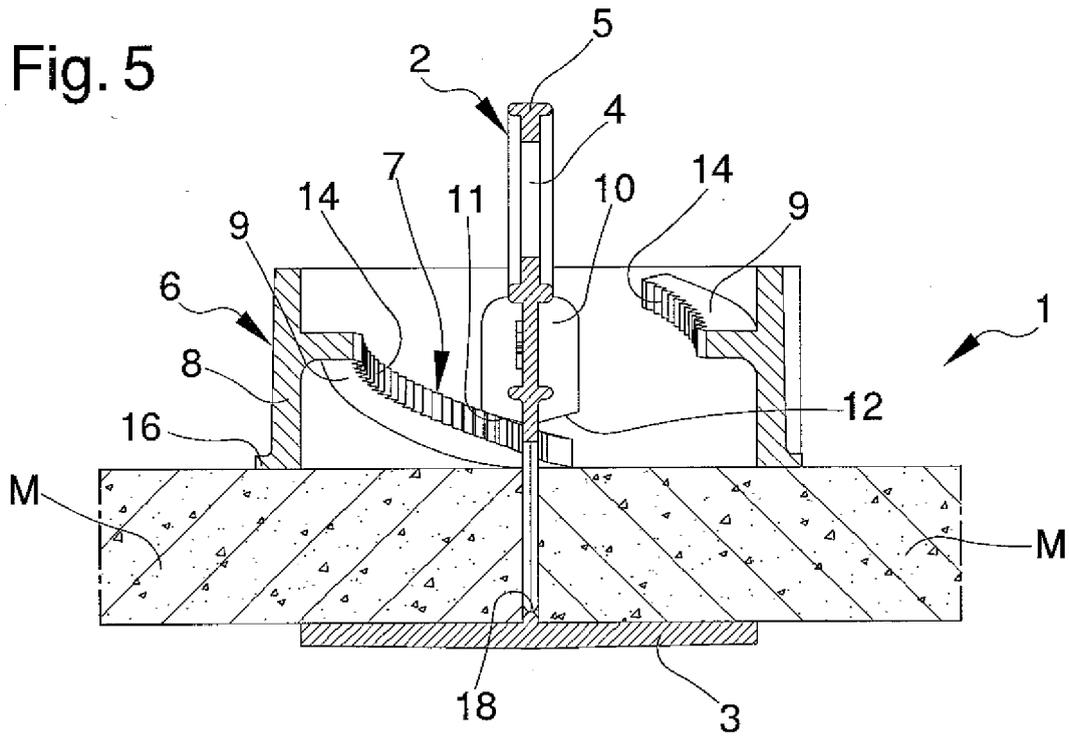
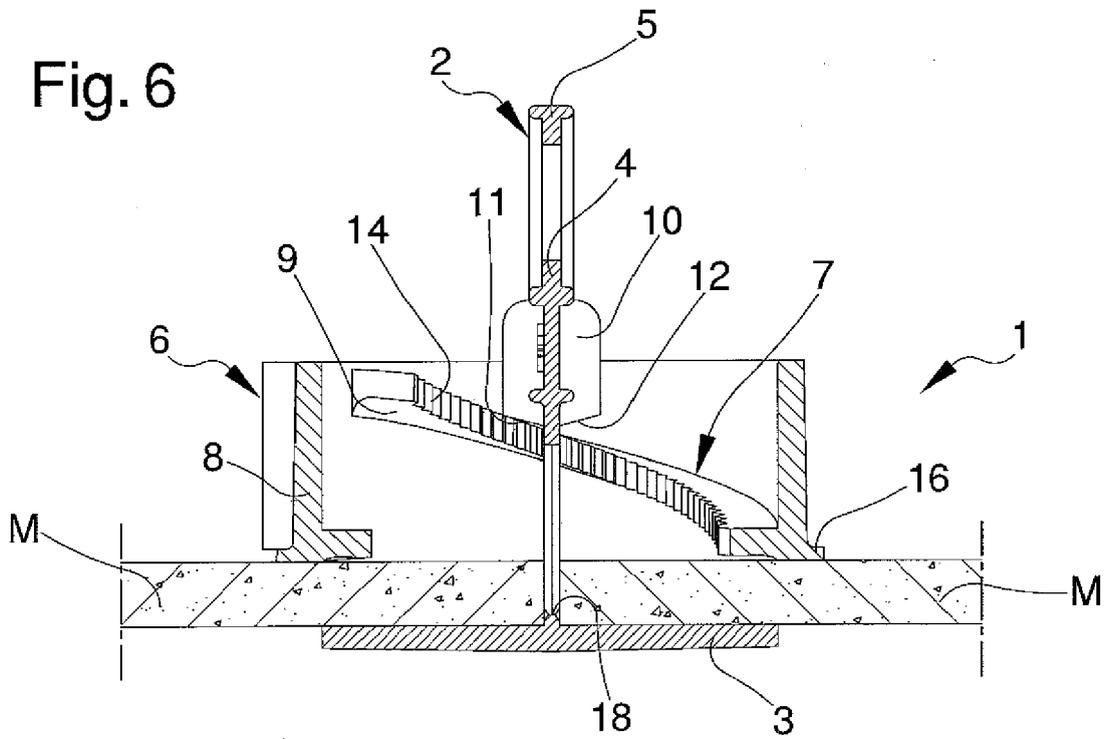


Fig. 6





EUROPEAN SEARCH REPORT

Application Number
EP 12 16 4394

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	WO 2009/022359 A1 (VIGLIAROLO GIUSEPPE [IT]) 19 February 2009 (2009-02-19) * figures 1,6 * -----	1,2, 10-12, 14,15	INV. E04F21/00 E04F15/02
X	US 2006/185269 A1 (KUFNER EDWARD A [US] ET AL) 24 August 2006 (2006-08-24) * figure 6 * -----	1,14,15	
			TECHNICAL FIELDS SEARCHED (IPC)
			E04F
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 9 August 2012	Examiner Severens, Gert
CATEGORY OF CITED DOCUMENTS		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	
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			

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EPO FORM 1503 03.82 (P04001)

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

EP 12 16 4394

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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09-08-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2009022359 A1	19-02-2009	NONE	

US 2006185269 A1	24-08-2006	AT 553269 T	15-04-2012
		BR PI0606952 A2	01-12-2009
		CN 101146972 A	19-03-2008
		CN 102220805 A	19-10-2011
		EP 2343419 A1	13-07-2011
		JP 2008531881 A	14-08-2008
		NZ 561612 A	25-06-2010
		US 2006185269 A1	24-08-2006
		US 2006185319 A1	24-08-2006
		ZA 200707945 A	31-12-2008

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- IT 1334260 [0008]