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Wedi

(54) **WATER DRAINAGE DEVICE FOR A SANITARY FACILITY, SUCH AS A FLOOR-LEVEL SHOWER AREA**

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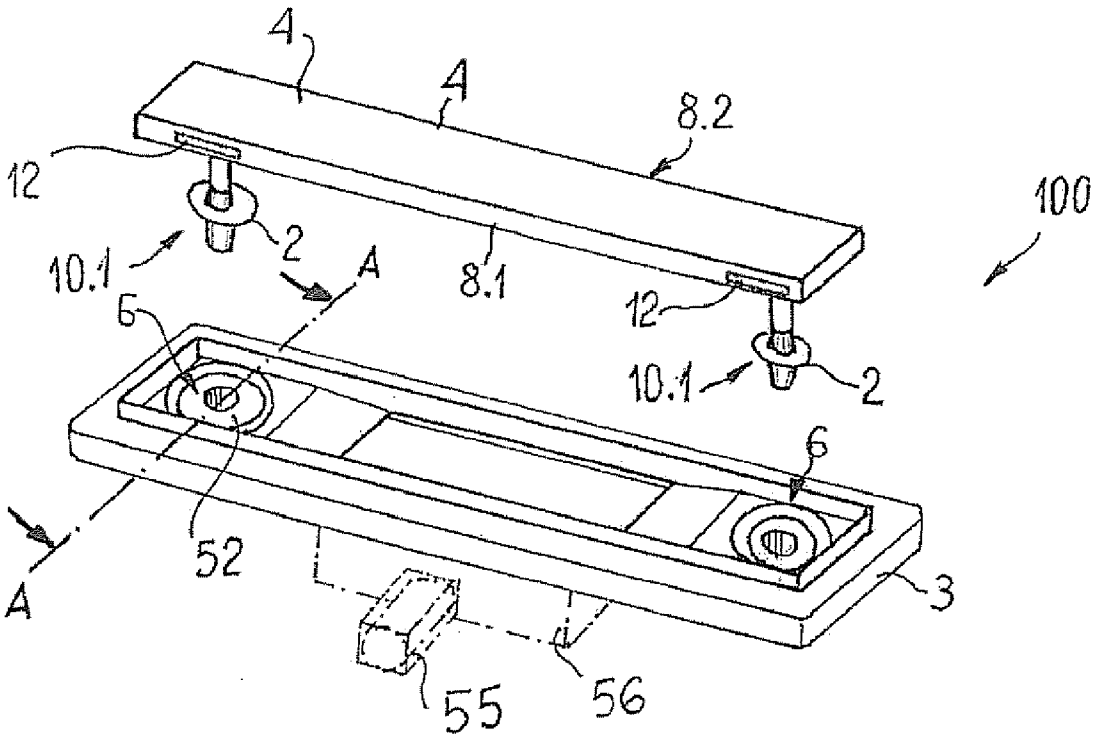
(57) **ABSTRACT**

A water drainage device for sanitary installations, such as in a walk-in shower stall. The device includes: a pan-shaped water drainage element that is fluidically connected or connectable, to a drain pipe; a channel cover that is inserted into the water drainage element and that covers the water drainage element; and at least one height adjustment unit for the channel cover that includes a foot part and a head part.



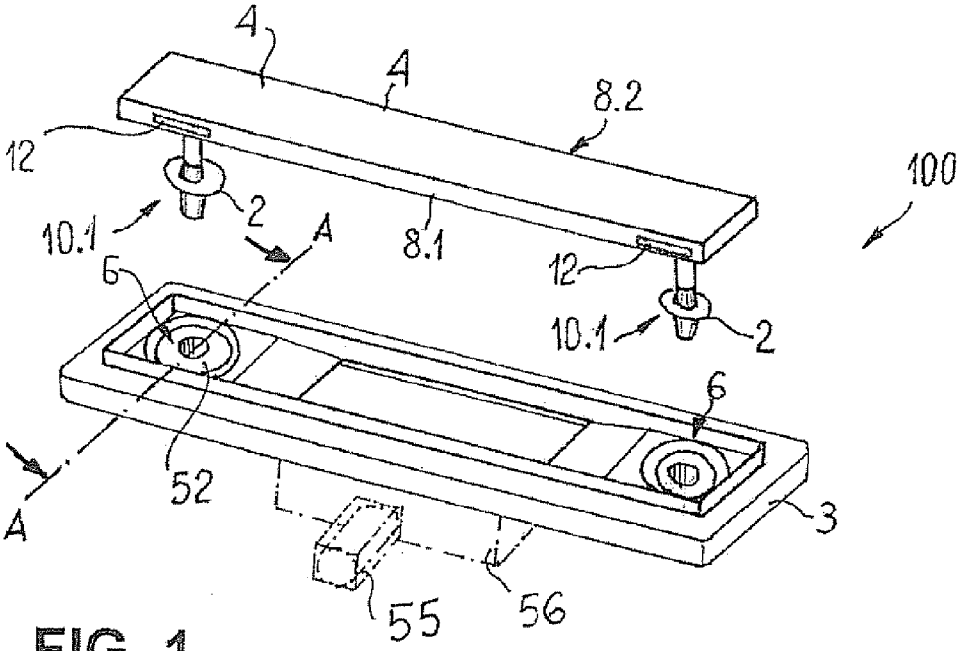


FIG. 1

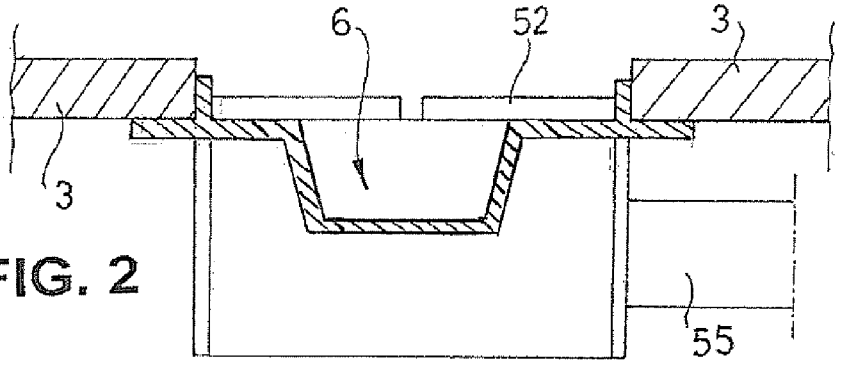


FIG. 2

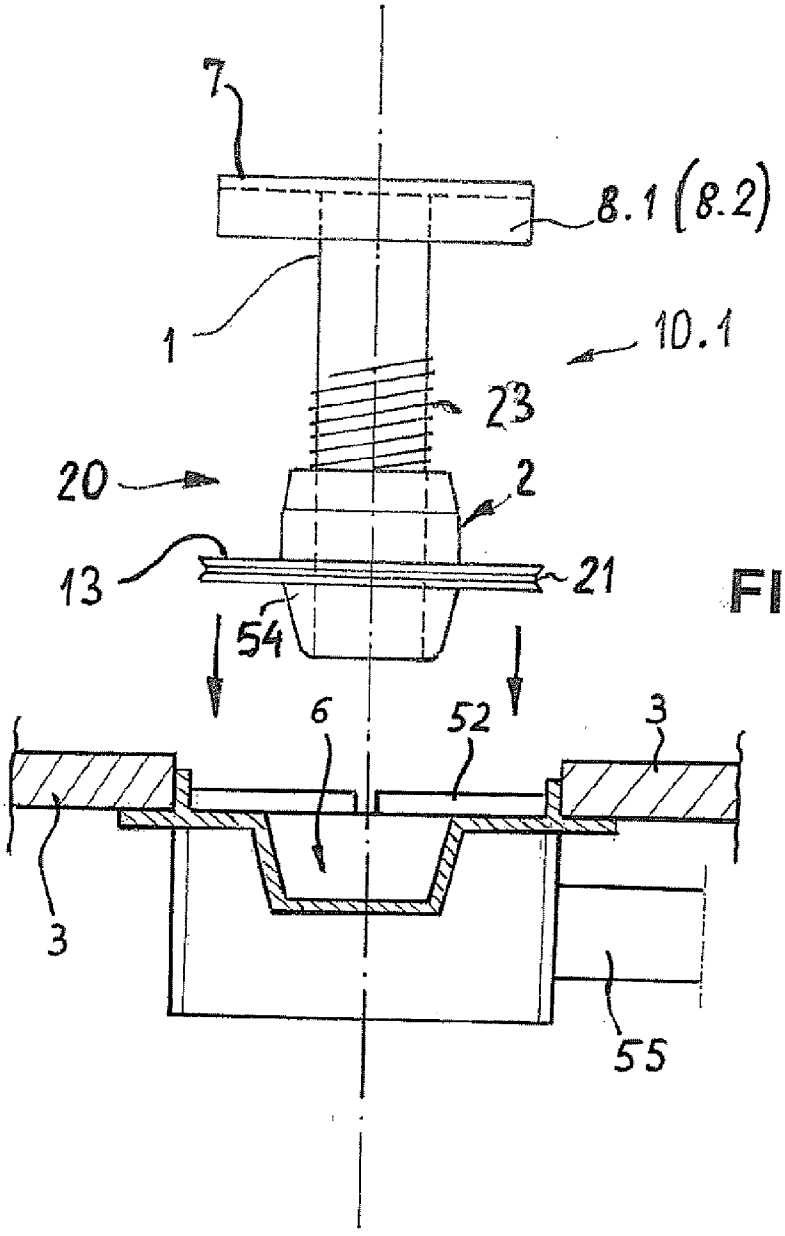


FIG. 3

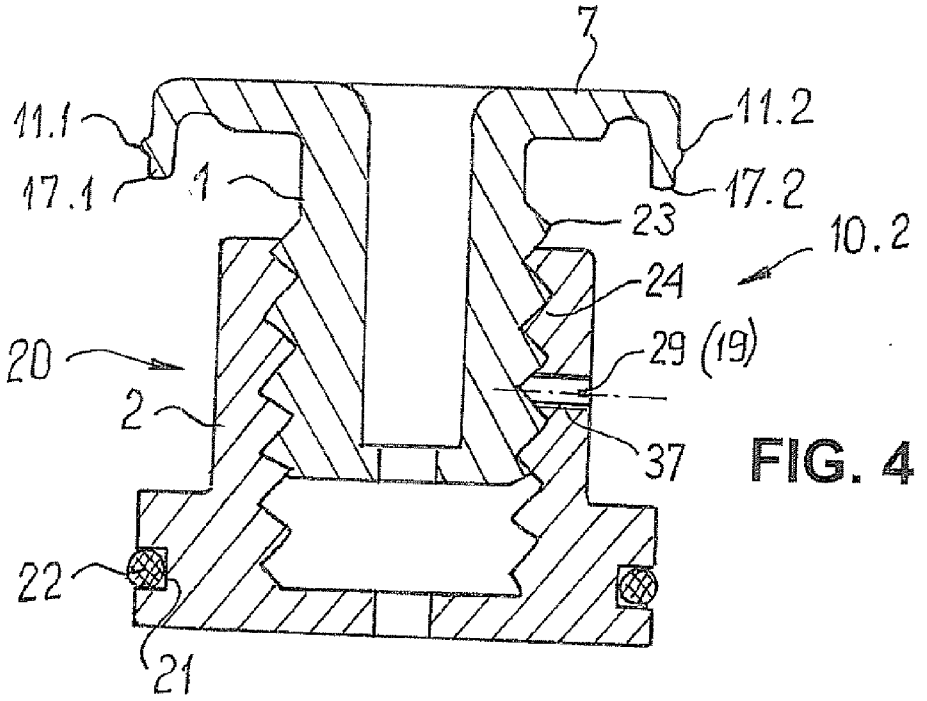

7
11.1
11.2
17.1
1
17.2
23
10.2
24
20
29 (19)
2
37
22
21

FIG. 4

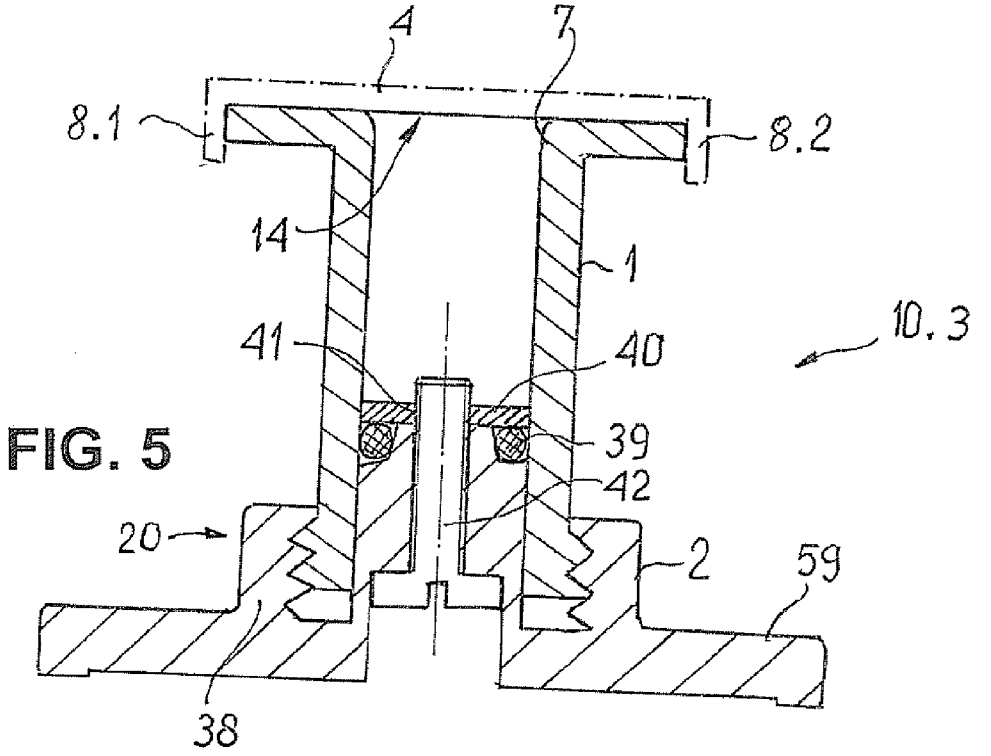

4
7
8.1
8.2
14
1
41
40
10.3
39
42
20
2
59
38

FIG. 5

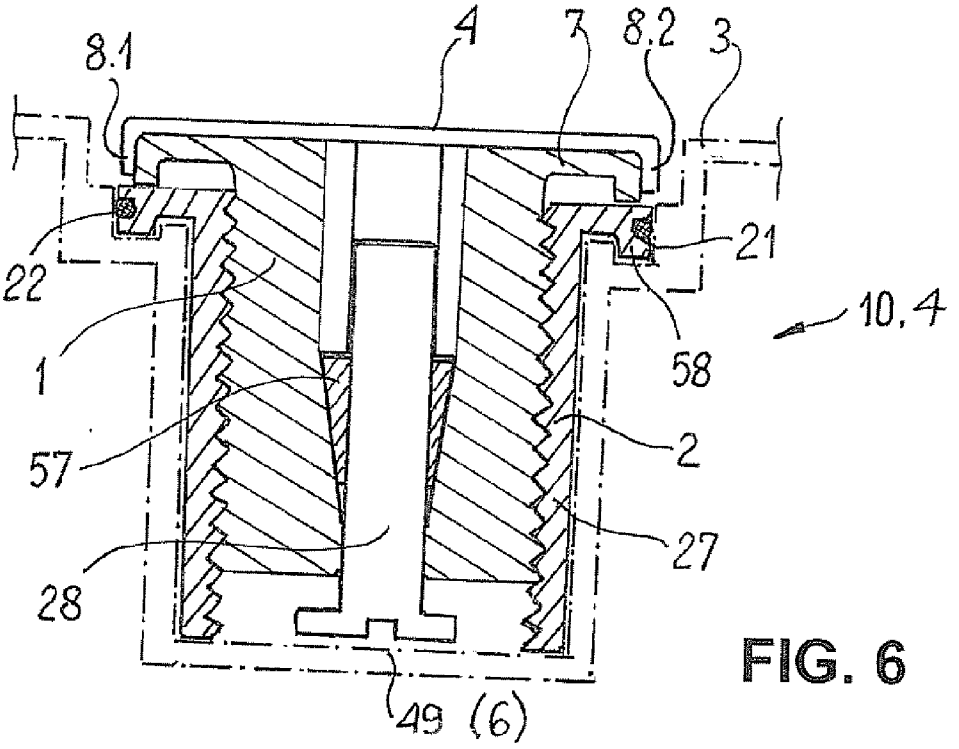


FIG. 6

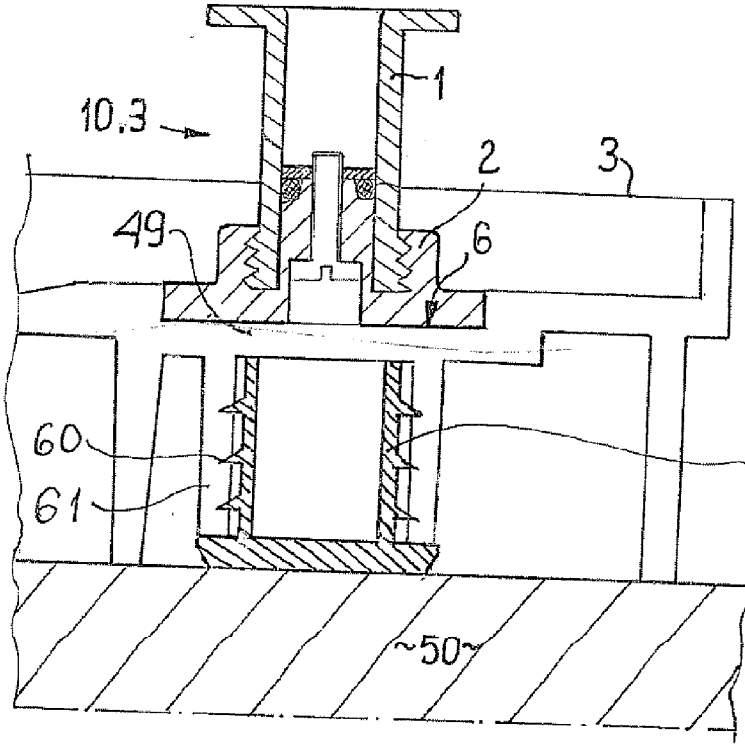


FIG. 7

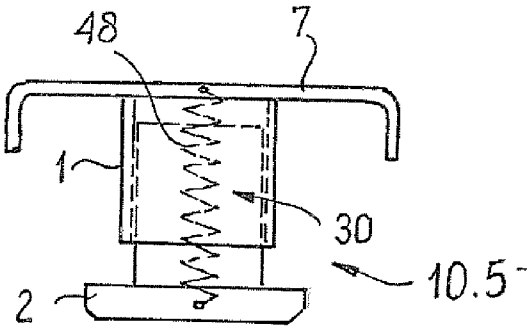


FIG. 8a

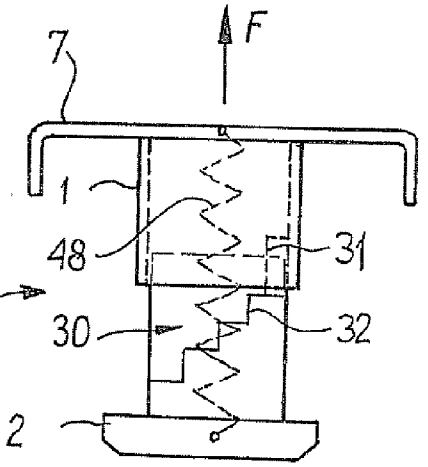


FIG. 8b

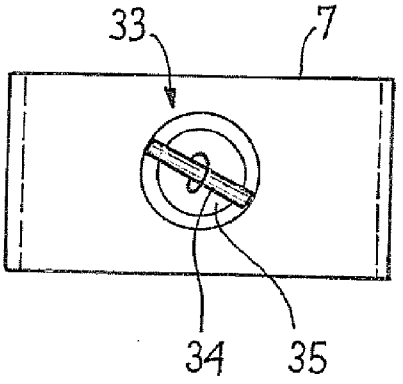


FIG. 8c

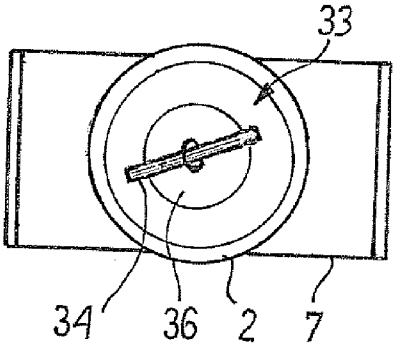


FIG. 8d

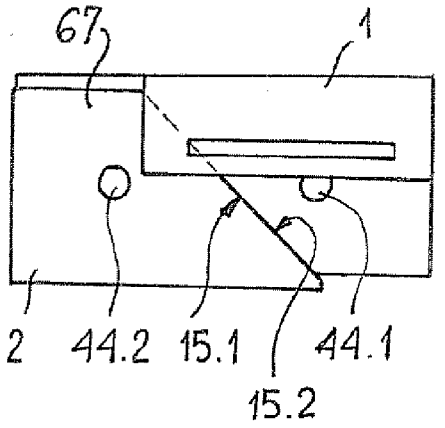


FIG. 9a

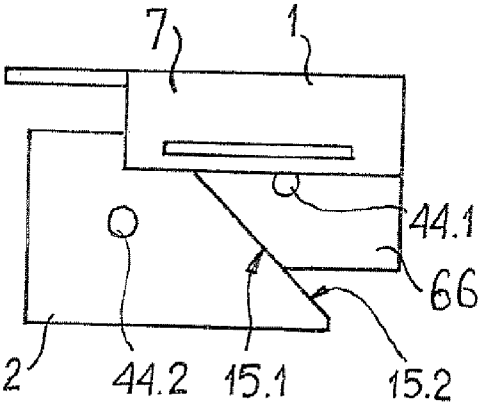


FIG. 9b

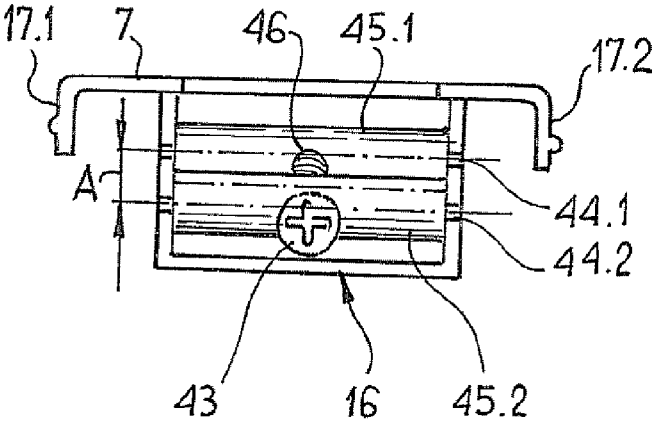


FIG. 9c

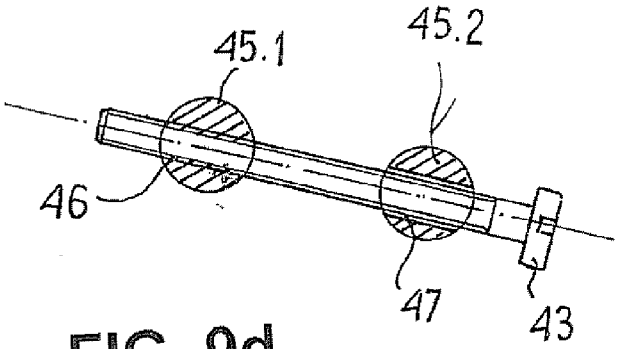


FIG. 9d

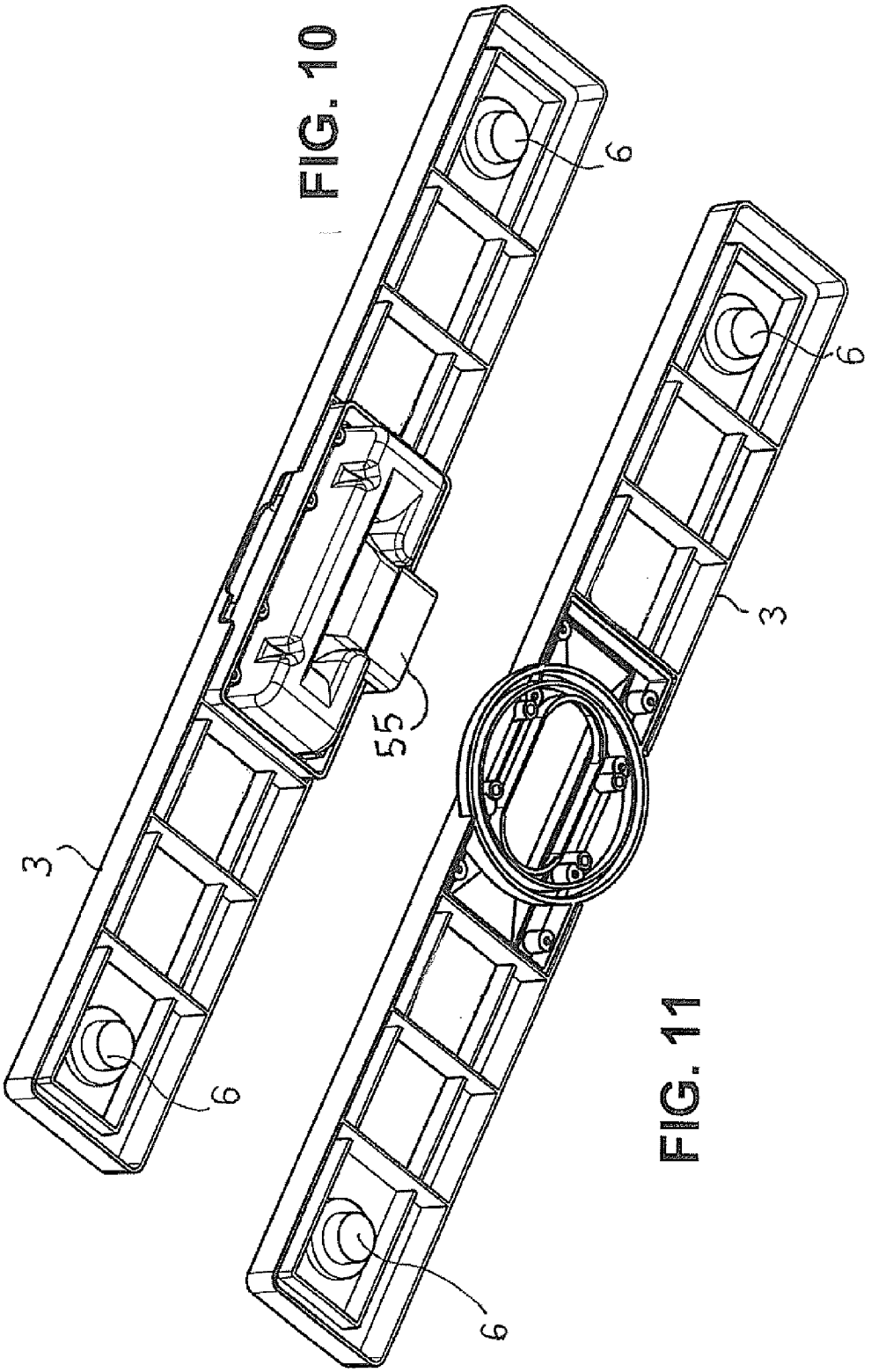


FIG. 10

FIG. 11

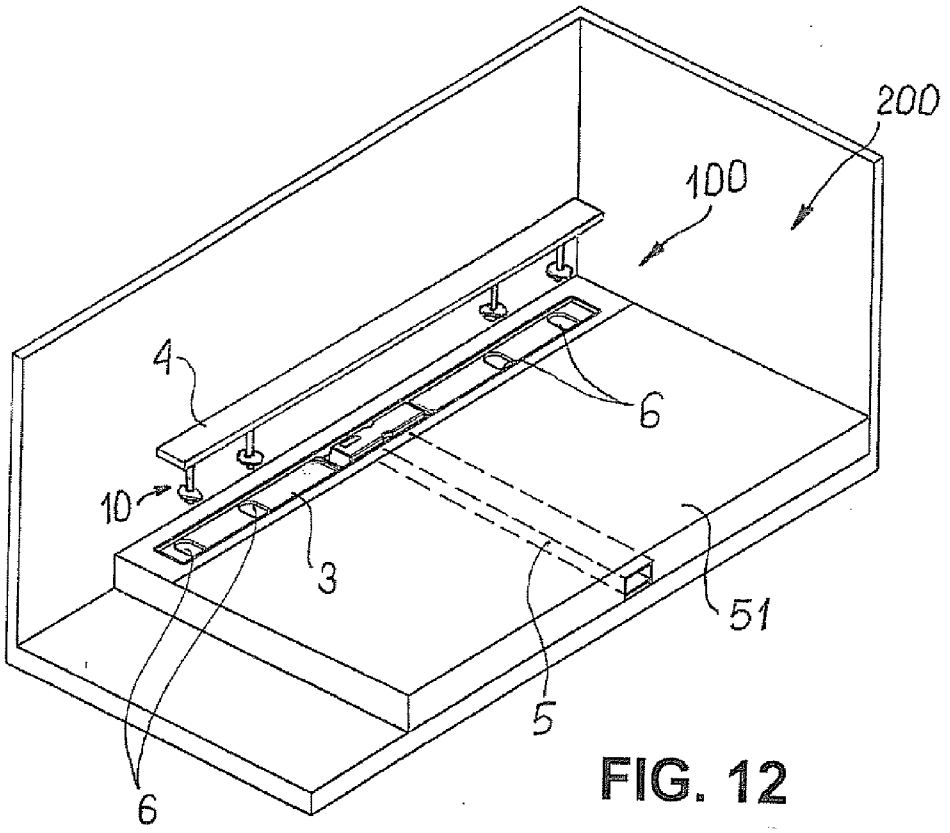


FIG. 12

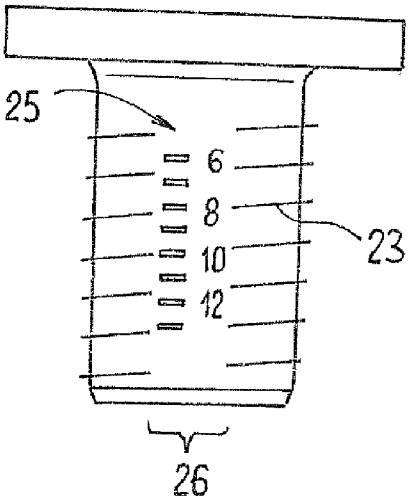


FIG. 13

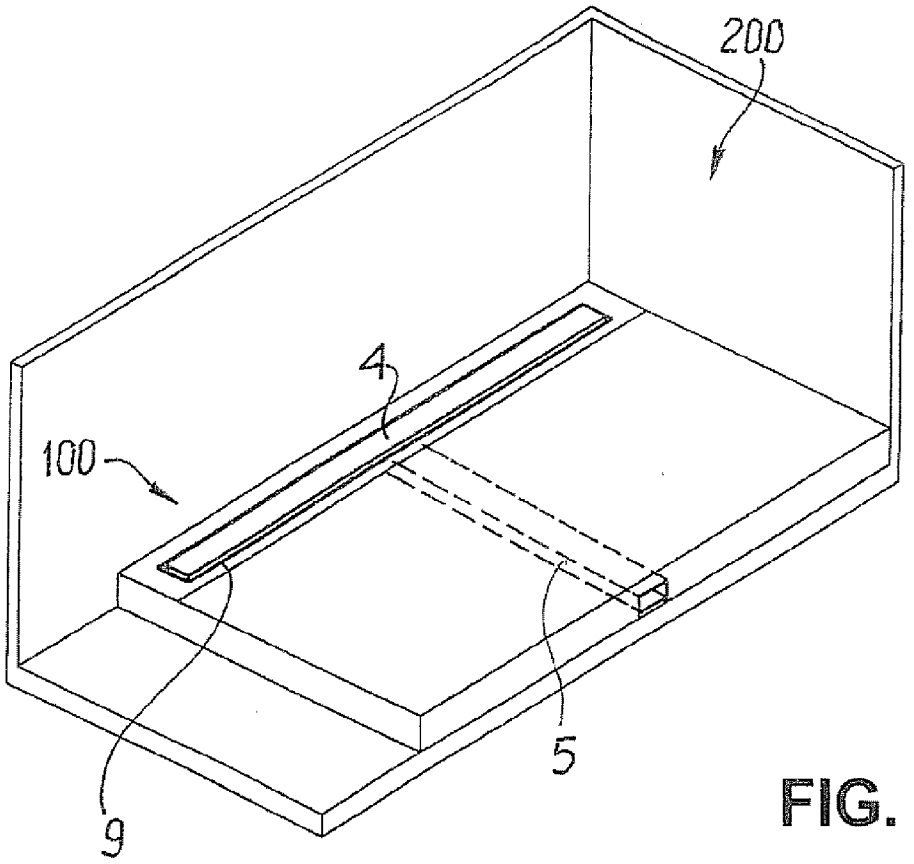


FIG. 14

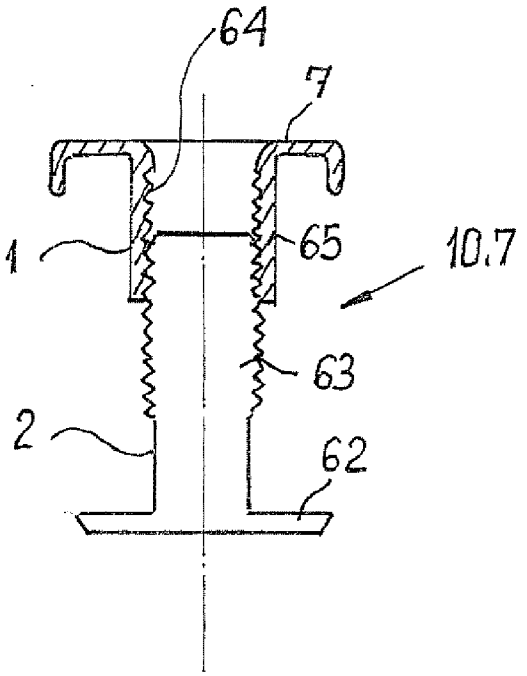


FIG. 15

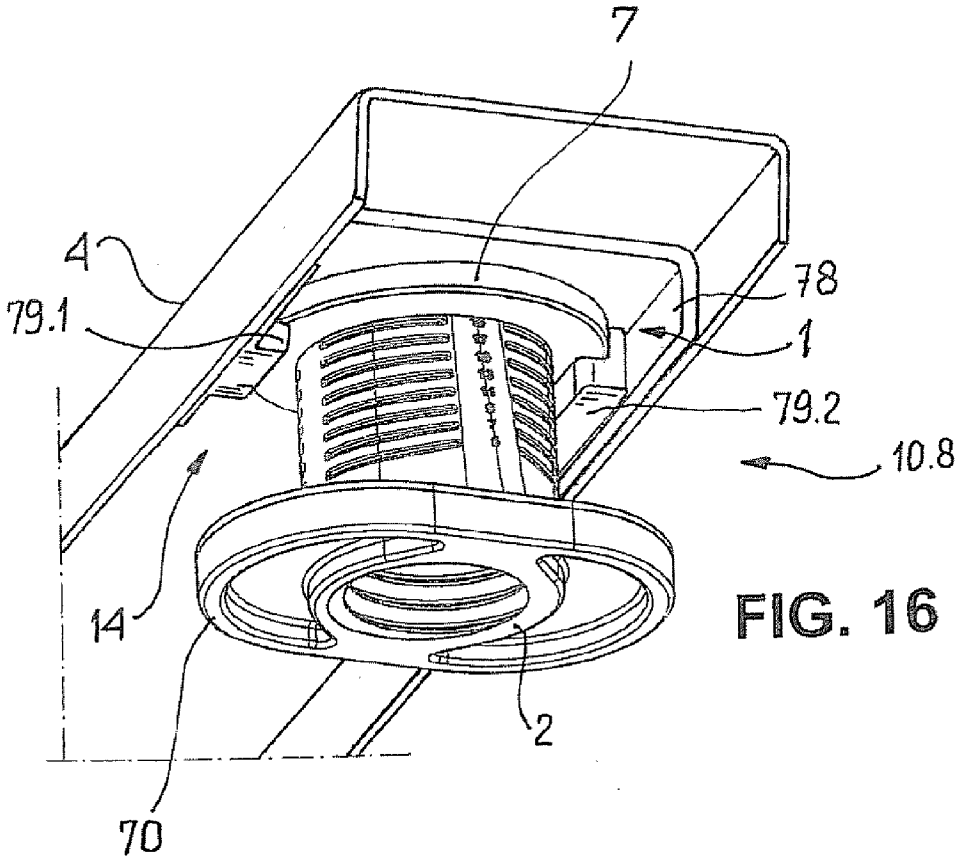


FIG. 16

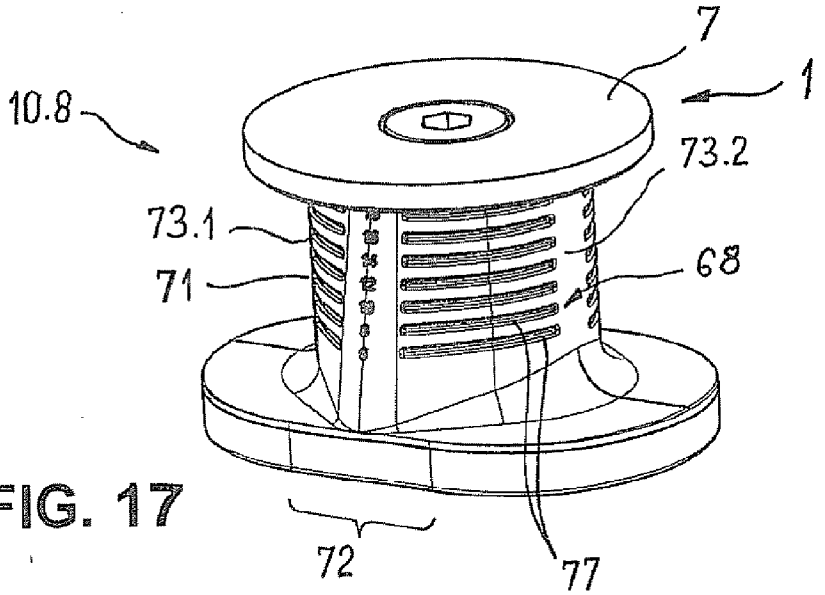


FIG. 17

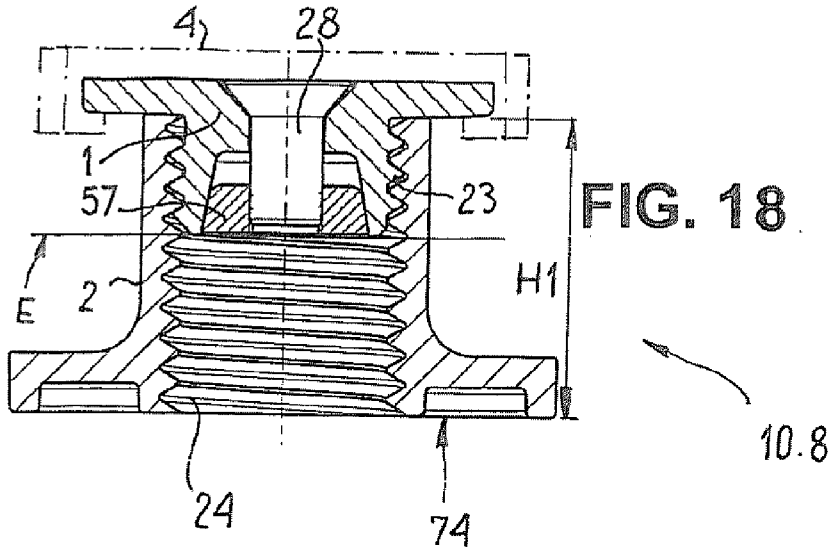


FIG. 18

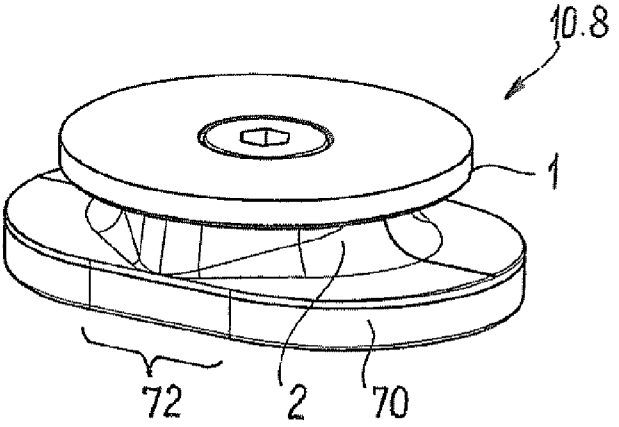


FIG. 19

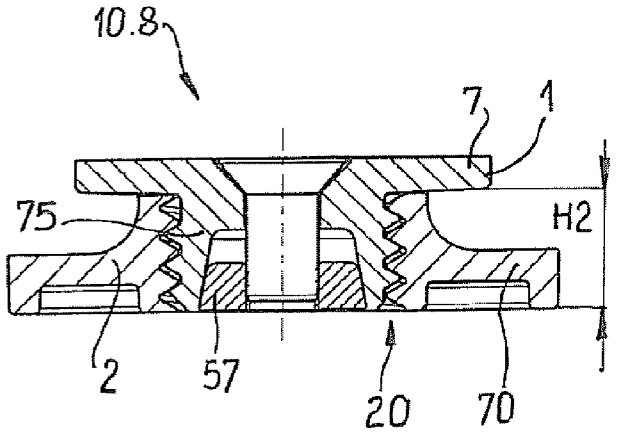


FIG. 20

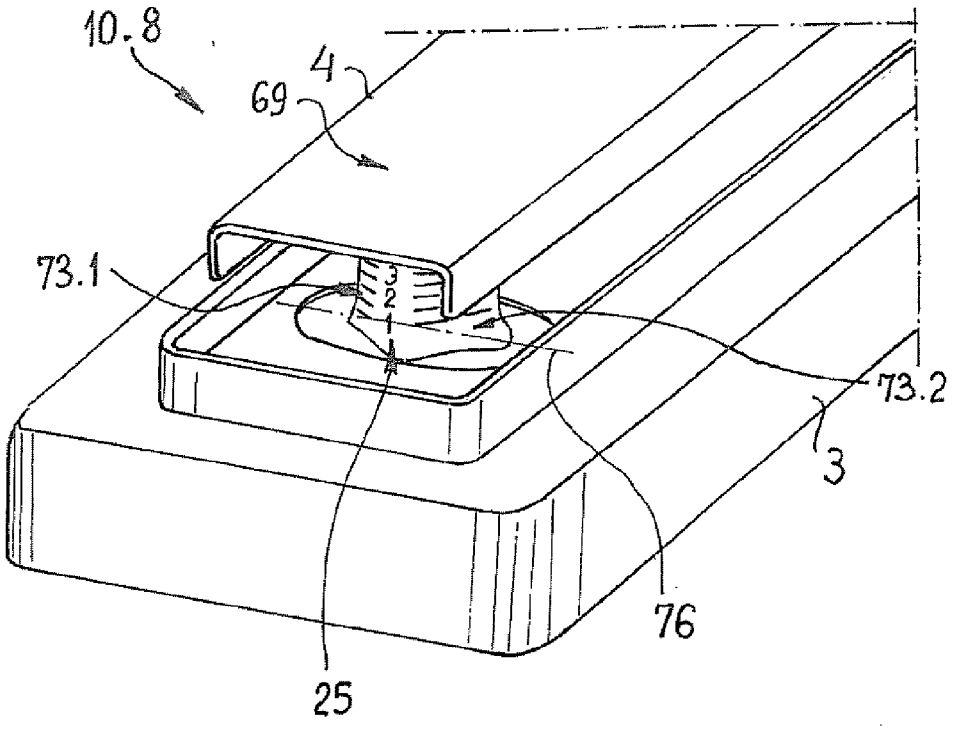


FIG. 21

WATER DRAINAGE DEVICE FOR A SANITARY FACILITY, SUCH AS A FLOOR-LEVEL SHOWER AREA

BACKGROUND

[0001] The invention relates to a water drainage device for a sanitary installation, such as a walk-in shower stall, comprising:

[0002] an oblong, pan-shaped water drainage element, which is open toward the top when installed and to which an drain pipe is connected or can be connected;

[0003] a channel cover, which is inserted into the water drainage element and covers the water drainage element toward the top when installed, wherein at least one opening remains in or on the channel cover for feeding waste water into the water drainage element;

[0004] at least one height adjustment unit for the channel cover, comprising a foot part and a head part, the height of which can be adjusted in relation to the foot part.

[0005] A water drainage device of the type mentioned above is disclosed in DE 20 2010 007 534 A1 by the applicant. The foot part represents a smooth, slightly conical pin, which projects in the direction of the channel cover and is disposed on the water drainage element. The disadvantage of the known water drainage device is that the foot part remains on the water drainage element—projecting upwardly—after the channel cover has been removed, whereby cleaning is made more difficult.

[0006] Moreover, a height-adjustable water drainage device is known from DE 10 2004 049 944 A1, comprising multiple retaining means having a threaded pin and a threaded sleeve. The threaded sleeve is attached to a base of a drain pan. The upwardly projecting threaded sleeves can likewise prove to be disadvantageous for the same reason.

BRIEF SUMMARY

[0007] Therefore, the object that arises is that of designing a novel water drainage device having improved access for cleaning and inspection. The water drainage device should also allow easy removal and insertion of the channel cover, together with the height adjustment unit, with one simple hand-movement and without the use of tools.

[0008] This object is achieved by a water drainage device of the type described in the preamble of claim **1**, in which

[0009] the head part comprises a support element that is compatible with the channel cover and faces away from the foot part and that is non-positively or positively connected to the channel cover,

[0010] the water drainage element comprises at least one recess on which the foot part is loosely supported,

[0011] wherein the entire height adjustment unit can be removed from the channel-shaped water drainage element, and inserted into the water drainage element, together with the channel cover.

[0012] The channel cover can be planar and strip-shaped, in the manner of a section of flat steel, or it can be profiled. The profiled channel cover preferably has a C profile. However, the use of other profile types, such as an H or U profile, is also possible.

[0013] The support element can be a section of a C or U profile, which fits into the interior of the channel cover. This creates a non-positive connection between the channel cover and the support element, which can be implemented by simple clamping. For example, clamping takes place between the U limbs of the support element and the channel cover. The clamping action can be supported by the elasticity of the U limbs of the support element being greater than that of the channel cover, and by the U limbs deforming under stress.

[0014] The support element can enter into a detent connection with the channel cover by at least one detent protrusion engaging in a corresponding cut-out of the mating element. The detent protrusions are preferably provided on the U limbs of the support element, and the cut-outs are preferably provided on the U limbs of the channel cover.

[0015] In a variant embodiment, the support element can be bonded to the channel cover at least in a punctiform manner. It is likewise possible to materially integrate the support element into the channel cover if the two parts are produced in one material piece, for example made of a thermoplastic synthetic material.

[0016] An essential feature of invention is thus a detachable accommodation of the foot part in the recess of the pan-shaped water drainage element, while assuring sufficient positional stability of the channel cover. So as to achieve the object, a positive connection between the foot part and the recess is proposed.

[0017] In the present case, the positive connection between the foot part and the recess can be composed of two cylinder surfaces that are coaxial with respect to each other, such as a pin inserted into a blind hole. This creates a positive fit in all directions of a plane that is perpendicular to the cylinder axis. The cylinder surfaces can be stepped or combined with conical surfaces that mutually contact each other. The positive fit requires play-free, or substantially play-free, contact between the two surfaces. The positive connection can also be formed by two mutually compatible oval, reniform or polygonal surfaces. In any case, the foot part, and thus the entire height adjustment unit together with the channel cover, can be removed from, and be re-inserted into, the recess with one simple hand-movement.

[0018] The head part can form a screw connection, a detent connection, and more particularly a spring-loaded detent connection, or a combined screw connection with the foot part, in which the head part gliding over the foot part can be fixed on the foot part. This is advantageous in particular because the installation height of the cover element requires adjustment in relation to the surface of the finished shower base, which is covered with tiles, for example, only once, which is to say in connection with the initial installation. After the desired installation height has been established, this installation height can be fixed by bracing the foot part and the head part with respect to each other by way of a screw.

[0019] If thereafter, for example for cleaning purposes, the cover element is removed, there is no risk of the set height being inadvertently changed. The cover element comprising the fixed foot parts can rather be installed and removed any arbitrary number of times, without the height changing. However, the fixation is not precluded from being detached since this may be necessary, for example, for replacing defective parts.

[0020] The entire height adjustment unit, which is to include the channel cover, can be produced from metal, and more particularly from a stainless steel, and/or from plastic material.

BRIEF DESCRIPTION OF DRAWINGS

[0021] The connections of the head part to the foot part are described in detail hereafter. The invention will be described in more detail in exemplary embodiments based on the drawings. In the drawings:

[0022] FIG. **1** shows a perspective view of a water drainage element comprising recesses and a channel cover, which is removed from the recesses, having an indicated height adjustment unit;

[0023] FIG. **2** shows a section A-A according to FIG. **1**;

[0024] FIG. **3** shows a schematic illustration of a height adjustment unit in the first embodiment thereof, prior to being inserted into the recess;

[0025] FIG. **4** shows a schematic axial section of a second embodiment of the height adjustment unit;

[0026] FIG. **5** shows a schematic axial section of a third embodiment of the height adjustment unit;

[0027] FIG. **6** shows an axial section of a fourth embodiment of the height adjustment unit, comprising a expansion cone;

[0028] FIG. **7** shows an axial section of the height adjustment unit according to FIG. **5**, mounted on load distribution elements (**18**);

[0029] FIGS. **8***a* and **8***b* are schematic illustrations of a height adjustment unit having spring latching, in the free and in the braced state;

[0030] FIGS. **8***c* and **8***d* show the height adjustment unit according to FIG. **8***a/b* in a view from above onto the support element and from beneath onto the foot part;

[0031] FIGS. **9***a* to **9***c* show a height adjustment unit in a double-wedge design, in side views and in a front view;

[0032] FIG. **9***d* shows an arrangement of a screw on two bearing pins of the height adjustment unit according to FIG. **9***c;*

[0033] FIGS. **10** and **11** each show perspective views from beneath of a water drainage element, comprising a super-flat drain and comprising an adapter module for the standard drain;

[0034] FIG. **12** shows an arrangement of a water drainage device in a shower stall, the channel cover being removed;

[0035] FIG. **13** schematically shows the head part comprising an external thread, provided with a measuring scale;

[0036] FIG. **14** shows the arrangement of the water drainage device according to FIG. **12**, the channel cover being inserted;

[0037] FIG. **15** shows a schematic axial section of a simple embodiment of the height adjustment unit comprising a disk-shaped base;

[0038] FIG. **16** shows a perspective view, from below, of a height adjustment unit, which is made of plastic material and clamped within a channel cover;

[0039] FIG. **17** shows a perspective view, from above, of the height adjustment unit according to FIG. **16**;

[0040] FIG. **18** shows an axial section through the height adjustment unit according to FIG. **17**;

[0041] FIG. **19** shows a perspective view, from above, of the height adjustment unit according to FIG. **17** after the foot part has been severed; and

[0042] FIG. **20** shows an axial section through the height adjustment unit according to FIG. **19**; and

[0043] FIG. **21** shows a perspective view, from above, of the height adjustment unit illustrated in FIG. **16**, installed into a recess on the water drainage element.

DETAILED DESCRIPTION

[0044] Expressions such as "top", "upper", "bottom", "lower", "lowermost" and the like refer to the water drainage device installed into a base plate of the shower stall, as is also shown in the drawings.

[0045] A water drainage device **100** shown in FIG. **1** for a walk-in shower stall **200** shown schematically in FIG. **12** is composed of an oblong water drainage element **3**, a channel cover **4** that is adapted to the water drainage element, and two identically constructed height adjustment units **10.1**. Four height adjustment units **10.1** can be seen in FIG. **12**. The number of height adjustment units can vary; in general, two height adjustment units are sufficient, which should preferably be placed at the two ends of the channel cover **4**. FIG. **1** moreover shows a drainage connector **55** that is connected to a housing **56** and sealed there for the connection to a rectangular drain pipe **5** indicated with dotted lines in FIGS. **12** and **14**. As is indicated in FIG. **1**, the drainage connector **55** can selectively have a round or polygonal, and preferably quadrangular, cross-section.

[0046] The water drainage element **3** is recessed in a base plate **51** (see FIG. **12**) in the known manner, wherein the floor coverings of the base plate, such as tiles, are flush with the inserted channel cover **4** (see FIG. **14**). For this purpose, an opening **9** extending around the channel cover **4** is provided in the exemplary embodiment for feeding waste water into the water drainage element **3**. As an alternative or in addition to the opening **9**, it is also possible to provide other apertures or openings, which in principle can be freely chosen and are suitable for feeding waste water into the water drainage element **3**.

[0047] The water drainage element **3** shown in FIGS. **1**, **10** and **11** comprises two recesses **6** for accommodating the height adjustment units, the recesses being illustrated in detail in the section A-A (see FIG. **2**). According to this section, the recess **6** has a two-step design and is adapted to a foot part **2** of the height adjustment unit **10.1** (see FIG. **3**). The recess **6** comprises an upper, flat, annular indentation **52** and a lower, conical indentation **53**, which resembles a thimble (see FIGS. **10** and **11**, viewed from beneath).

[0048] As is apparent from FIG. **3**, the foot part **2** comprises a barrel-shaped hollow body **54** and a disk-shaped base **13** compatible with the indentation **52** of the recess **6**, wherein the lowermost portion of the hollow body **54** can be adapted without play to the lower indentation **53** of the recess **6**. A peripheral groove **21** is provided on the disk-shaped base **13** for accommodating a sealing element **22**, which is shown in FIG. **4**. The sealing element **21** is compressed when the foot part **2** is inserted into the recess **6**.

[0049] According to FIG. **13**, a measuring scale **15** is provided on the external thread **23**, with the aid of which the height position of the foot part in relation to the head part can be set. The measuring scale **25** is incorporated on a surface **26** that interrupts the thread.

[0050] The foot part **2** can optionally be made of a slanted disk-shaped base **62** having an upwardly projecting threaded pin **63**. The threaded pin **63** of the foot part is screwed into a sleeve **65** of the head part having an internal thread **64**. Such a simple embodiment (height adjustment unit **10.7**) is shown in FIG. **15**.

[0051] Together with the foot part **2**, the head part **1** forms a screw connection **20**, which can also be seen in FIGS. **4** and **5**, for example.

[0052] The height adjustment unit **10.1** is shown in a simple embodiment thereof in FIG. **3**. The height adjustment unit **10.1** is composed of said foot part **2** and a head part **1**, which is provided with an external thread **23** for screwing it into an internal thread **24** (see FIG. **4**) of the foot part **2**. The head part **1** carries a support element **7**, which is compatible with the interior **14** of the channel cover **4** (see FIG. **4**) and comprises two downwardly directed U limbs **17.1**, **17.2**. According to FIG. **4**, each of the two U limbs **17.1**, **17.2** is provided with an outwardly projecting detent protrusion **11.1**, **11.2**, which engages in a cut-out **12**, which is shown in FIG. **1**, of a U limb **8.1**, **8.2** of the channel cover **4**.

[0053] The dimensions of the support element **7** are designed for a detachable detent or bayonet connection with the channel cover **4**. The clamping connection holds the entire height adjustment unit **10.1** in the interior of the channel cover in a stable manner. The foot part **2**, which is positively inserted into the recess **6**, also contributes to the stability.

[0054] A height adjustment unit **10.2** shown in FIG. **4** comprises a locking element **19**, by way of which the head part **1** and the foot part **2** can be braced with respect to each other. The locking element is any arbitrary screw, preferably a grub screw **29** having a hexagon socket drive, which can be rotated through a threaded borehole **37** disposed transversely to the internal thread **24** of the foot part **2**.

[0055] According to FIG. **6** (height adjustment unit **10.4**), the locking element is designed in the form of a threaded bushing **27**, by way of which the height adjustment can be set. The threaded bushing can also act as the cylindrical foot part, which is screwed onto the head part **1** clamped in the channel cover **4**. The recess **6** of the water drainage element **3** is cylindrical and includes the cylindrical threaded bushing **27**, which is recessed to a bottom **49** of the recess. By tightening an axially extending screw **28** in an expansion cone **57**, the threaded bushing **27** is braced with respect to the head part **1**. A sealing element **22** is pressed into the peripheral groove **21** of an upper collar **58** of the threaded bushing **27**.

[0056] FIG. **5** shows a height adjustment unit **10.3**, in which the foot part **2** comprises a threaded sleeve **38** transitioning into a lower disk-shaped base **59**, an elastic clamping element **39**, an axially extending screw **42**, and a clamping plate **40** that is disposed transversely to the screw axis and has a threaded borehole **41**. Tightening of the screw **42** causes a deformation of the clamping element **39**, which constitutes the anti-turn mechanism for the thread.

[0057] All height adjustment units **10.1** to **10.4** are formed by screw connections **20** and include the external thread **23** on the head part **1** and the internal thread **24** on the foot part **2**.

[0058] According to FIG. **7**, the height adjustment units **10.3** are placed with the foot part **2** thereof in the recess **6**, wherein a load distribution element **18** in the form of a ribbed plug resting on a bottom **50** is disposed beneath the recess **6**. The sharp ribs **60** of the ribbed plug engage in a wall **61** made of plastic material, the wall being oriented perpendicularly to the bottom **49** of the recess **6**.

[0059] FIGS. **8***a*, **8***b*, **8***c* and **8***d* represent a height adjustment unit **10.5** that deviates from the screw type. The height adjustment unit **10.5** is a spring-loaded detent connection **30** between the head part **1** and the foot part **2**. The head part **1** and the foot part **2** comprise detent elements **31**; **32** having offset heights and are braced with respect to each other under a spring force F that is directed perpendicularly to the support element **7**, which is to say directed along the longitudinal axis. The spring force F is caused by the tightening of a spring **48**, which is held by way of retaining devices **33** provided on the support element **7** and on the foot part **2**. A helical tension spring, the two ends of which are hooked into the retaining devices **33**, is selected as the spring **48**.

[0060] The retaining devices **33** in each case comprise a cross pin **34**, on which the helical tension spring is suspended, wherein the length of the cross pin **34** exceeds an inner diameter of an opening **35** of the support element **7** and, in corresponding fashion, of an opening **36** of the foot part **2**.

[0061] FIGS. **9***a*, **9***b* and **9***c* show a further height adjustment unit **10.6** that is a variant on the screw type and comprises rectangular head and foot parts. The head part **1** and the foot part **2** comprise mutually contacting wedge surfaces **15.1**, **15.2**, which can be used to bring about an upward or downward gliding of the head part **1** in relation to the foot part **2**, and thus a height adjustment. So as to fix the head part **1** on the foot part **2**, a fixing device **16** is provided, comprising a screw **43** and two pivot bearings **44.1**; **44.2**, which extend perpendicularly to the U limbs **17.1**, **17.2** of the support element **7** and each comprise a bearing pin **45.1**; **45.2**. The one pivot bearing (**44.1**) is attached on two opposing side walls **66** of the head part **1**, and the other pivot bearing (**44.2**) is attached on similarly opposing side walls **67** of the foot part **2**.

[0062] As is apparent from FIGS. **9***a* and **9***b*, the wedge surfaces **15.1**, **15.2** are formed in each case by inclined edges of the side walls **66**, **67** of the head part **1** and of the foot part **2**.

[0063] The bearing pin **45.2** disposed on the foot part **2** has a through-hole **47**, which is slightly larger than the outside diameter of the screw **43**, so that the screw **43** can be displaced along the through-hole **47**. The bearing pin **45.1** disposed on the head part **1** has a threaded borehole **46** (see FIG. **9***d*) for accommodating said screw.

[0064] In this way, the head part **1** and the foot part **2** are connected to each other. If this screw **43** is rotated, the head part **1** glides over the wedge surface **15.2** of the foot part **2** and, at the same time, a distance A (see FIG. **9***c*) between the center lines of the bearing pins **45.1**; **45.2** changes. After the screw **43** has been tightened, the desired distance A is fixed.

[0065] Finally, FIGS. **16** to **21** show a further preferred embodiment (reference numeral **10.8**) of the height adjustment unit comprising the screw connection **20**, in which both the head part **1** and the foot part **2** are made of plastic material. The head part and/or the foot part can also be produced from a different material, such as a metal, and more particularly a stainless steel.

[0066] The foot part **2** comprises an approximately oval disk-shaped base **70** and a body **71** protruding over the disk-shaped base **70**, wherein a straight section **72** is provided in each case on the longer sides of the oval disk-shaped base **70**. The body **71** has a shape streamlined in such a way that waste water can flow around the same along the two hull-like (such as port side and starboard) shaped lateral surfaces **73.1**, **73.2**.

[0067] The support element **7** of the head part **1** is circular and transitions into a relatively shallow sleeve **75** having an external thread **23**.

[0068] When installed (see FIG. **16**), the circular support element **7** of the head part **1** is held in the interior **14** of the channel cover **4** by a C-shaped intermediate piece **78**, which is produced from plastic material in the exemplary embodiment, but can also be produced from a metal, and more particularly from a stainless steel. The intermediate piece **78** comprises two lateral wing parts **79.1**, **79.2**, into which the support element **7** can be pushed.

[0069] The height adjustment unit **10.8** includes the screw connection **20** comprising the external thread **23** on the head part **1** and the internal thread **24** on the foot part **2**, as can also be seen in FIG. **4**, and the locking element in the form of an expansion cone **57**, which braces the foot part **2** with respect to the head part **1** by way of the screw **28**.

[0070] The foot part **2** shown in FIG. **18** has a maximal height H**1**, which is adapted to the maximal installation height of the water drainage device.

[0071] So as to be able to adjust the foot part **2** to a minimal installation height of the water drainage device, the body **71** is simply sawed off along a plane E indicated in FIG. **18**, which extends parallel to a visible surface **69** of the channel cover **4** or parallel to a base surface **74** of the disk-shaped base **70**. After the body has been sawed off, the foot part **2** has a smaller height dimension (height H**2**; see FIG. **20**). So as to simplify the severing step, grooves **77**, in which the tool, which in the present case is a saw, can be guided, are provided on both lateral surfaces **73.1**, **73.2** of the body **71**.

[0072] As is apparent from FIG. **21**, the recess **6** incorporated on the water drainage element **3** is oval, as is the disk-shaped base **70**, wherein the longitudinal axis **76** of the recess extends transversely to the longitudinal orientation of the channel cover **4**. The oval shape of the recess **6** and of the disk-shaped base **70** lends sufficient positional stability to the height adjustment unit **10.8** that is inserted into the recess **6**.

[0073] As is shown in FIGS. **10** and **11**, the water drainage element **3** comprising the recesses **6** according to the invention is suitable both for a super-flat water drainage device comprising a rectangular drain pipe **55** and for a standard design comprising a connection to a round drain pan (see FIG. **11**).

List of Reference Numerals:

1	head part
2	foot part
3	water drainage element
4	channel cover
5	drain pipe
6	recess
7	support element
8.1, 8.2	U limb (of 4)
9	opening
10.1; 10.2; 10.3; 10.4; 10.5; 10.6; 10.7; 10.8	height adjustment unit
11.1, 11.2	detent protrusion
12	cut-out
13	disk-shaped base
14	interior (of 4)
15.1, 15.2	wedge surface
16	fixing device
17.1, 17.2	U limb (of 7)
18	load distribution element
19	locking element
20	screw connection
21	groove
22	sealing element
23	external thread
24	internal thread
25	measuring scale
26	surface
27	threaded bushing
28	screw
29	grub screw
30	detent connection
31; 32	detent element
33	retaining device (helical tension spring)

-continued

List of Reference Numerals:

34	cross pin
35	opening (of 7)
36	opening (of 2)
37	threaded borehole
38	threaded sleeve
39	clamping element
40	clamping plate
41	threaded borehole
42	screw
43	screw
44.1, 44.2	pivot bearing
45.1, 45.2	bearing pin
46	threaded borehole
47	through-hole
48	spring
49	bottom (of 6; see FIG. 6)
50	bottom
51	base plate
52, 53	indentation (of 6)
54	hollow body
55	drainage connector
56	housing
57	securing cone
58	collar
59	disk-shaped base
60	rib
61	wall
62	disk-shaped base
63	threaded pin
64	internal thread
65	sleeve
66, 67	side wall
68	jacket
69	visible surface (of 4)
70	disk-shaped base
71	body
72	section
73.1, 73.2	lateral surface (of 71)
74	base surface
75	sleeve
76	longitudinal axis
77	grooves
78	intermediate piece
79.1, 79.2	wing part
100	water drainage device
200	shower stall
A	distance (between the bearing pins)
A-A	section
E	plane
H1	max. height
H2	min. height
F	spring force

1-26. (canceled)

27. A water drainage device (**100**) for a sanitary installation, comprising:

an oblong, pan-shaped water drainage element (**3**), which is open toward the top when installed and to which a drain pipe (**5**) is fluidically connected, or can be fluidically connected;

a channel cover (**4**), which is inserted into the water drainage element (**3**) and covers the water drainage element (**3**) toward the top when installed, at least one opening (**9**) remaining in or on the channel cover for feeding waste water into the water drainage element (**3**); and

at least one height adjustment unit (**10.1**; **10.2**; **10.3**; **10.4**; **10.5**; **10.6**; **10.7**; **10.8**) for a channel cover (**4**), comprising a foot part (**2**) and a head part (**1**), the height of which in relation to the foot part (**2**) can be adjusted,

wherein:

the head part (**1**) comprises a support element (**7**) that is compatible with the channel cover (**4**) and faces away from the foot part (**2**) and that is non-positively or positively connected to the channel cover (**4**);

the water drainage element (**3**) comprises at least one recess (**6**) on which the foot part (**2**) is loosely supported; and

the entire height adjustment unit (**10.1**; **10.2**; **10.3**; **10.4**; **10.5**; **10.6**; **10.7**; **10.8**) being removable from the channel-shaped water drainage element (**3**), and being insertable into the water drainage element (**3**), together with the channel cover (**4**).

28. The water drainage device (**100**) according to claim **27**, wherein the channel cover (**4**) is planar and strip-shaped, or profiled, preferably in the form of a U or H profile.

29. The water drainage device (**100**) according to claim **27**, wherein the head part (**1**) is detachably connected to the channel cover (**4**).

30. A water drainage device (**100**) according to claim **27**, wherein the support element (**7**) engages in the interior (**14**) of the channel cover (**4**) in a clamping and/or latching manner.

31. A water drainage device (**100**) according to claim **27**, wherein the support element (**7**) is a section of a U profile, at the at least one U limb (**17.1**, **17.2**) of which at least one outwardly projecting detent protrusion (**11.1**, **11.2**) is disposed, by way of which a pressure force is exerted on a U limb (**8.1**, **8.2**) of the channel cover (**4**).

32. The water drainage device (**100**) according to claim **31**, wherein at least one cut-out (**12**), in which the detent protrusion (**11.1**, **11.2**) engages, is incorporated on at least one U limb (**8.1**, **8.2**) of the channel cover (**4**).

33. The water drainage device (**100**) according to claim **27**, wherein the recess (**6**) comprises at least two steps.

34. A water drainage device (**100**) according to claim **27**, wherein the recess (**6**), in a projection onto the water drainage element (**3**) is at least partially polygonal, circular or oval.

35. A water drainage device (**100**) according to claim **27**, wherein the foot parts (**2**) and/or the recesses (**6**) have a conical design at least regionally.

36. A water drainage device (**100**) according to claim **27**, wherein the foot part (**2**) is adapted without play to the recess (**6**).

37. A water drainage device (**100**) according to claim **27**, wherein the foot parts (**2**) and/or the recesses (**6**) comprise at least one groove (**21**), which is suitable for accommodating a sealing element (**22**).

38. A water drainage device (**100**) according to claim **27**, wherein the foot parts (**2**) are mounted on load distribution elements (**18**).

39. A water drainage device (**100**) according to claim **27**, wherein, together with the foot part (**2**), the head part (**1**) forms a screw connection (**20**).

40. The water drainage device (**100**) according to claim **39**, wherein the head part (**1**) and the foot part (**2**) of the height adjustment unit (**10.1**; **10.2**; **10.3**; **10.4**; **10.8**) can be adjusted by way of mutually engaging threaded elements, the head part (**1**) preferably comprising an external thread (**23**) and the foot part (**2**) preferably comprising an internal thread (**24**).

41. The water drainage device (**100**) according to claim **39**, wherein a measuring scale (**25**) is incorporated on the head part (**1**) or on the foot part (**2**).

42. The water drainage device (**100**) according to claim **41**, wherein the measuring scale (**25**) is provided on a surface (**26**) or on a thread-free jacket (**68**) of the foot part (**2**) or of the head part (**1**).

43. The water drainage device (**100**) according to claim **39**, wherein a locking element (**19**) is provided on the screw connection (**20**), by way of which the head part (**1**) can be fixed in relation to the foot part (**2**).

44. A water drainage device (**100**) according to claim **39**, wherein the height of the head part (**1**) or the foot part (**2**) is adjustable by severing the head part (**1**) or the foot part (**2**) along a groove (**77**), which is defined by a plane (E) extending parallel to the visible surface (**69**) of the installed channel cover (**4**).

45. The water drainage device (**100**) according to claim **43**, wherein the locking element (**19**) is a threaded bushing (**27**) or an expansion cone (**57**), which braces the foot part (**2**) with respect to the head part (**1**) by way of a screw (**28**).

46. The water drainage device (**100**) according to claim **43**, wherein the locking element (**19**) is a grub screw (**29**), which can be rotated through a threaded borehole (**37**) extending transversely to the internal thread (**24**) of the foot part (**2**) until the grub screw (**29**) exerts a pressing force on the head part (**1**), so that the head part (**1**) and the foot part (**2**) are braced with respect to each other.

47. A water drainage device (**100**) according to claim **27**, wherein the head part (**1**), together with the foot part (**2**), forms a detent connection (**30**), in which the head part (**1**) and the foot part (**2**) are braced with respect to each other under a spring force (F) that is directed perpendicularly to the support element (**7**), the head part (**1**) and the foot part (**2**) each comprising detent elements (**31**; **32**) having offset heights.

48. The water drainage device (**100**) according to claim **47**, wherein the head part (**1**) and the foot part (**2**) of the height adjustment unit (**10.5**) in each case comprise a retaining device (**33**) for a spring (**48**), preferably a helical tension spring.

49. The water drainage device (**100**) according to claim **48**, wherein the retaining device (**33**) comprises a cotter pin or a cross pin (**34**), on which the helical tension spring is suspended, the cross pin (**34**) being longer than the inner diameter of an opening (**35**) of the support element (**7**) and, in corresponding fashion, of an opening (**36**) of the foot part (**2**).

50. A water drainage device (**100**) according to claim **27**, wherein the foot part (**2**) comprises a threaded sleeve (**38**), a clamping element (**39**), a clamping plate (**40**) having a threaded borehole (**41**) and a screw (**42**), a deformation of the clamping element (**39**) taking place as a result of the tightening of the screw (**42**), which brings about an anti-turn mechanism of the thread.

51. A water drainage device (**100**) according to claim **27**, wherein the head part (**1**) and the foot part (**2**) comprise mutually contacting wedge surfaces (**15.1**, **15.2**), which can be fixed in relation to each other by a fixing device (**16**).

52. The water drainage device (**100**) according to claim **51**, wherein:

the fixing device (**16**) comprises a screw (**43**) and two pivot bearings (**44.1**; **44.2**), which extend perpendicularly to the U limbs (**17.1**, **17.2**) of the support element (**7**) and each comprise a bearing pin (**45.1**; **45.2**), the one pivot bearing (**44.1**) being disposed on the head part (**1**), and the other pivot bearing (**44.2**) being disposed on the foot part (**2**);

the one bearing pin has a threaded borehole (**46**) for accommodating the screw (**43**), and the other bearing pin has a through-hole (**47**), which is slightly larger than the thread diameter of the screw (**43**); and

the head part (**1**) and the foot part (**2**) are connected to each other via the screw (**43**), so that the rotating of the screw (**43**) brings about a change in a distance (A) between the center lines of the bearing pins (**45.1**; **45.2**), and thus an upward or downward gliding of the head part (**1**) relative to the foot part (**2**).

* * * * *