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(54) **A TOOL FOR MOUNTING AN ANNULAR SEALING ON A SEWER COVER**

(57) A tool (100) for mounting an annular sealing (2) on the rim (4) of a sewer cover (6) is disclosed. The tool in the orientation intended during operation in a situation where said sewer cover (6) is horizontally arranged, comprises:

- a base (8) to be arranged on top of the sewer cover (6) which is to be provided with a sealing (2);
 - an arm (10) configured to be able to swivel in relation to said base around a swivel axis (12);
 - a sealing guide (14) for guiding said sealing (2) into place on a rim (4) of said sewer cover (6);
- wherein said arm (10) comprises a first end (16) and a second end (18);
wherein said base (10) comprises a first connecting el-

ement (20), and wherein said arm (10) comprises a second connecting element (22) being arranged at said first end (16) of said arm (10), wherein said first connecting element (20) and said second connecting element (22) are being configured for being connected to each other in a swiveling fashion;
wherein said second end (18) of said arm defines a handle (24) for manually swiveling said arm (10) relative to said base (8);
wherein said sealing guide (14) is configured for being arranged on said arm (10) at a distance D from said swivel axis (12);
wherein said sealing guide (14) comprises a protrusion (26) extending from said arm in a downward direction.

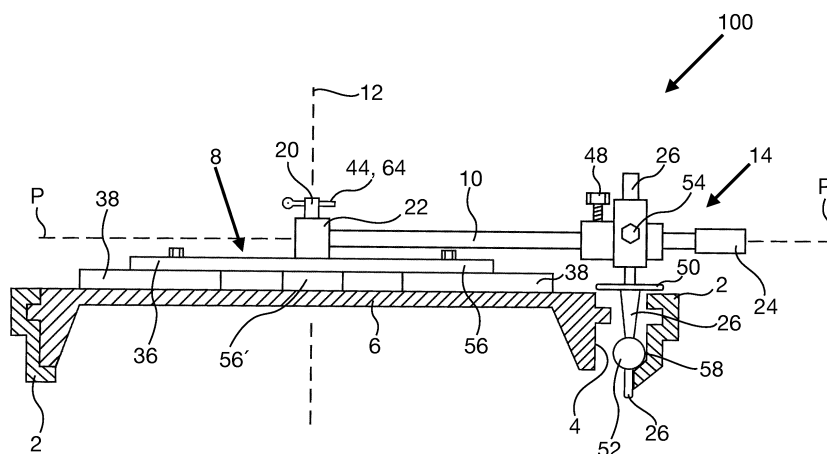


Fig. 7

Description

Field of the invention

[0001] The present invention relates in general to the field of sewer systems. More specifically, the present invention relates in a first aspect to a tool for mounting an annular sealing on the rim of a sewer cover, such as a road-type sewer cover. In a second aspect the present invention relates the use of such a tool for mounting an annular sealing on the rim of a sewer cover. In a third aspect the present invention relates to a method for mounting an annular sealing on the rim of a sewer cover.

Background of the invention

[0002] For more than a century it has been customary in the western part of the world to provide for disposal of sewage from households, offices and industries. Such disposal is brought about in sewer systems comprising pipes being dug into the ground and extending from the source of the sewage, i.e. from houses, offices and industries to a sewage cleaning facility.

[0003] The sewer pipes usually follow streets and roads on their way to the sewage cleaning facility. As more and more sources of sewage are coupled to the sewer pipes along the path leading to the sewage cleaning facility, it is clear that a relatively large pass-through capacity of sewage is needed near the sewage cleaning facility.

[0004] In any event it is seen that the sewer pipes being dug into the ground under streets and roads are having an inner diameter of up to 250 cm or even more.

[0005] Such large diameters of the sewer pipes allow for human inspection and repair by workers being able to move around inside the sewer pipes.

[0006] In order for a worker to enter the sewer pipe system, an entrance into the sewer pipe system is needed. Such entrances are typically provided at the surface of the roads and streets at regular mutual distances and the entrances comprises a passage leading in a vertical direction from the level of the road or street down to an upper opening in a horizontally arranged sewer pipe of the sewer pipe system.

[0007] The entrances are at the level of the road or street covered with a sewer cover, such as a circular sewer cover resting on a support forming part of the vertical passage.

[0008] The covers as well as their corresponding supports are typically being made from cast iron.

[0009] Now, it has been found that heavy traffic in the form of busses and lorries or trucks when driving over such sewer covers will make the covers move within their supports. Such movement of an iron cover moving in an iron support implies the generation of a considerably amount of noise.

[0010] In order to reduce the amount of noise produced by the movement of a sewer cover in its corresponding

support, the rim of the covers is being provided with an annular sealing, such as a rubber sealing. The sealing will accordingly cover a part of a lower surface of the rim of the sewer cover as well as the outer periphery thereof.

[0011] Such sealings provided on the rim of the sewer covers efficiently reduce the amount of noise which would otherwise have been produced by heavy vehicles driving over the covers.

[0012] As a tight fit is required between the inner circumference of the annular sealing and the outer periphery of the rim of the sewer cover and as the sewer covers typically are having a diameter of more than 50 cm, rather large forces are needed in order to stretch the sealing (which is typically made from a polymer, such as rubber), so that the sealing can be arranged on an outer periphery of the sewer cover.

[0013] Currently, the mounting of a sealing on a sewer cover is performed by two or three persons. One person is standing on top of the sewer cover, thereby attempting to prevent it from moving, while one or two other persons each being equipped with a crowbar and working with the sealing in order to squeeze the sealing, via the crowbars, onto the rim of the cover.

[0014] Such mounting process according to the prior art is tedious and time-consuming work requiring more persons at a time. Moreover, such work involving crowbars and strong elastic forces provided by the sealing may pose hazards in that the crowbar, under strong elastic forces, may slip the hand of the worker and hence hit a person involved in the mounting of the sealing.

[0015] Besides, strong forces applied to the crowbar by the workers may effect the movement of the sewer cover, even though a person is standing on top of it, and this movement may cause the person standing on the sewer cover to lose balance and fall.

[0016] Accordingly, improved devices, uses and methods are needed in the operation of mounting a sealing on a sewer cover.

[0017] It is an objective of the present invention to provide tools, uses and methods which overcome the disadvantages of the prior art.

Brief description of the invention

[0018] These objectives are fulfilled according to the first, the second and the third aspect of the present invention.

[0019] Accordingly, the first aspect of the present invention relates to a tool for mounting an annular sealing on the rim of a sewer cover; wherein said tool in the orientation intended during operation in a situation where said sewer cover is horizontally arranged, comprises:

- a base to be arranged on top of the sewer cover which is to be provided with a sealing;
- an arm configured to be able to swivel in relation to said base around a swivel axis;

- a sealing guide for guiding said sealing into place on a rim of said sewer cover;

wherein said arm comprises a first end and a second end; wherein said base comprises a first connecting element, and wherein said arm comprises a second connecting element being arranged at said first end of said arm, wherein said first connecting element and said second connecting element are being configured for being connected to each other in a swiveling fashion; wherein said second end of said arm defines a handle for manually swiveling said arm relative to said base; wherein said sealing guide is configured for being arranged on said arm at a distance D from said swivel axis; wherein said sealing guide comprises a protrusion extending from said arm in a downward direction.

[0020] In a second aspect the present invention relates to a use of a tool according to the first aspect for mounting a sealing on the rim of a sewer cover.

[0021] In a third aspect the present invention relates to a method for mounting a sealing on the rim of a sewer cover; said method comprises the steps of:

i) providing a tool according to the first aspect of the present invention;

ii) arranging said base of the tool on top of said sewer cover in such a way that said swivel axis is approximately arranged at the center of said cover and in such a way that a lower part of said protrusion is arranged at a larger radius than the radius corresponding to the rim of the sewer cover and approximately at the level of a lower part of said rim;

iii) fitting said annular sealing on the rim of said sewer cover and along only part of its circumference;

iv) at a location of the annular sealing approximately opposite to the location of the sealing which has already been arranged on the sewer cover, arranging said sealing so that it rests on an outer surface of said protrusion, without letting said sealing follow the whole of the rim of the sewer cover;

v) rotating said arm, while making sure that said sealing is being fitted on an outer surface of said rim of said sewer cover;

vi) once the sealing has been fully fitted on said rim of said sewer cover, removing said sealing guide and said tool from the sewer cover.

[0022] The present invention in its various aspects provides for a faster, more efficient and more safe mode of mounting a sealing on the rim of a sewer cover. Moreover, the invention in its various aspects allows for mounting a sealing on the rim of a sewer cover even singlehanded.

Brief description of the figures

[0023]

Fig. 1 is a photograph of a road type sewer cover, shot from above.

Fig. 2 is a cross-sectional view illustrating a circular sewer cover being provided with an annular sealing at an outer rim thereof.

Fig. 3 is a top view illustrating the base of the tool according to the present invention.

Fig. 4 is a side view illustrating the base of the tool shown in Fig. 3.

Fig. 5 is a side view illustrating an arm of the tool according to the present invention.

Fig. 6 is a side view illustrating the tool according to the present invention.

Fig. 7 is a partly cross-sectional view and partly side view illustrating the tool according to the present invention as seen in a mounting operation.

Detailed description of the invention

The first aspect of the present invention

[0024] The first aspect of the present invention relates to a tool for mounting an annular sealing on the rim of a sewer cover; wherein said tool in the orientation intended during operation in a situation where said sewer cover is horizontally arranged, comprises:

- a base to be arranged on top of the sewer cover which is to be provided with a sealing;
- an arm configured to be able to swivel in relation to said base around a swivel axis;
- a sealing guide for guiding said sealing into place on a rim of said sewer cover;

wherein said arm comprises a first end and a second end; wherein said base comprises a first connecting element, and wherein said arm comprises a second connecting element being arranged at said first end of said arm, wherein said first connecting element and said second connecting element are being configured for being connected to each other in a swiveling fashion; wherein said second end of said arm defines a handle for manually swiveling said arm relative to said base; wherein said sealing guide is configured for being arranged on said arm at a distance D from said swivel axis; wherein said sealing guide comprises a protrusion ex-

tending from said arm in a downward direction.

[0025] Accordingly, the tool according to a first aspect of the present invention comprises a base which is intended to rest on top of a sewer cover upon using the tool, and an arm which is configured for being able to swivel in relation to the base. The arm comprises a sealing guide which aids in guiding a sealing into place on the rim of a sewer cover as explained in much more detail below.

[0026] In an embodiment of the tool according to a first aspect of the present invention said base, at a lower surface thereof, comprises one or more engagement means protruding from said lower surface in a downward direction so as to enable said engagement means to enter into engagement with a lifting hole being present in said sewer cover.

[0027] Hereby it is possible to lock the tool into a locking engagement with the sewer cover upon mounting a sealing to the rim of that cover.

[0028] In an embodiment of the tool according to a first aspect of the present invention, said engagement means is in the form of a hook, such as an arched hook or an L-shaped hook.

[0029] A hook-shaped engagement means will provide for sufficiently good engagement with the sewer cover in order to ensure fixation of the tool to the cover.

[0030] In an embodiment of the tool according to a first aspect of the present invention said base comprises a primary part and one or more secondary parts, wherein in respect of one or more of said secondary parts, said primary part and said secondary part comprises adjustment means for adjusting the distance of the engagement means, in a radial direction, from said swivel axis.

[0031] In an embodiment of the tool according to a first aspect of the present invention said adjustment means comprises oblong, through going holes being present in said primary part and/or said secondary part of said base, and wherein the position of said primary part of said base relative to said secondary part of said base thereby can be adjusted and finally be fixed to each other, such as by means of nuts and bolts.

[0032] Providing the base with such adjustment means allows the tool to be suitable for use with various types and sizes of sewer covers.

[0033] In an embodiment of the tool according to a first aspect of the present invention said first connecting element comprises an inner cylinder having a circular cross-section; and said second connecting element comprises an outer cylinder having a circular cross-section, wherein said outer cylinder is being configured for being accommodated in said inner cylinder; or alternatively said first connecting element comprises an outer cylinder having a circular cross-section; and said second connecting element comprises an inner cylinder having a circular cross-section, wherein said outer cylinder is being configured for being accommodated in said inner cylinder.

[0034] Hereby the swiveling feature of the arm is provided in an easy and simple way.

[0035] In the present description and the appended claims, the term "inner cylinder" and "outer cylinder", respectively, may be construed to mean a cylinder having a concave cylindrical surface and a convex cylindrical surface, respectively.

[0036] In an embodiment of the tool according to a first aspect of the present invention said first connecting element and said second connecting element are configured for being disconnected from each other.

[0037] Due to the less weight of the individual parts, when the tool may be disassembled, the tool may more easily be moved around and stowed away.

[0038] In an embodiment of the tool according to a first aspect of the present invention said tool comprises a lock, such as a retaining pin in combination with a through-going hole in said outer cylinder, such as in said first connecting element, for preventing that said first connecting element and said second connecting element disconnect from each other once in a connecting configuration with each other.

[0039] In an embodiment of the tool according to a first aspect of the present invention said sealing guide comprises displacement adjustment means for allowing said sealing guide to be arranged on said arm at various distances D from the swiveling axis; and wherein said sealing guide furthermore comprises fixing means for fixing said sealing guide at a desired distance from the swiveling axis.

[0040] Hereby the tool is suitable for use for mounting a sealing on sewer covers of various types, sizes and designs.

[0041] In an embodiment of the tool according to a first aspect of the present invention said protrusion of said sealing guide comprises a horizontally arranged flange.

[0042] The flange will prevent movement in a vertical direction of the sealing upon being fitted to the rim of a sewer cover, and thereby will help in guiding the sealing into place.

[0043] In an embodiment of the tool according to a first aspect of the present invention said sealing guide comprises a bulge comprising a rounded surface for aiding in guiding the sealing during operation of said tool.

[0044] In an embodiment of the tool according to a first aspect of the present invention said protrusion of said sealing guide comprises height adjustment means for adjusting and fixing the position, in a vertical direction, of said protrusion relative to said arm.

[0045] Hereby the vertical position of the protrusion may be adjusted which may aid in obtaining, in respect of a given size and type of sewer cover, an optimum setting of the tool.

[0046] In an embodiment of the tool according to a first aspect of the present invention said base comprises two bars being connected to each other at an angle of approximately 90°.

[0047] Hereby a sturdy design allowing better fixation of the tool to a sewer cover is obtained.

[0048] In an embodiment of the tool according to a first

aspect of the present invention said protrusion extends from said arm in a downward direction at an angle A relative to a plane P defined by the swiveling movement of said arm of 25 - 90°, such as 30 - 85°, for example 35 - 80°, such as 40 - 75°, e.g. 45 - 70°, such as 50 - 65°, e.g. 55 - 60°.

[0049] These angles have proved beneficial in guiding a sealing onto the rim of a sewer cover.

[0050] In an embodiment of the tool according to a first aspect of the present invention the dimensions of said tool is configured for allowing the distance D to be selected in the range of 150 - 400 mm, such as 175 - 350 mm, such as 200 - 325 mm, e.g. 225 - 300 mm, for example 250 - 275 mm.

[0051] Hereby, the tool will be useful for use with sewer cover of various sizes.

[0052] In an embodiment of the tool according to a first aspect of the present invention at least part of said protrusion being tapered in a downward direction, such as being tapered in a downward direction in a region between the flange and the bulge, if being present.

[0053] Providing the tool with a protrusion being tapered in a downward direction aids in guiding the sealing into place on the rim of the sewer cover.

[0054] In a second aspect the present invention relates to a use of a tool according to the first aspect for mounting a sealing on the rim of a sewer cover.

[0055] In a third aspect the present invention relates to a method for mounting a sealing on the rim of a sewer cover; said method comprises the steps of:

i) providing a tool according to the first aspect of the present invention;

ii) arranging said base of the tool on top of said sewer cover in such a way that said swivel axis is approximately arranged at the center of said cover and in such a way that a lower part of said protrusion is arranged at a larger radius than the radius corresponding to the rim of the sewer cover and approximately at the level of a lower part of said rim;

iii) fitting said annular sealing on the rim of said sewer cover and along only part of its circumference;

iv) at a location of the annular sealing approximately opposite to the location of the sealing which has already been arranged on the sewer cover, arranging said sealing so that it rests on an outer surface of said protrusion, without letting said sealing follow the whole of the rim of the sewer cover;

v) rotating said arm, while making sure that said sealing is being fitted on an outer surface of said rim of said sewer cover;

vi) once the sealing has been fully fitted on said rim of said sewer cover, removing said sealing guide and

said tool from the sewer cover.

[0056] Referring now to the drawings for better illustrating the present invention in its various aspects, fig. 1 is a photograph of a road type sewer cover, shot from above. It is seen in Fig. 1 that the sewer cover 6 is provided with a sealing 2 at a rim 4 thereof. The sewer cover 6 rests on a sewer cover support 60 being arranged in a road 62 and being in level with the road.

[0057] The sewer cover is provided with two lifting holes 34 for aiding in lifting the cover from the road.

[0058] Fig. 2 is a cross-sectional view illustrating a sewer cover being provided with an annular sealing at an outer rim thereof. In Fig. 2 is seen the tight fit of the sealing 2 at the rim 4 of the sewer cover 6.

[0059] Fig. 2 also shows that a lower part of the rim 4 is covered with the seal 2.

[0060] Fig. 3 is a top view illustrating the base of the tool according to the present invention. The base 8 comprises two bars 56,56' being connected to each other at an angle of approximately 90°. The bar 56 itself comprises a primary part 36 and two secondary parts 38. The position of each secondary part 38, relative to the primary part 36 can be adjusted via the adjustment means 40. Accordingly the primary part 36 comprises the bars 56 and 56'.

[0061] This is brought about via the oblong holes 41 which are being provided in the primary part 36 of the base 8 and via nuts/bolts 42. These elements 41,42 allow adjustment of the position of the secondary parts 38 relative to the primary part 36 and fixation of the secondary parts 38 a desired position relative to the primary part 36 of the base 8.

[0062] Fig. 3 also illustrates that the primary part 36 is provided with a first connecting element 20 in the form of an outer cylinder.

[0063] Fig. 4 is a side view illustrating the base of the tool shown in Fig. 3. Fig. 4 shows the base 8 comprising the two bars 56,56' being connected to each other. Also seen that the primary part 36 of the base at each of its two opposite ends are prolonged by the presence of secondary parts 38. Each secondary part 38 near its outer end comprises, at a lower surface thereof, an engagement means 32 in the form of an arched hook. Each engagement means 32 is being configured to enter into the lifting holes 34 of the sewer cover 6 illustrated in Fig. 1.

[0064] The adjustment means 40 allows adjustment of the distance between the engagement means 32 and the swivel axis 12 of the arm of the tool which is to be arranged on the first connecting element 20 of the base 8.

[0065] Fig. 5 is a side view illustrating an arm of the tool according to the present invention. The arm of the tool is configured to be arranged in a swiveling arrangement relative to the base of the tool.

[0066] Fig. 5 shows the arm 10 of the tool 100 according to the present invention. The arm 10 comprises a first end 16 and a second end 18. At the first end 16 is arranged the second connecting element 22 of the tool.

The second connecting element 22 is in the form of a hollow or inner cylinder which is being adapted to fit onto the first connecting element 20 illustrated in Fig. 3 and 4, in such a way that the arm will be able to perform a swiveling movement relative to the base 8 around the swivel axis 12.

[0067] The second end 18 of the arm 10 is provided with a handle 24 for manually swiveling the arm 10 around the swivel axis 12.

[0068] Between the first end 16 and the second end 18 of the arm 10 is provided a sealing guide 14. The sealing guide comprises a sliding element 47 which is being configured to slide along a longitudinal direction of the arm 10. Fixing means 48 in the form of a bolt which is screwed into the sliding element 47 allows for fixing the position of the sealing guide relative to the arm.

[0069] The sealing guide also comprises a protrusion 26 extending from the arm in a downward direction. The angle A between the longitudinal extension of the protrusion in relation to a plane P defined by the swiveling movement of said arm 10 is approximately 90°.

[0070] The position of the protrusion may be adjusted in a vertical direction. This is brought about by the height adjustment means 54 for adjusting and fixing the position, in a vertical direction, of said protrusion relative to said arm 10. The height adjustment means 54 is in a form of a bolt fixing the protrusion 26 relative to a remainder part of the sealing guide.

[0071] A horizontally arranged flange 50 is provided at an upper part of the protrusion 26. This flange serves the purpose of preventing the sealing from slipping the sealing guide in an upward direction.

[0072] Also seen in Fig. 5 is the provision of a bulge 52 comprising a rounded surface and being arranged below the flange 50.

[0073] The bulge 52 aids in guiding the sealing 2 during operation of said tool.

[0074] Fig. 5 also illustrates how the distance D between the sealing guide 14 and the swivel axis 12 is defined, viz. as the horizontal distance between the swivel axis 12 and a lower end of the protrusion 26 of the sealing guide 14.

[0075] Likewise, in Fig. 5 is illustrated the position of the plane P, as defined as the plane in which the rotation of the arm 10 around the swivel axis 12 is taken place.

[0076] Fig. 6 is a side view illustrating the tool according to the present invention. Fig. 6 shows the tool 100 comprising the base 8 and the arm 10 with its sealing guide 14 arranged thereupon.

[0077] It is seen in fig. 6 that the base 8 comprises a first connecting element 20 in the form of an outer cylinder and that the first end of the arm 16 comprises a second connecting element 22 in the form of an inner cylinder. The first connecting element 20 has entered into a swiveling engagement with the second connecting element 22.

[0078] Hereby the arm 10 of the tool is able to swivel in a plane P around the swivel axis 12.

[0079] Fig. 6 also illustrates the meaning of the angle A as being the angle between a longitudinal direction of the protrusion 26 and a plane being perpendicular to the plane P.

[0080] Fig. 7 is a partly cross-sectional view and partly side view illustrating the tool according to the present invention in a mounting operation.

[0081] Fig. 7 shows in a cross-sectional view the sewer cover 6 and a sealing 2. In a side view Fig 7 shows the tool 100 comprising the base 8, the arm 10 and the sealing guide 14.

[0082] Accordingly, Fig. 7 shows the tool 100 has being arranged on top of the sewer cover 6 in such a way that the swivel axis 12 is approximately arranged at the center of the cover 6 and in such a way that a lower part of the protrusion 26 of the sealing guide 14 is arranged at a larger radius than the radius corresponding to the rim 4 of the sewer cover 6 and approximately at the level of a lower part of said rim.

[0083] It is seen in Fig. 7 that the sealing 2 at a left-hand side of the sewer cover has partly been fitted to the outer rim of the sealing cover 6.

[0084] It is also seen in Fig. 7 that at a location of the annular sealing 2 approximately opposite to the location of the sealing which has already been arranged on the sewer cover 6 (left hand side), the sealing 2 has been arranged on the sealing guide 14 (right hand side) so that the sealing rests on an outer surface 58 of the protrusion 26, without letting the sealing follow the whole of the rim 4 of the sewer cover 6.

[0085] The stretching of the sealing 2 has slightly deformed the geometry of the sealing at the position of the protrusion 26.

[0086] From the initial position of the mounting operation illustrated in Fig. 7, the handle 24 of the arm 10 may now be swiveled around the swivel axis 12.

[0087] This swiveling movement of the arm will make the sealing guide 14 guide the sealing 2 into place on the outer rim 3 of the sewer cover 6.

[0088] Once being swiveled approximately a whole turn, the sealing guide will have guided the sealing fully into place and in this situation the sealing guide 14 and the tool may be removed from the sewer cover 6, and the sewer cover 6 will subsequently be provided with a sealing 2 as illustrated in Fig. 2.

[0089] Finally, Fig. 7 illustrates how the arm 10 and the second connecting element 22 is being locked, in a swiveling fashion, to the second connecting element 22 of the base 8 via a lock 44 in the form of a pin 64 penetrating a through-going hole 66 in said first connecting element 20, thereby preventing that the first connecting element 20 and the second connecting element 22 disconnect from each other once in a connecting configuration with each other.

[0090] It should be understood, that all features and achievements discussed above and in the appended claims in relation to one aspect of the present invention and embodiments thereof apply equally well to the other

aspects of the present invention and embodiments thereof.

List of reference numerals

[0091]

2	Sealing	
4	Rim of sewer cover	
6	Sewer cover	
8	Base of tool	
10	Arm of tool	
12	Swivel axis of arm	
14	Sealing guide of arm	
16	First end of arm	
18	Second end of arm	
20	First connecting element of tool	
22	Second connecting element of tool	
24	Handle of arm	
26	Protrusion of sealing guide	
28	Lower surface of base	
30	Upper surface of base	
32	Engagement means of base	
34	Lifting hole in sewer cover	
36	Primary part of base	
38	Secondary part of base	
40	Adjustment means of base	
41	Oblong holes	
42	Nuts/bolts of base	
44	Lock for locking first connecting element to second connecting element	
46	Displacement adjustment means of sealing guide	
47	Sliding element of sealing guide	
48	Fixing means of sealing guide	
50	Flange of protrusion of sealing guide	
52	Bulge of sealing guide	
54	Height adjustment means of sealing guide	
56,56'	Bar of base	
58	Outer surface of protrusion	
60	Support in road for sewer cover	
62	Road	
64	Retaining pin of lock	
66	Through-going hole in second connecting element	
100	Tool	

Claims

1. A tool (100) for mounting an annular sealing (2) on the rim (4) of a sewer cover (6); wherein said tool in the orientation intended during operation in a situation where said sewer cover (6) is horizontally arranged, comprises:
 - a base (8) to be arranged on top of the sewer cover (6) which is to be provided with a sealing

(2);

- an arm (10) configured to be able to swivel in relation to said base around a swivel axis (12);
- a sealing guide (14) for guiding said sealing (2) into place on a rim (4) of said sewer cover (6);

wherein said arm (10) comprises a first end (16) and a second end (18);

wherein said base (10) comprises a first connecting element (20), and wherein said arm (10) comprises a second connecting element (22) being arranged at said first end (16) of said arm (10), wherein said first connecting element (20) and said second connecting element (22) are being configured for being connected to each other in a swiveling fashion; wherein said second end (18) of said arm defines a handle (24) for manually swiveling said arm (10) relative to said base (8);

wherein said sealing guide (14) is configured for being arranged on said arm (10) at a distance D from said swivel axis (12);

wherein said sealing guide (14) comprises a protrusion (26) extending from said arm in a downward direction.

2. A tool (100) according to claim 1 wherein said base (8), at a lower surface (28) thereof, comprises one or more engagement means (32) protruding from said lower surface in a downward direction so as to enable said engagement means (32) to enter into engagement with a lifting hole (34) being present in said sewer cover (6).
3. A tool (100) according to claim 1 wherein said engagement means (32) is in the form of a hook, such as an arched hook or an L-shaped hook.
4. A tool (100) according to claim 2 or 3 wherein said base (8) comprises a primary part (36) and one or more secondary parts (38), wherein in respect of one or more of said secondary parts, said primary part (36) and said secondary part (38) comprises adjustment means (40) for adjusting the distance of the engagement means (32), in a radial direction, from said swivel axis (12).
5. A tool (100) according to claim 4, wherein said adjustment means (40) comprises oblong, through going holes (41) being present in said primary part (36) and/or said secondary part (38) of said base (8), and wherein the position of said primary part (36) of said base (8) relative to said secondary part (38) of said base thereby can be adjusted and finally be fixed to each other, such as by means of nuts and bolts (42).
6. A tool (100) according to any of the preceding claims, wherein said first connecting element (20) comprises an inner cylinder having a circular cross-section; and

wherein said second connecting element (22) comprises an outer cylinder having a circular cross-section, wherein said outer cylinder is being configured for being accommodated in said inner cylinder; or wherein said first connecting element (20) comprises an outer cylinder having a circular cross-section; and wherein said second connecting element (22) comprises an inner cylinder having a circular cross-section, wherein said outer cylinder is being configured for being accommodated in said inner cylinder.

7. A tool (100) according to any of the preceding claims, wherein said tool comprises a lock (44), such as a retaining pin (64) in combination with a through-going hole (66) in said first connecting element (20), for preventing that said first connecting element (20) and said second connecting element (22) disconnect from each other once in a connecting configuration with each other.
8. A tool (100) according to any of the preceding claims, wherein said sealing guide (14) comprises displacement adjustment means (46) for allowing said sealing guide (14) to be arranged on said arm (10) at various distances D from the swiveling axis (12); and wherein said sealing guide (14) furthermore comprises fixing means (48) for fixing said sealing guide (14) at a desired distance from the swiveling axis (12).
9. A tool (100) according to any of the preceding claims, wherein said protrusion (26) of said sealing guide (14) comprises a horizontally arranged flange (50).
10. A tool (100) according to any of the preceding claims, wherein said protrusion (26) of said sealing guide (14) comprises a bulge (52) comprising a rounded surface for aiding in guiding the sealing (2) during operation of said tool.
11. A tool (100) according to any of the preceding claims, wherein said sealing guide (14) comprises height adjustment means (54) for adjusting and fixing the position, in a vertical direction, of said protrusion (26) relative to said arm (10).
12. A tool (100) according to any of the preceding claims, wherein the dimensions of said tool is configured for allowing the distance D to be selected in the range of 150 - 400 mm, such as 175 - 350 mm, such as 200 - 325 mm, e.g. 225 - 300 mm, for example 250 - 275 mm.
13. A tool (100) according to any of the preceding claims, wherein at least part of said protrusion (26) being tapered in a downward direction, such as being tapered in a downward direction in a region between said flange (50) and said bulge (52), if being present.

14. Use of a tool (100) according to any of the claims 1-13 for mounting a sealing 2 on the rim 4 of a sewer cover 6.

15. A method for mounting a sealing (2) on the rim (4) of a sewer cover (6); said method comprises the steps of:

- i) providing a tool (100) according to any of the claims 1 - 13;
- ii) arranging said base (8) of the tool (100) on top of said sewer cover (6) in such a way that said swivel axis (12) is approximately arranged at the center of said cover (6) and in such a way that a lower part of said protrusion (26) is arranged at a larger radius than the radius corresponding to the rim (4) of the sewer cover (6) and approximately at the level of a lower part of said rim;
- iii) fitting said annular sealing (2) on the rim (4) of said sewer cover and along only part of its circumference;
- iv) at a location of the annular sealing (2) approximately opposite to the location of the sealing which has already been arranged on the sewer cover (6), arranging said sealing (2) so that it rests on an outer surface (58) of said protrusion (26), without letting said sealing follow the whole of the rim (4) of said sewer cover (6);
- v) rotating said arm (10), while making sure that said sealing (2) is being fitted on an outer surface of said rim (4) of said sewer cover (6);
- vi) once the sealing (2) has been fully fitted on said rim (4) of said sewer cover (6), removing said sealing guide (14) and said tool from said sewer cover (6).

Amended claims in accordance with Rule 137(2) EPC.

1. A tool (100) for mounting an annular sealing (2) on a rim (4) of a sewer cover (6); wherein said tool in an orientation intended during operation in a situation where said sewer cover (6) is horizontally arranged, comprises:
 - a base (8) to be arranged on top of the sewer cover (6) which is to be provided with a sealing (2);
 - an arm (10) configured to be able to swivel in relation to said base around a swivel axis (12);
 - a sealing guide (14) for guiding said sealing (2) into place on said rim (4) of said sewer cover (6);

wherein said arm (10) comprises a first end (16) and a second end (18);
wherein said base (10) comprises a first connecting

- element (20), and wherein said arm (10) comprises a second connecting element (22) being arranged at said first end (16) of said arm (10), wherein said first connecting element (20) and said second connecting element (22) are being configured for being connected to each other in a swiveling fashion; wherein said second end (18) of said arm defines a handle (24) for manually swiveling said arm (10) relative to said base (8); wherein said sealing guide (14) is configured for being arranged on said arm (10) at a distance D from said swivel axis (12); wherein said sealing guide (14) comprises a protrusion (26) extending from said arm in a downward direction.
2. A tool (100) according to claim 1 wherein said base (8), at a lower surface (28) thereof, comprises one or more engagement means (32) protruding from said lower surface in a downward direction so as to enable said engagement means (32) to enter into engagement with a lifting hole (34) being present in said sewer cover (6).
 3. A tool (100) according to claim 1 wherein said engagement means (32) is in the form of a hook, such as an arched hook or an L-shaped hook.
 4. A tool (100) according to claim 2 or 3 wherein said base (8) comprises a primary part (36) and one or more secondary parts (38), wherein in respect of one or more of said secondary parts, said primary part (36) and said secondary part (38) comprises adjustment means (40) for adjusting the distance of the engagement means (32), in a radial direction, from said swivel axis (12).
 5. A tool (100) according to claim 4, wherein said adjustment means (40) comprises oblong, through going holes (41) being present in said primary part (36) and/or said secondary part (38) of said base (8), and wherein the position of said primary part (36) of said base (8) relative to said secondary part (38) of said base thereby can be adjusted and finally be fixed to each other, such as by means of nuts and bolts (42).
 6. A tool (100) according to any of the preceding claims, wherein said first connecting element (20) comprises an inner cylinder having a circular cross-section; and wherein said second connecting element (22) comprises an outer cylinder having a circular cross-section, wherein said outer cylinder is being configured for being accommodated in said inner cylinder; or wherein said first connecting element (20) comprises an outer cylinder having a circular cross-section; and wherein said second connecting element (22) comprises an inner cylinder having a circular cross-section, wherein said outer cylinder is being configured for being accommodated in said inner cylinder.
 7. A tool (100) according to any of the preceding claims, wherein said tool comprises a lock (44), such as a retaining pin (64) in combination with a through-going hole (66) in said first connecting element (20), for preventing that said first connecting element (20) and said second connecting element (22) disconnect from each other once in a connecting configuration with each other.
 8. A tool (100) according to any of the preceding claims, wherein said sealing guide (14) comprises displacement adjustment means (46) for allowing said sealing guide (14) to be arranged on said arm (10) at various distances D from the swiveling axis (12); and wherein said sealing guide (14) furthermore comprises fixing means (48) for fixing said sealing guide (14) at a desired distance from the swiveling axis (12).
 9. A tool (100) according to any of the preceding claims, wherein said protrusion (26) of said sealing guide (14) comprises a horizontally arranged flange (50).
 10. A tool (100) according to any of the preceding claims, wherein said protrusion (26) of said sealing guide (14) comprises a bulge (52) comprising a rounded surface for aiding in guiding the sealing (2) during operation of said tool.
 11. A tool (100) according to any of the preceding claims, wherein said sealing guide (14) comprises height adjustment means (54) for adjusting and fixing the position, in a vertical direction, of said protrusion (26) relative to said arm (10).
 12. A tool (100) according to any of the preceding claims, wherein the dimensions of said tool is configured for allowing the distance D to be selected in the range of 150 - 400 mm, such as 175 - 350 mm, such as 200 - 325 mm, e.g. 225 - 300 mm, for example 250 - 275 mm.
 13. A tool (100) according to any of the preceding claims, wherein at least part of said protrusion (26) being tapered in a downward direction, such as being tapered in a downward direction in a region between said flange (50) and said bulge (52), if being present.
 14. Use of a tool (100) according to any of the claims 1 - 13 for mounting a sealing (2) on a rim (4) of a sewer cover (6).
 15. A method for mounting a sealing (2) on a rim (4) of a sewer cover (6); said method comprises the steps of:

- i) providing a tool (100) according to any of the claims 1 - 13;
- ii) arranging said base (8) of the tool (100) on top of said sewer cover (6) in such a way that said swivel axis (12) is approximately arranged at the center of said cover (6) and in such a way that a lower part of said protrusion (26) is arranged at a larger radius than the radius corresponding to the rim (4) of the sewer cover (6) and approximately at the level of a lower part of said rim;
- iii) fitting said annular sealing (2) on the rim (4) of said sewer cover and along only part of its circumference;
- iv) at a location of the annular sealing (2) approximately opposite to the location of the sealing which has already been arranged on the sewer cover (6), arranging said sealing (2) so that it rests on an outer surface (58) of said protrusion (26), without letting said sealing follow the whole of the rim (4) of said sewer cover (6);
- v) rotating said arm (10), while making sure that said sealing (2) is being fitted on an outer surface of said rim (4) of said sewer cover (6);
- vi) once the sealing (2) has been fully fitted on said rim (4) of said sewer cover (6), removing said sealing guide (14) and said tool from said sewer cover (6).

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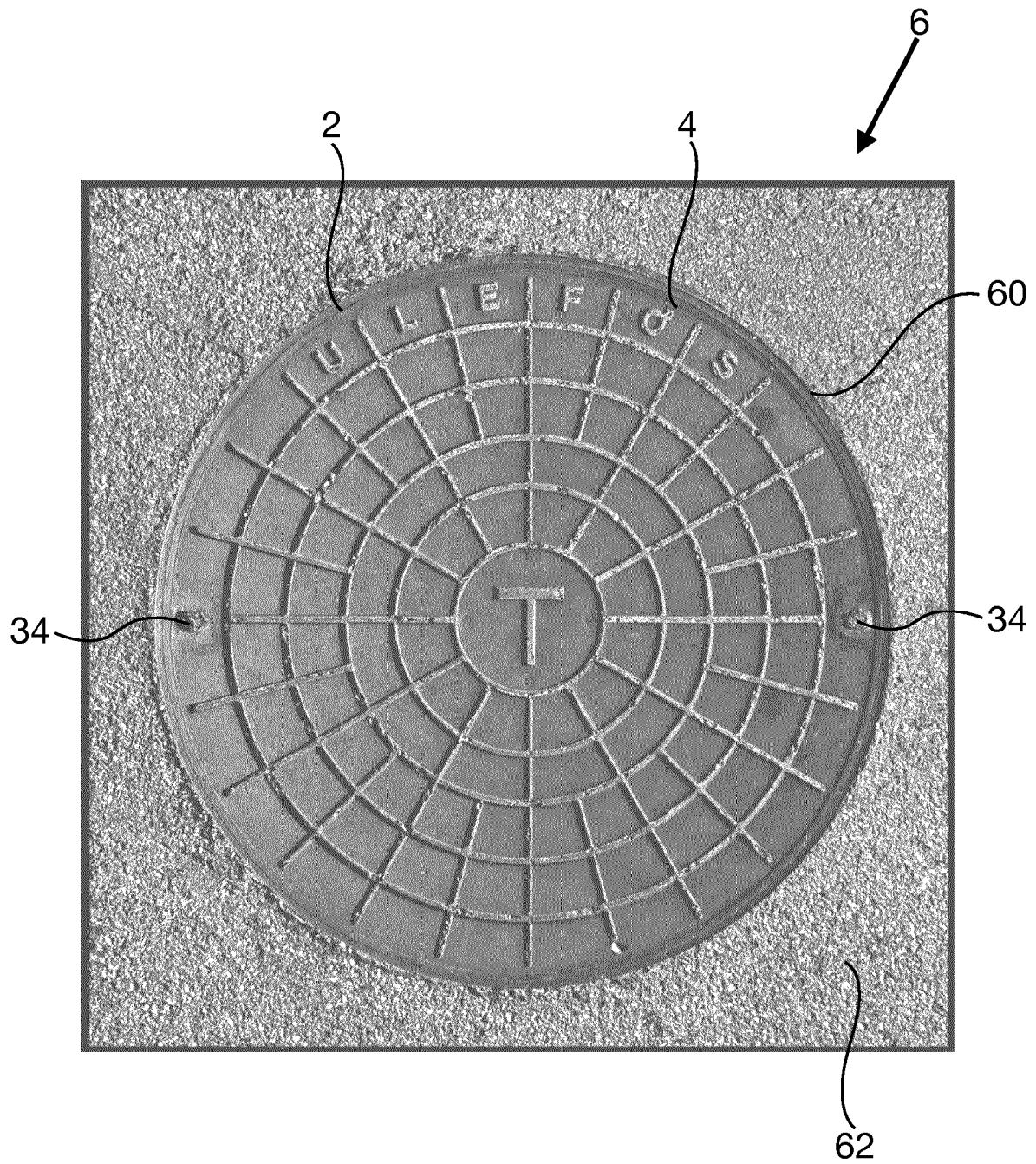


Fig. 1

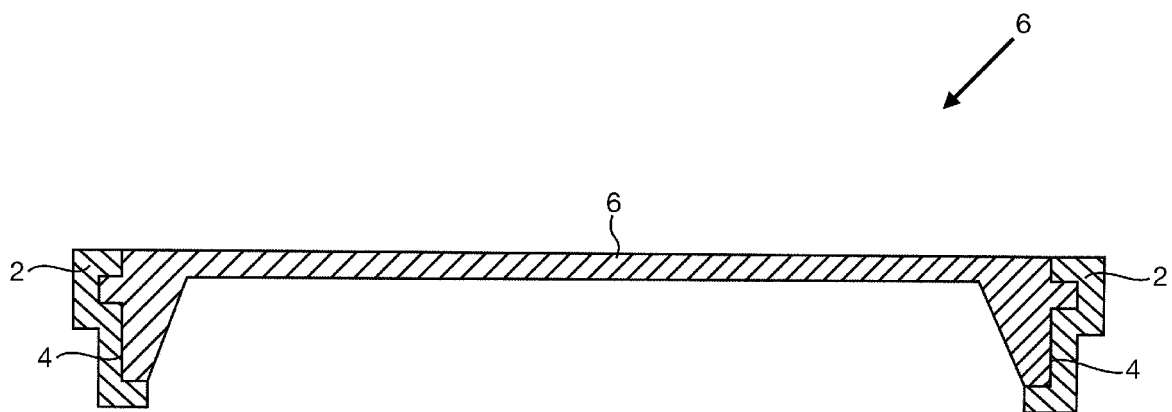


Fig. 2

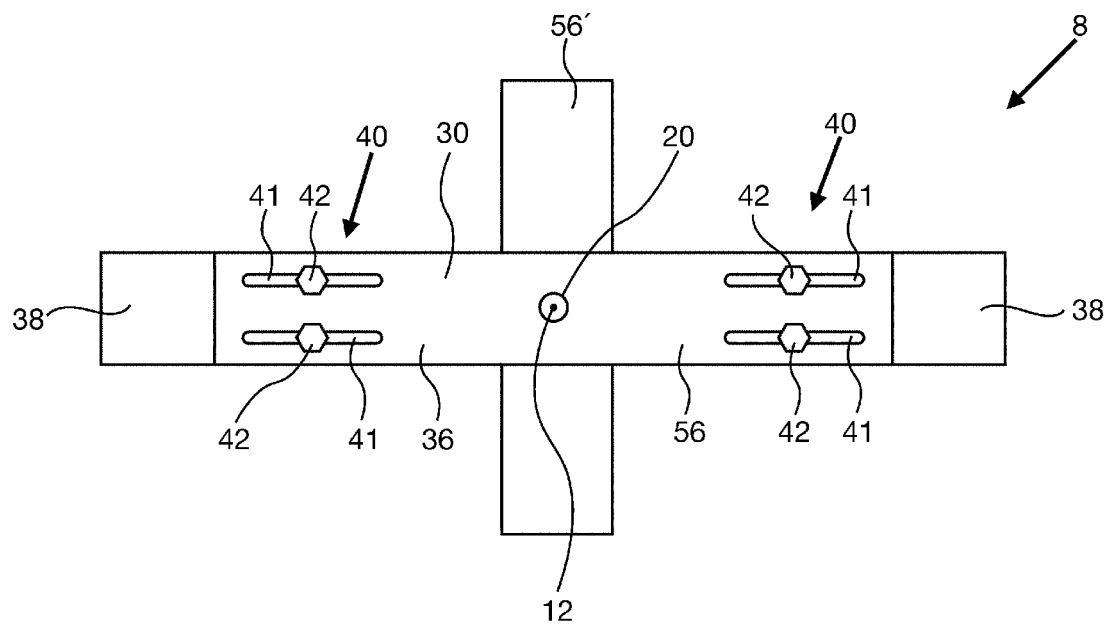


Fig. 3

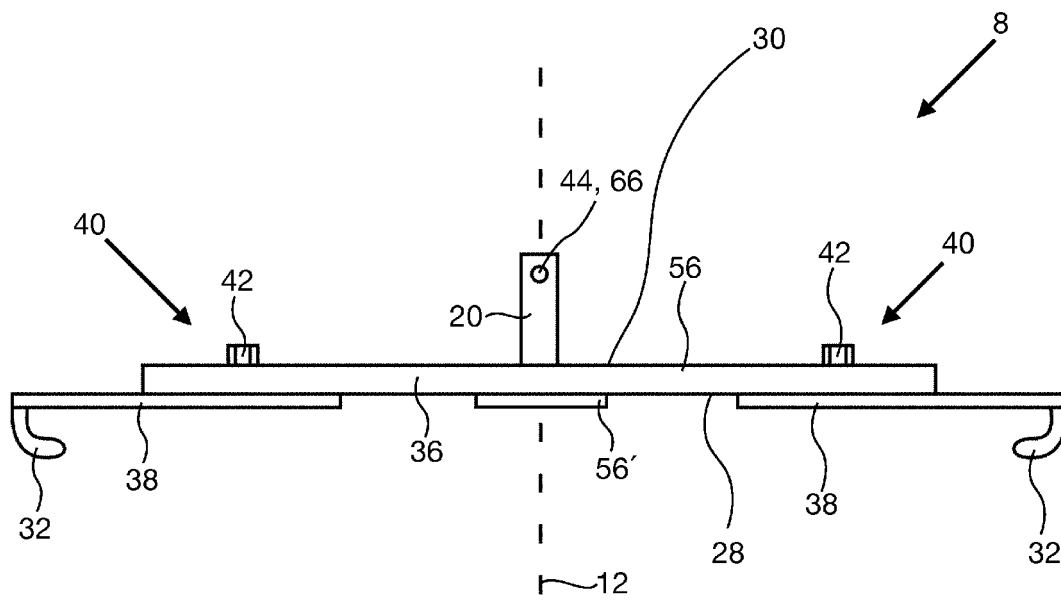


Fig. 4

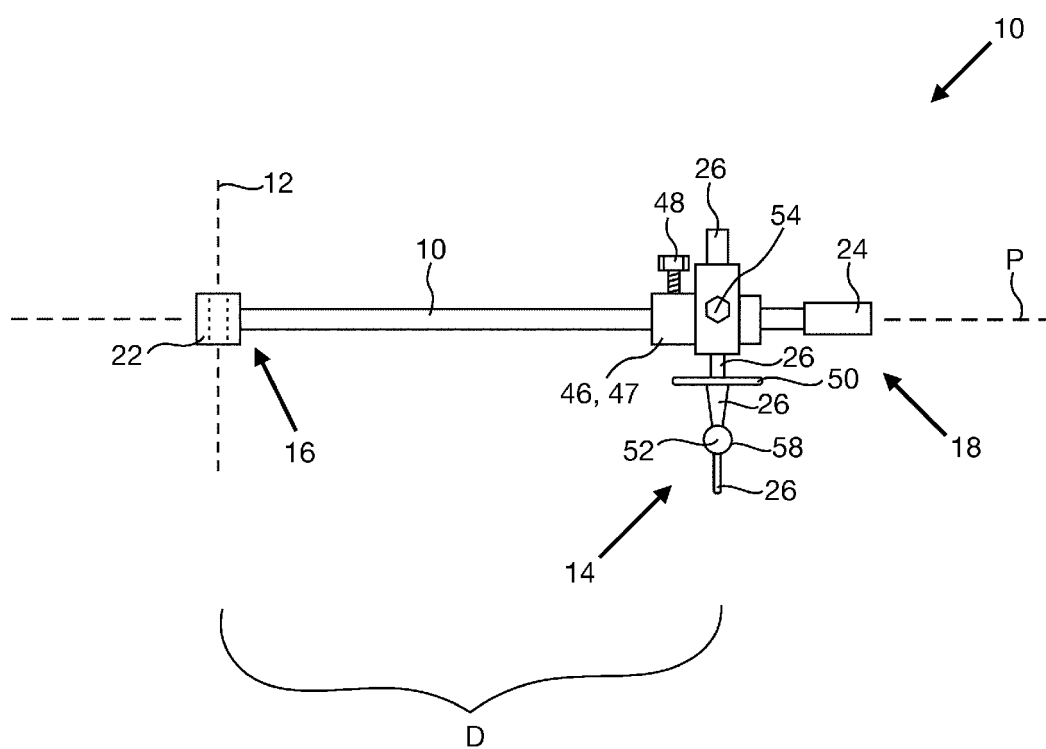


Fig. 5

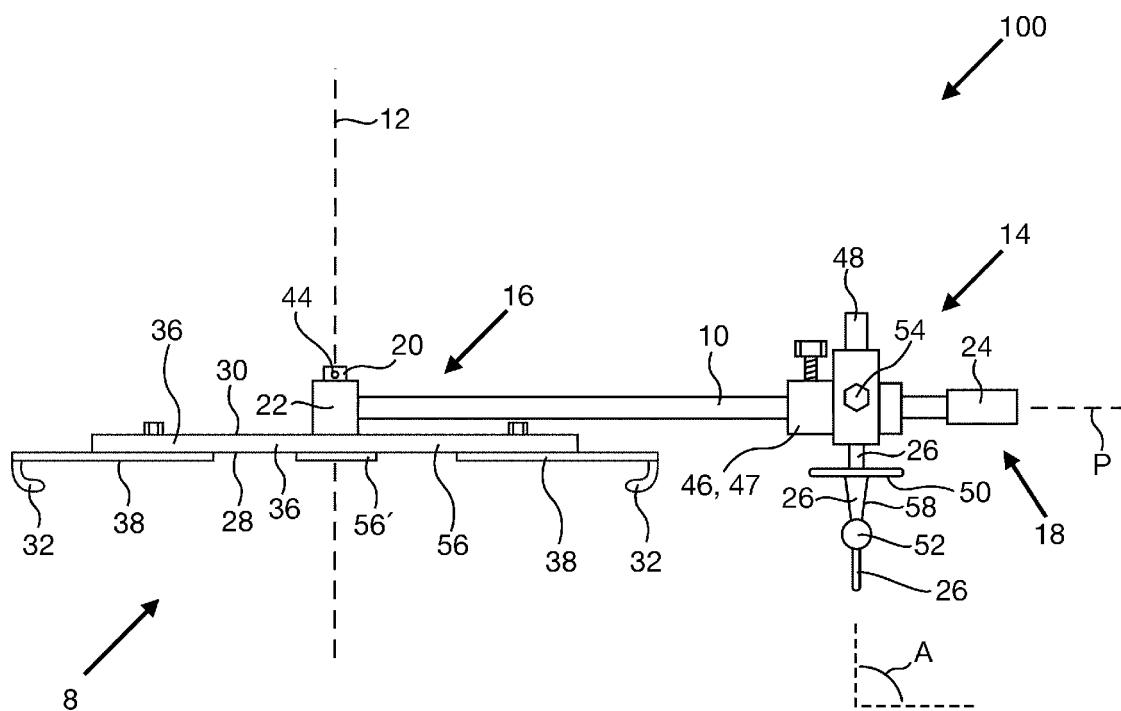


Fig. 6

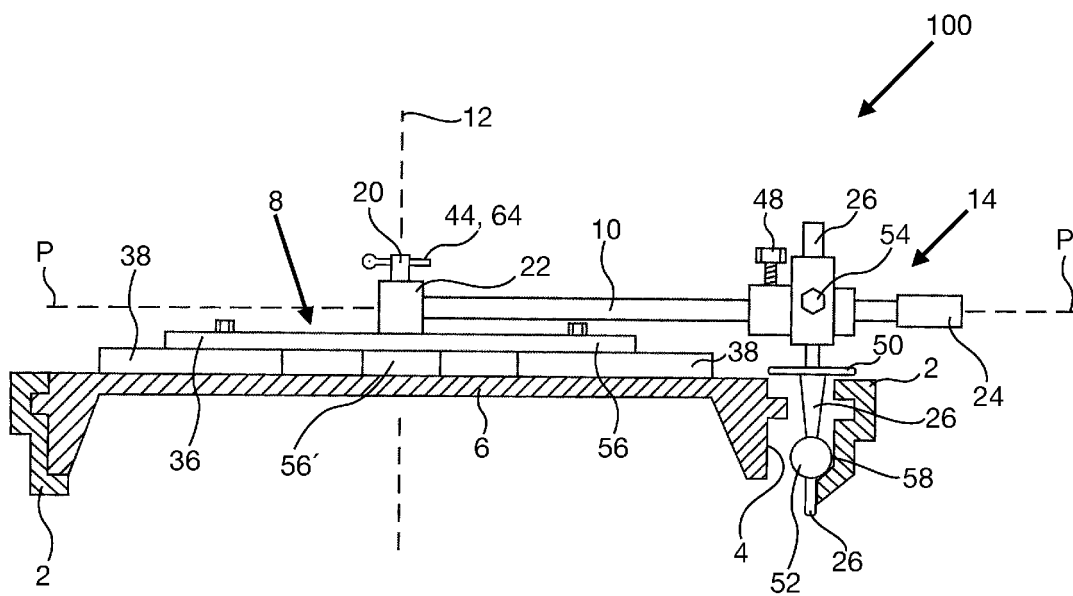


Fig. 7



EUROPEAN SEARCH REPORT

Application Number
EP 19 17 6907

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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 15 November 2019	Examiner Posavec, Daniel
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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