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(54) **COMBINATION OF A SHOWER DRAIN AND A DEVICE FOR CAPTURING DIRT**

(57) The invention relates to a combination comprising:

- a shower drain, which shower drain comprises an elongate collecting tray with a bottom and upright walls arranged along the bottom, wherein the upper edges of the upright walls bound an inflow opening and wherein an outflow opening is arranged in the bottom or in the side walls; and
- a device for capturing dirt, particularly hair, which device comprises:

* at least a first filter part which is upright from a position at least close to the bottom of the shower drain and extends transversely of the longitudinal direction of the collecting tray and between two mutually opposite side walls;

* a grip part connected to the at least first filter part, wherein the grip part extends at least to a position close to the inflow opening and preferably extends outside the inflow opening of the shower drain.

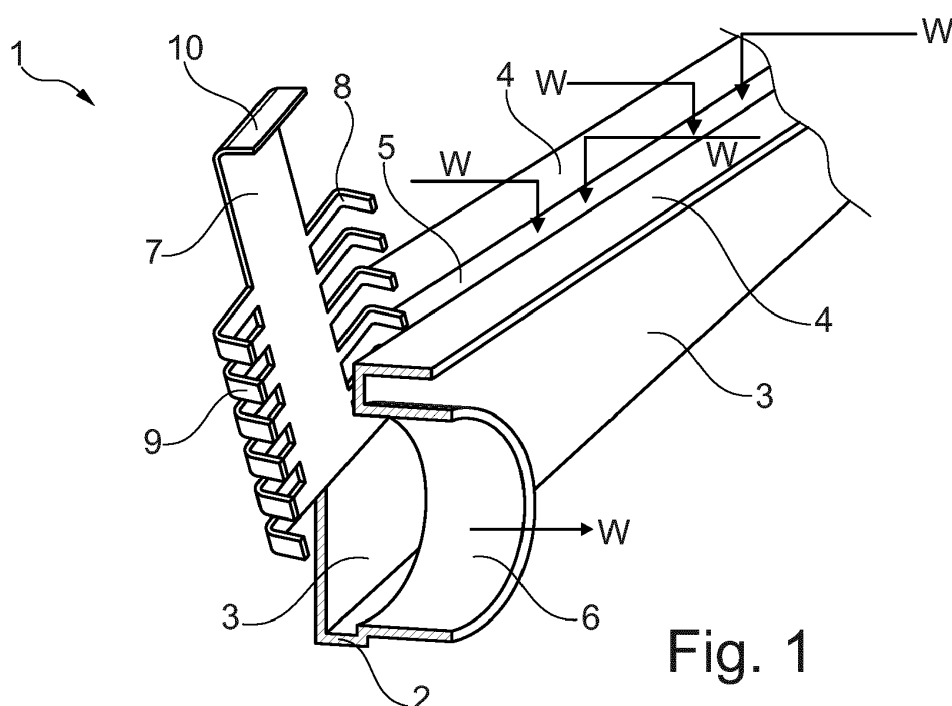


Fig. 1

Description

[0001] The invention relates to a combination of a shower drain and a device for capturing dirt.

[0002] Devices are per se known for capturing hair and other dirt in a drain. A dirt trap with which the water which flows away via the drain is filtered is provided here in the outflow opening or in the inflow opening of the drain. Such dirt traps can be integrated into the drain, such as for instance the known five holes of a washbasin outlet.

[0003] The fouling of outlet pipes to which the drain is connected is reduced or even prevented with a dirt trap. When something falls into the drain accidentally it is also collected by the dirt trap and is not lost in the outlet pipe.

[0004] There is a tendency to make the inflow opening of a drain increasingly smaller so that it becomes less visible in for instance a floor surface. Shower drains are thus already known wherein the inflow opening is a narrow, long slot and wherein the width of the slot is only several millimetres.

[0005] A larger chamber, wherein the outflow opening is then provided in the bottom, can be provided under the narrow slot. This outflow opening often has a diameter substantially equal to the diameter of the outlet pipe connected thereto, and thereby usually four or five centimetres in diameter. This is because this is desirable in order to maintain the best possible discharge of water, despite the smallest or narrowest inflow opening possible preferably being chosen. Particularly if an outlet pipe is connected horizontally, wherein the water flows into the outlet pipe in vertical direction, would the diameter of the outflow opening decrease as the width of the inflow opening decreases. The desired diameter of the outflow opening can be preserved by providing a large chamber under the narrow inflow opening.

[0006] In drains wherein the outflow opening is arranged in a side wall a small inflow opening can be opted for, while a large diameter remains possible for the outflow opening. Such a drain has a vertical connection of the outlet pipe, wherein the water flows into the outlet pipe in horizontal direction.

[0007] When a dirt trap is placed in the outflow opening it will have captured so much dirt after some time, whereby the outflow opening is blocked to such an extent, that the discharge capacity becomes insufficient and water is no longer discharged to sufficient extent.

[0008] It is now an object of the invention to reduce or even obviate the above stated drawbacks.

[0009] This object is achieved with a combination according to the invention, which combination comprises:

- a shower drain, which shower drain comprises an elongate collecting tray with a bottom and upright walls arranged along the bottom, wherein the upper edges of the upright walls bound an inflow opening and wherein an outflow opening is arranged in the bottom or in the side walls; and
- a device for capturing dirt, particularly hair, which

device comprises:

* at least a first filter part which is upright from a position at least close to the bottom of the shower drain and extends transversely of the longitudinal direction of the collecting tray and between two mutually opposite side walls;

* a grip part connected to the at least first filter part, wherein the grip part extends at least to a position close to the inflow opening and preferably extends outside the inflow opening of the shower drain, wherein the at least first filter part is arranged on a side of the outflow opening, as seen in longitudinal direction.

[0010] In the combination according to the invention the device for capturing dirt is placed adjacently of the outflow opening and not, as in the prior art, in or between the outflow opening. The outflow opening hereby remains clear at all times and cannot be blocked by captured dirt.

[0011] In the invention the device for capturing dirt is placed transversely in the elongate collecting tray. Water with dirt, which flows via the inflow opening into the collecting tray, will then flow in longitudinal direction over the bottom and to the outflow opening and here reach the device for capturing dirt. Dirt is then retained by the device, while water flows further to the outflow opening.

[0012] The length of the collecting tray can be used to obtain sufficient surface area for the device, so that the throughflow area of the device is sufficiently large. The first filter part can optionally be placed obliquely in longitudinal direction of the collecting tray, whereby the throughflow area of the first filter part can be further increased. A filtering surface area greater than the surface area of the outflow opening can thus be obtained. The filter part will fill up less quickly owing to the greater filtering surface area.

[0013] Depending on whether the grip part wholly closes the inflow opening at the position of the outflow opening or not, the water flowing via the inflow opening into the collecting tray straight above the outflow opening can run directly to the outflow opening without being filtered by the device. Because the diameter of the outflow opening in shower drains is small in relation to the length of the shower drain only a small part of the water will flow to the outflow opening unfiltered.

[0014] If the device is not cleaned in good time and water can no longer flow through the device to sufficient extent, the water will pass over the device and still reach the outflow opening. This prevents the outflow opening becoming completely blocked when dirt is not removed from the device in good time.

[0015] Different devices according to the invention can optionally be placed distributed over the length of the collecting tray, so that the water which flows through the collecting tray can be filtered at different positions in the collecting tray. The dirt is thus filtered from the water at multiple locations and the filter parts will fill up less quickly

than if only one filter part were used.

[0016] Advertising, such as the brand name of the manufacturer of the combination, can further be provided on the grip part.

[0017] In a preferred embodiment of the combination according to the invention the at least first filter part extends from the bottom to the upper edges of the side walls.

[0018] In this embodiment the device extends over the whole cross-sectional area of the collecting tray, whereby the device will filter dirt from all the water flowing to the outflow opening in the collecting tray, irrespective of how full the collecting tray is.

[0019] In another embodiment of the combination according to the invention the thickness of the at least first filter part is smaller than or equal to the width of the inflow opening and the width of the at least first filter part is greater than the width of the inflow opening.

[0020] In this embodiment the first filter part can be lowered into the collecting tray via the inflow opening, and by rotating it a quarter turn the filter part will then extend between the upright walls of the collecting tray.

[0021] In a highly preferred embodiment of the combination according to the invention the device further comprises a second filter part which is likewise upright from the bottom of the shower drain and extends transversely of the longitudinal direction of the collecting tray and between two mutually opposite side walls, wherein the first and second filter part are arranged on either side of the outflow opening.

[0022] In many known shower drains the outflow opening is not arranged on a side of the collecting tray but more in the centre. By arranging the two filter parts on either side of the outflow opening all the water which flows via the inflow opening into the collecting tray on either side of the outflow opening and then to the outflow opening is filtered.

[0023] In a further embodiment of the combination according to the invention the device is formed from a flat sheet, wherein elongate elements are bent out of the plane of the sheet as fingers in order to form the at least first filter part.

[0024] When the device is formed from a flat sheet the device can be manufactured very inexpensively, for instance by performing several bending operations.

[0025] The elongate elements can for instance extend at a right angle to the plane of the sheet here. This can be achieved in simple manner by bending the edges of a flat sheet at a right angle and providing suitable recesses.

[0026] The elongate elements bent at a right angle can optionally also be twisted so that only the sheet thickness of the elongate elements impedes the throughflow.

[0027] In yet another embodiment the elongate elements are bent at an angle smaller than a right angle. The length of the elongate elements can hereby be greater because they run obliquely in the collecting tray. The approach flow area of the first filter part is hereby en-

larged and the throughflow area of the filter part likewise increases.

[0028] An oblique placing of the first filter part, in any embodiment whatsoever, thus makes it possible to enlarge the throughflow area of the device and even to make it larger than the throughflow area of the outflow opening.

[0029] In a preferred embodiment of the combination according to the invention the elongate elements run substantially parallel to the plane of the sheet. By for instance bending the elongate elements from the sheet, wherein the elements remain parallel to the flat sheet, the approach flow area of the elongate elements will be determined by the thickness of the sheet material. The width of the elongate elements will lie in flow direction, whereby the width will not affect the throughflow.

[0030] With this embodiment a number of elongate elements can thus be easily provided in a very narrow space between the side walls of the collecting tray.

[0031] A steel such as spring steel is preferably used as material for the flat sheet. The sheet thickness can hereby remain limited to between 0.5 mm and 1 mm, while sufficient strength is retained for the device.

[0032] The invention further comprises a device for capturing dirt, particularly hair, for use in a combination according to the invention, which device comprises at least a first filter part.

[0033] The grip part is preferably height-adjustable. For instance by means of a flexible part between the grip part and the at least one filter part. The height of the grip part can thus be adjusted to the tile thickness of the tiles which are placed on the collecting tray all around the inflow opening.

[0034] These and other features of the invention are further elucidated with reference to the accompanying drawings.

Figure 1 shows a perspective view with partially cut-away parts of a first embodiment of the combination according to the invention.

Figure 2 shows a cross-sectional view of the embodiment according to figure 1.

Figure 3 shows a perspective view with partially cut-away parts of a second embodiment of the combination according to the invention.

Figure 4 shows a cross-sectional view of the embodiment according to figure 3.

Figure 5 shows a perspective view with partially cut-away parts of a third embodiment of the combination according to the invention.

[0035] Figure 1 shows a perspective view with partially cut-away parts of a first embodiment 1 of the combination according to the invention. (See also figure 2)

[0036] Combination 1 has a shower drain with an elongate collecting tray consisting of a bottom 2 and upright walls 3 arranged along the bottom. Horizontal flanges 4 which surround an inflow opening 5 are arranged on the upper edges of upright walls 3. An outflow opening 6 to

which an outlet pipe can connect is further provided in a side wall 3.

[0037] Water W to be discharged will flow in over a surrounding surface and then enter the collecting tray via inflow opening 5. Water W will there flow in the direction of outflow opening 6 between upright walls 3 and bottom 2.

[0038] Combination 1 further has a dirt trap comprising a base part 7 with comb-like filter parts 8, 9 on either side. Provided on the upper side of base part 7 is a grip part 10 which protrudes above inflow opening 5 of the shower drain. A logo can for instance be provided on grip part 10.

[0039] Comb-like filter parts 8, 9 extend on either side of outflow opening 6 and between side walls 3, so that water W, which flows in the direction of outflow opening 6 between upright walls 3 and bottom 2, will pass filter parts 8, 9, and whereby dirt can be captured.

[0040] Water W, which flows via inflow opening 5 into the shower drain precisely at the position of outflow opening 6, will come to lie between the two filter parts 8, 9. Because base part 7 is likewise provided with openings, this part of the water W will also be filtered.

[0041] Device 7-10 can optionally also be turned over so that base part 7 lies against the upright wall 3 opposite outflow opening 6. Water W will hereby always have free passage because it can flow over comb-like filter parts 8, 9.

[0042] Figure 3 shows a perspective view with partially cut-away parts of a second embodiment 20 of the combination according to the invention. (See also figure 4)

[0043] This combination 20 has an elongate collecting tray with a bottom 21 and upright walls 22, wherein a horizontal flange 23 which surrounds an inflow opening 24 is provided on the upper edges. An outflow opening 25 is provided on one of the upright walls 22.

[0044] Combination 20 further has a dirt trap formed from a sheet 26. Provided in the centre of sheet 26 is an opening 27 which corresponds to outflow opening 25. Teeth 28 are provided on the underside of opening 27 in order to capture any dirt.

[0045] Elongate elements 29, 30 are further bent out of the plane of sheet 26 on either side of opening 27. Because elongate elements 29, 30 run substantially parallel to sheet 26 only the sheet thickness of elongate elements 29, 30 impedes the throughflow (see figure 4), while dirt can still be captured.

[0046] Finally, a grip part 31 with which the dirt trap can be removed from the shower drain is provided on the upper side of sheet 26.

[0047] Figure 5 shows a perspective view with partially cut-away parts of a third embodiment 40 of the combination according to the invention.

[0048] The combination has a collecting tray 41 with a C-shaped cross-section which forms a bottom, upright side walls and inward directed horizontal flanges. An inflow opening 42 is provided between the flanges and an outflow opening 43 is provided in the bottom of collecting tray 41.

[0049] On collecting tray 41 tiles 44 have been laid all the way up to inflow opening 42, whereby only a narrow slot is visible.

[0050] In order to enable hair or other dirt to be captured before it enters outflow opening 43 a device with a comb-like filter part 45 is placed in collecting tray 41. Arranged on filter part 45 is a grip part 46 with which filter part 45 can be rotated a quarter turn so as to be removed in simple manner via narrow inflow opening 42.

[0051] A comb-like filter part 45 is preferably provided on each side of outflow opening 43 so that water W which flows to outflow opening 43 along the bottom of collecting tray 41 can be filtered.

Claims

1. Combination comprising:

- a shower drain, which shower drain comprises an elongate collecting tray with a bottom and upright walls arranged along the bottom, wherein the upper edges of the upright walls bound an inflow opening and wherein an outflow opening is arranged in the bottom or in the side walls; and
- a device for capturing dirt, particularly hair, which device comprises:

* at least a first filter part which is upright from a position at least close to the bottom of the shower drain and extends transversely of the longitudinal direction of the collecting tray and between two mutually opposite side walls;

* a grip part connected to the at least first filter part, wherein the grip part extends at least to a position close to the inflow opening and preferably extends outside the inflow opening of the shower drain, wherein the at least first filter part is arranged on a side of the outflow opening, as seen in longitudinal direction.

2. Combination as claimed in claim 1, wherein the at least first filter part extends from the bottom to the upper edges of the side walls.

3. Combination as claimed in claim 1 or 2, wherein the thickness of the at least first filter part is smaller than or equal to the width of the inflow opening and wherein the width of the at least first filter part is greater than the width of the inflow opening.

4. Combination as claimed in any of the foregoing claims, wherein the device further comprises a second filter part which is likewise upright from the bottom of the shower drain and extends transversely of the longitudinal direction of the collecting tray and

between two mutually opposite side walls, wherein the first and second filter part are arranged on either side of the outflow opening.

5. Combination as claimed in any of the foregoing claims, wherein the device is formed from a flat sheet, wherein elongate elements are bent out of the plane of the sheet as fingers in order to form the at least first filter part. 5
6. Combination as claimed in claim 5, wherein the elongate elements extend at a right angle to the plane of the sheet. 10
7. Combination as claimed in claim 5, wherein the elongate elements run substantially parallel to the plane of the sheet. 15
8. Device for capturing dirt, particularly hair, for use in a combination as claimed in any of the foregoing claims, which device comprises at least a first filter part. 20

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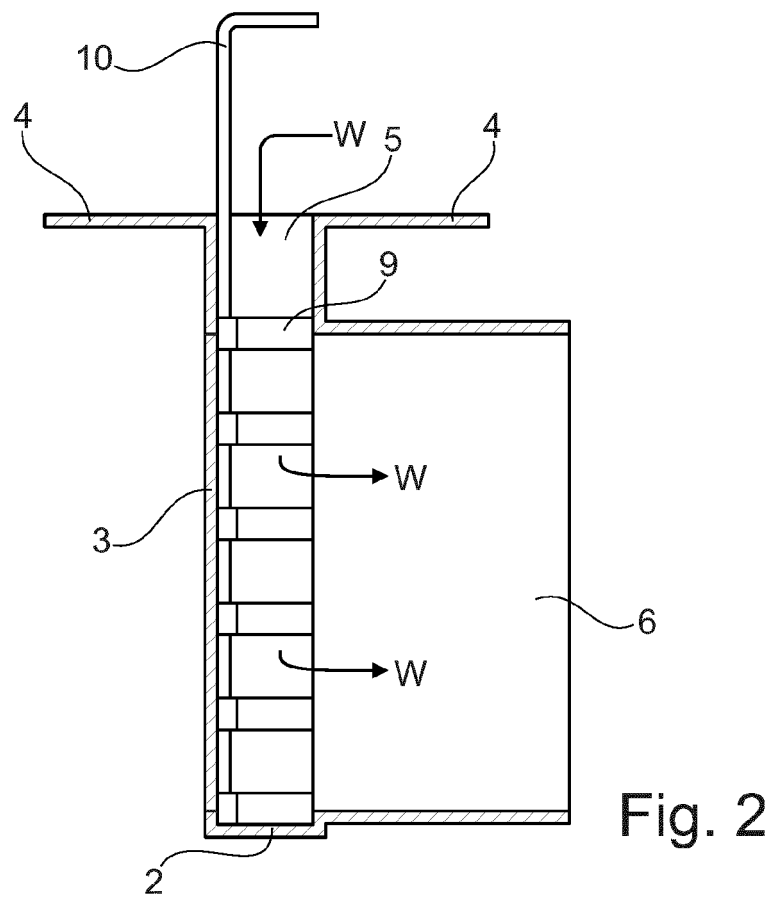
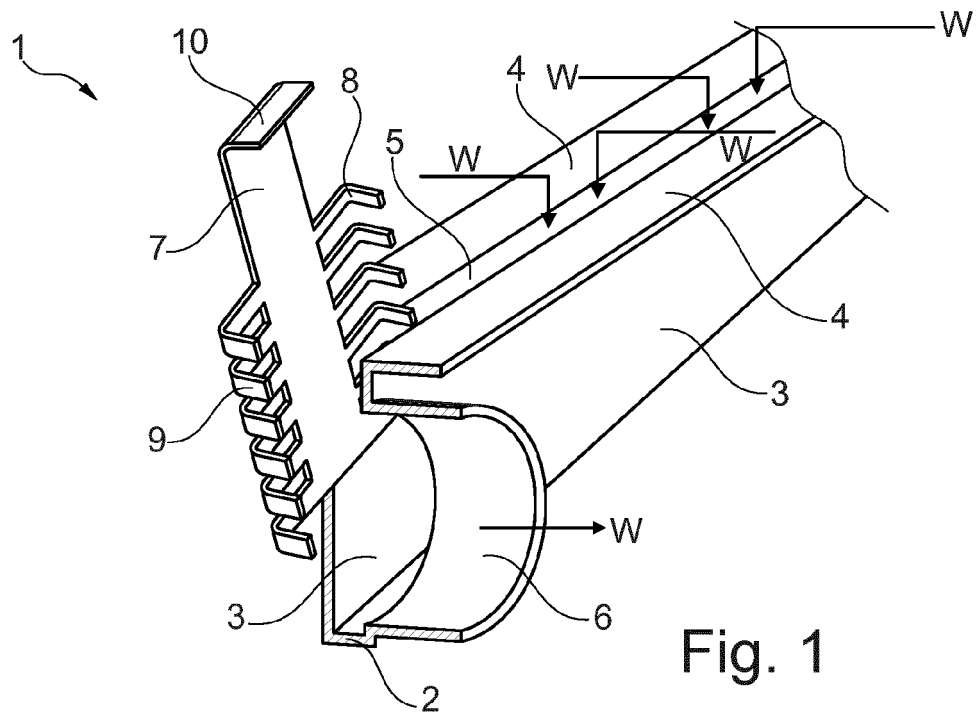
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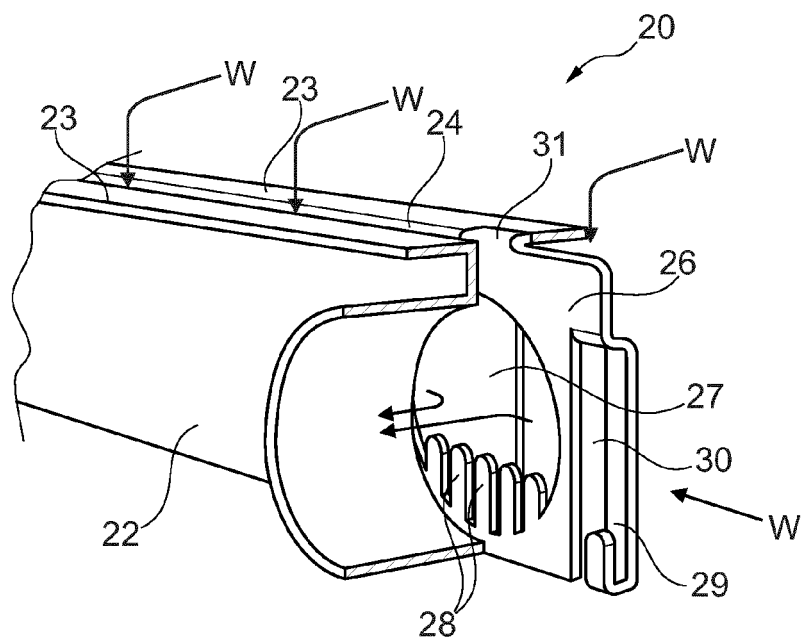


Fig. 3

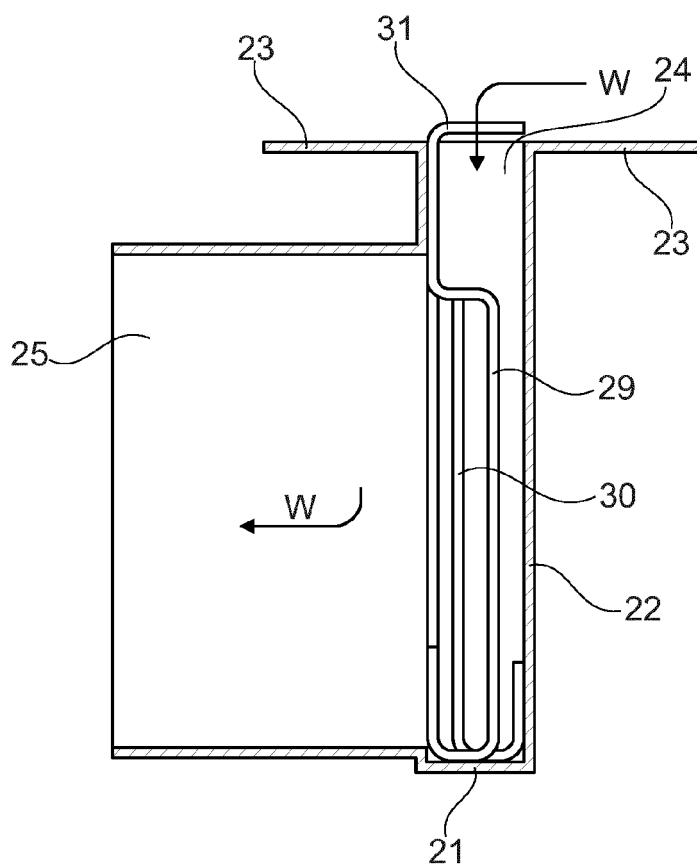


Fig. 4

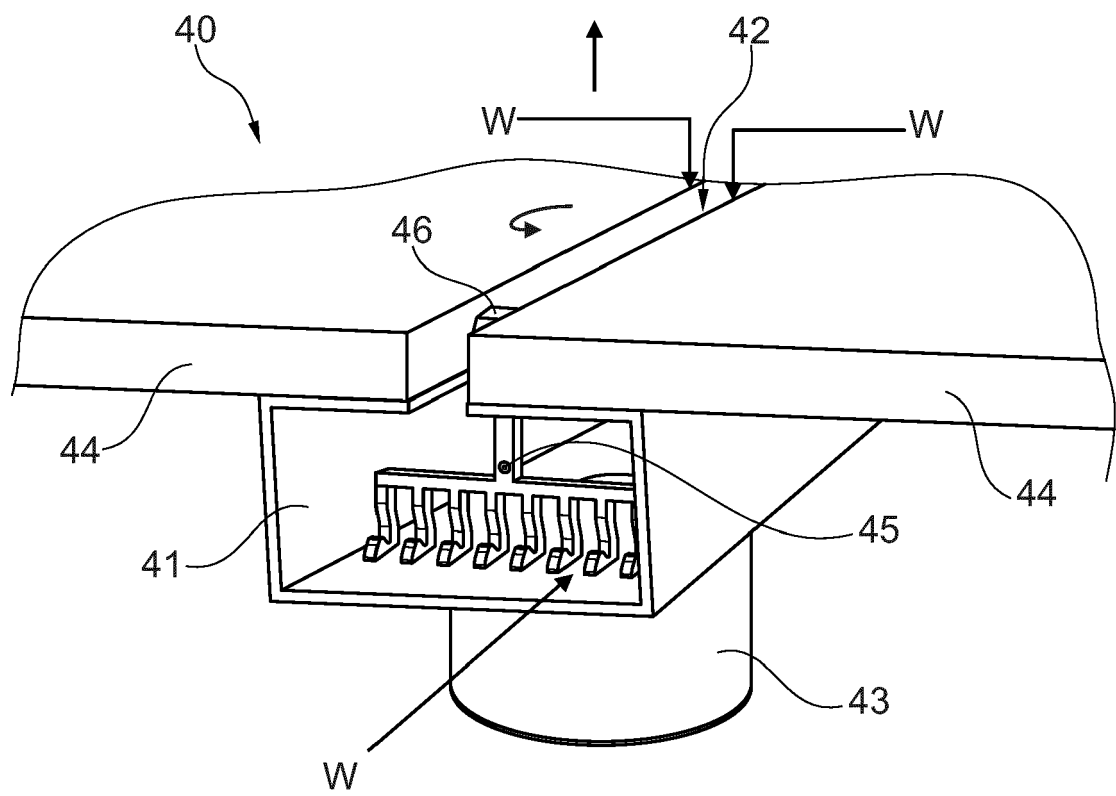


Fig. 5



EUROPEAN SEARCH REPORT

Application Number
EP 16 15 6072

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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	DE 20 2014 007356 U1 (GEBERIT INT AG [CH]) 17 December 2014 (2014-12-17) * paragraph [0024] - paragraph [0029] * * paragraph [0033] * * paragraph [0043]; figures 1,4,5 * -----	1-4,8	INV. E03F5/04 E03C1/264
			TECHNICAL FIELDS SEARCHED (IPC)
			E03F E03C
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 23 June 2016	Examiner De Coene, Petrus
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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