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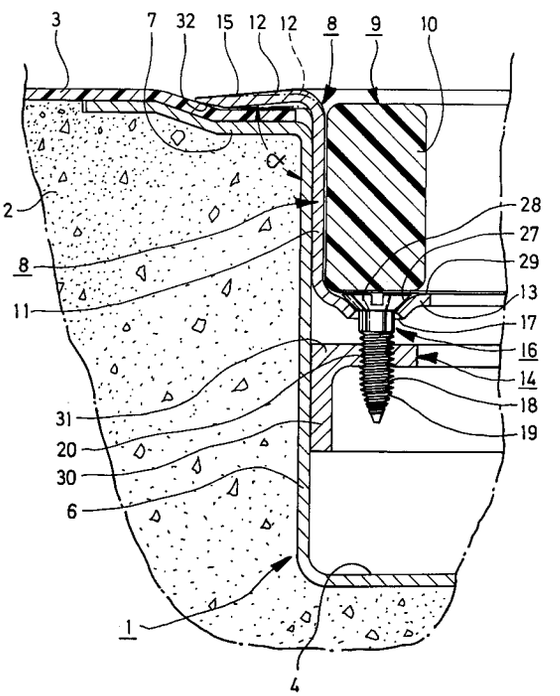
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(54) Device at discharge chute.

(57) A discharge chute (1) is at the top provided with an outwardly directed flange (7) which is engaged by a floor mat (3), preferably of a plastic material, and includes a carrier member (8) for grating means (9) which carrier member engages the floor mat and cooperates through mounting means (16) with a mounting flange (14) provided in the discharge chute in such a way that the carrier member press the floor mat against the outwardly directed flange of the discharge chute. In order to construct a device at said discharge chute such that an optimum clamping effect on the floor mat is always present without repeated subsequent tightening of the mounting means, the carrier member (8) includes a central portion (11) which at the top transfers into an outwardly directed clamping flange (12) for clamping the floor mat (3) against the outwardly directed flange (7) of the discharge chute (1) and which down below transfers into an inwardly directed support flange (13) which is engaged by the grating means (9) and which through the mounting means (16) cooperates with the mounting flange (14) of the discharge chute, the carrier member (8) further consists of or includes resilient material so that the clamping flange (12) thereof can adapt to the floor mat (3) even if said floor mat is compressed, and the length of the carrier member (8) is less than the distance between the outwardly directed flange (7) of the discharge chute (1) and the mounting flange (14) provided in the discharge chute so that the support flange (13) is not brought in contact with the mounting flange when said support flange is in its lowermost position.

Fig. 2



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The present invention relates to a device at a discharge chute or similar, whereby the discharge chute at the top is provided with an outwardly directed flange which is engaged by a floor mat, preferably of a plastic material, and whereby the discharge chute includes a carrier member for grating means which carrier member engages the floor mat and cooperates through mounting means with a mounting flange provided in the discharge chute in such a way that the carrier member press the floor mat against the outwardly directed flange of the discharge chute.

Such a device (clamp ring) at a floor drain is substantially already known from e.g. SE, A, 9003167-5. The design and structure of this prior art device including inter alia a relatively large thickness of material and the particularly thereon, but also on the selection of material dependent, almost nonexistent elasticity of the device, results in that the clamping effect on the floor mat deteriorates in time, e.g. because the floor mat is compressed. The mounting means must all the time be tightened and there is a risk for that the carrier member finally is brought in engagement with the mounting flange so that further tightening of the mounting means is impossible or does no longer give an improved clamping effect on the floor mat.

The object of the present invention is to eliminate this problem and construct the device defined above such that an optimum clamping effect on the floor mat is always present without repeated subsequent tightening of the mounting means.

This object is arrived at according to the invention due to the facts that the carrier member includes a central portion which at the top transfers into an outwardly directed clamping flange for clamping the floor mat against the outwardly directed flange of the discharge chute, and which down below transfers into an inwardly directed support flange which is engaged by the grating means and which through the mounting means cooperates with the mounting flange of the discharge chute, that the carrier member consists of or includes resilient material so that the clamping flange thereof can adapt to the floor mat even if said floor mat is compressed, and that the length of the carrier member is less than the distance between the outwardly directed flange of the discharge chute and the mounting flange provided in the discharge chute so that the support flange is not brought in contact with the mounting flange when said support flange is in its lowermost position.

Due to the particular design with a central portion and flanges of substantial length protruding therefrom, and due to the fact that the carrier member consists of or includes resilient material, optimum clamping of the floor mat between the clamping flange of the carrier member and the outwardly directed flange of the discharge chute is achieved. Thanks to the length of the central portion as defined, the obtained elasticity of the carrier member can be utilized to a maximum without the support flange of the carrier member ever being brought in contact with the mounting flange. A substantially improved and more permanent sealing between the floor mat and the discharge chute is obtained compared with prior art devices.

The invention will be further described below with reference to the accompanying drawings, wherein

fig. 1 is a plan view of a discharge chute with a device according to the invention;

fig. 2 is a section through the discharge chute along the line II-II in fig. 1; and

fig. 3 is a section through the discharge chute along the line II-II in fig. 1, whereby the discharge chute is provided with a device according to the invention having an alternatively constructed mounting means.

The discharge chute 1 illustrated in the drawings is adapted to be mounted in a floor 2 so that a floor mat 3, preferably of a plastic material, provided on the floor 2 can be connected therewith. The purpose herewith is that water on the floor mat 3 shall flow down into the discharge chute 1 and through said discharge chute into a drainage system (not shown).

The discharge chute 1 is four-sided and preferably has a rectangular shape. The bottom 4 thereof has an opening 5 and it slopes towards this opening 5 so that collected water flows down into the opening 5 and through said opening into the drainage system. The discharge chute 1 also includes four sidewalls 6 which are vertically or substantially vertically directed when the discharge chute 1 has been placed in operating position in the floor 2. At the top, each sidewalls 6 is provided with an outwardly directed flange 7 which forms right or substantially right angles to each sidewall 6 and which might include a somewhat upwardly inclined portion.

The outwardly directed flange 7 extends around the entire discharge chute 1 and it is preferably somewhat depressed below the floor level so that the floor mat 3 can engage the upper or top surface thereof without defining a threshold preventing water from flowing down into the discharge chute 1.

A carrier member 8 can be located in the discharge chute 1 and a grating means 9 can be provided in said carrier member. The grating means 9 has the shape of a foursided frame 10 with a grate which allows water to flow down into the discharge chute 1, but prevents people from treading or driving down thereinto. The height of the grating means 9 is adapted so that the upper or

top side thereof is in level with or somewhat below the upper or top surface of the carrier member 8.

The carrier member 8 includes a central portion 11 which at the top transfers into an outwardly directed clamping flange 12 and down below transfers into an inwardly directed support flange 13. The length of the central portion 11 is substantially less than the distance between the outwardly directed flange 7 and a mounting flange 14 provided in the discharge chute 1, so that the support flange 13 can not come on contact with said mounting flange. The clamping flange 12 is adapted to engage the floor mat 3 from above and press said floor mat downwards against the outwardly directed flange 7, such that excellent sealing is obtained between the floor mat 3 and the flange 7, whereby water is prevented from penetrating into the floor 2 beside the discharge chute 1. This sealing becomes particularly advantageous since neither the floor mat 3, the outwardly directed flange 7 nor the clamping flange 12 is provided with holes for mounting means or similar.

The carrier member 8 preferably has such an original shape that the angle α between the central portion 11 and the clamping flange 12 is less than 90°, e.g. about 85°, whereby the outer portions 15 of the clamping flange 12 can be brought to engage the floor mat 3 with a larger pressure than inner portions thereof. The original position of the clamping flange 12 is shown with solid lines in fig. 2. The carrier member 8 preferably consists of or includes such resilient material that the clamping flange 12 can be brought to change position relative to the central portion 11 so that said angle α increases to a larger angle α, preferably maximum 90°, when the clamping flange 12 during mounting of the carrier member 8 engages the floor mat 3 and said carrier member is subjected to forces in a downward direction relative to the discharge chute 1, whereby major portions of the width of the clamping flange 12 will engage the floor mat 3. However, outer portions 15 of the clamping flange 12 will still engage the floor mat 3 with a larger pressure than inner portions thereof. Said latter position of the clamping flange 12 is shown with dashed and dotted lines in fig. 2 and with solid lines in fig. 3.

The carrier member 8 can be drawn down into the discharge chute 1 by means of mounting means 16 of a suitable type. These mounting means are threaded through holes 17 in the support flange 13 and they are screwed down into or cooperate in another way with the mounting flange 14 so that the carrier member 8 can be drawn or pulled downwards relative to the mounting flange 14 by screwing down the mounting means 16 in relation thereto. Hereby, the carrier member 8 can be screwed downwards so far that the clamping flange 12 press the floor mat 3 downwards against the outwardly directed flange 7 with a large pressure which can be maintained for a long time even if the floor mat 3 is compressed. This function is improved while the carrier member 8 has resilient properties and/or thanks to the shape of the carrier member and particularly the original shape of the clamping flange 12. The spring means described below also contribute to a certain degree to this improved function.

In the embodiment illustrated in fig. 2, each mounting means 16 consists of a screw 18 with a threaded portion 19 through which it is screwed into a threaded hole 20 in the mounting flange 14. The screw 18 can be screwed down into the hole 20 until the clamping flange 12 attains said clamping effect against the floor mat 3.

In the embodiment illustrated in fig. 3, each mounting means 16 consists of another type of screw 21, namely a screw with a part 22 which with clearance protrudes down through a hole 23 in the mounting flange 14. This part 22 has a threaded portion 24 onto which a nut 25 is provided and between the mounting flange 14 and said nut 25 there is located at least one spring means 26 so that said spring means through the screw 21 exerts downwardly directed forces on the carrier member 8 and its clamping flange 12. The spring means 26 can be a helical spring threaded onto the screw, one or more cup springs or another suitable type of permanently functioning springs with required endurance.

The support flange 13 preferably has recessed portions 27 around each hole 17 for the mounting means 16. These recessed portions 27 are formed so that they accommodate the parts 28, preferably so called screw heads, of the mounting means 16 located above the support flange 13, so that said parts 28 do not protrude up and above those engaging surfaces 29 on the support flange 13 which the frame 10 of the grating means 9 is adapted to engage. These recessed portions 27 can be defined by bending down the support flange 13 around the holes 17 or in any other suitable way. The recessed portions 27 see to that the grating means 9 does not directly load the mounting means 16 and that said parts 28 of said mounting means can not wear out the frame 10 of the grating means 9.

The mounting flange 14 preferably consists of a profile means which is fixedly mounted on the sidewalls 6 a distance above the bottom 4 and which preferably extends in a closed shape e.g. as a closed frame, internally along the walls of the discharge chute 1, which means that the profile means defines an advantageous reinforcement of the discharge chute 1. The profile means may have one or more holes 17 for the mounting means 16

at each side of the discharge chute 1 and it is preferably attached to all four sides 6 of said discharge chute.

The mounting flange 14 preferably further includes an L-profile, one shank 30 of which is directed downwards and attached to the sidewall 6 of the discharge chute 1, while the other shank 31 protrudes out from said sidewall 6, whereby it preferably forms right angles with the shank 30.

The mounting means 16 preferably are provided in the support flange 13 so that they are covered by the frame 10 of the grating means 9, the support flange 13 preferably is as wide or wider than the mounting flange 14 so that said support flange 13, seen from above, covers said mounting flange 14 and the outer portions 15 of the clamping flange 12 preferably has a chamber 32 down below at the outer edge for permitting advantageous connection with the floor mat 3.

Mounting of the device described above is carried through by placing the carrier member 8 in the discharge chute 1, screwing down the mounting means 16 until the clamping flange 12 engages the floor mat 3 with the required pressure, whereafter the grating means 9 is finally located on the support flange 13.

The invention is not limited to what is described above and illustrated in the drawings, but may vary within the scope of the following claims. As examples of not further described alternatives it can be mentioned that the discharge chute 1 can be of another type of discharge device for draining off water from floors; the discharge chute can have a totally different shape than that shown and also the carrier member to a certain extent and/or the mounting flange and/or the grating means can have another shape or other shapes than those shown.

Claims

1. Device at a discharge chute or similar, whereby the discharge chute (1) at the top is provided with an outwardly directed flange (7) which is engaged by a floor mat (3), preferably of a plastic material, and whereby the discharge chute includes a carrier member (8) for grating means (9) which carrier member engages the floor mat and cooperates through mounting means (16) with a mounting flange (14) provided in the discharge chute in such a way that the carrier member press the floor mat against the outwardly directed flange of the discharge chute, **characterized in** that the carrier member (8) includes a central portion (11) which at the top transfers into an outwardly directed clamping flange (12) for clamping the floor mat (3) against the outwardly directed flange (7) of the discharge chute (1), and which down below transfers into an inwardly directed support flange (13) which is engaged by the grating means (9) and which through the mounting means (16) cooperates with the mounting flange (14) of the discharge chute, that the carrier member (8) consists of or includes resilient material so that the clamping flange (12) thereof can adapt to the floor mat (3) even if said floor mat is compressed, and that the length of the carrier member (8) is less than the distance between the outwardly directed flange (7) of the discharge chute (1) and the mounting flange (14) provided in the discharge chute (1) so that the support flange (13) is not brought in contact with the mounting flange when said support flange is in its lowermost position.

2. Device according to claim 1, **characterized in** that the carrier member (8) has such an original shape that the angle (α) between the central portion (11) thereof and the clamping flange (12) is less than 90°, perferably about 85°, whereby outer portions (15) of the clamping flange (12) can be brought to engage the floor mat (3) with a larger pressure than inner portions thereof and that the carrier member (8) consists of or includes such resilient material that the clamping flange (12) can be brought to spring upwards relative to the central portion (11) so that said angle (α) increases to a larger angle (α), preferably maximum 90°, when the clamping flange (12) during mounting of the carrier member (8) engages the floor mat (3) and said carrier member is subjected to forces in a downward direction relative to the discharge chute (1).

3. Device according to claim 2, **characterized in** that the carrier member (8) through the mounting means (16) can be brought to engage the mounting flange (14) in such a way that outer portions (15) of the clamping flange (12) engage the floor mat (3) with greater clamping forces than inner portions of said clamping flange.

4. Device according to any preceding claim, **characterized in** that the mounting flange (14) consists of a profile means which is fixedly mounted on sidewalls (6) of the discharge chute (1) a distance above the bottom (4) of said discharge chute and which internally extends around the discharge chute (1) in a closed shape, whereby the profile means reinforces the discharge chute (1).

5. Device according to claim 4, whereby the discharge chute (1) is foursided and has a rectangular shape, **characterized in** that the support flange (13) is provided to extend as an internally in the discharge chute (1) located and closed frame which is attached to all four sides of said discharge chute and that the mounting flange (14) has holes (17) for mounting means (16) along all four sides of said discharge chute.

6. Device according to any preceding claim, **characterized in** that the mounting flange (14) consists of an L-profile, one shank (30) of which is directed downwards and attached to the sidewall (6) of the discharge chute (1) while the other shank (31) protrudes out from said sidewall (6) and has holes (17) for the mounting means (16).

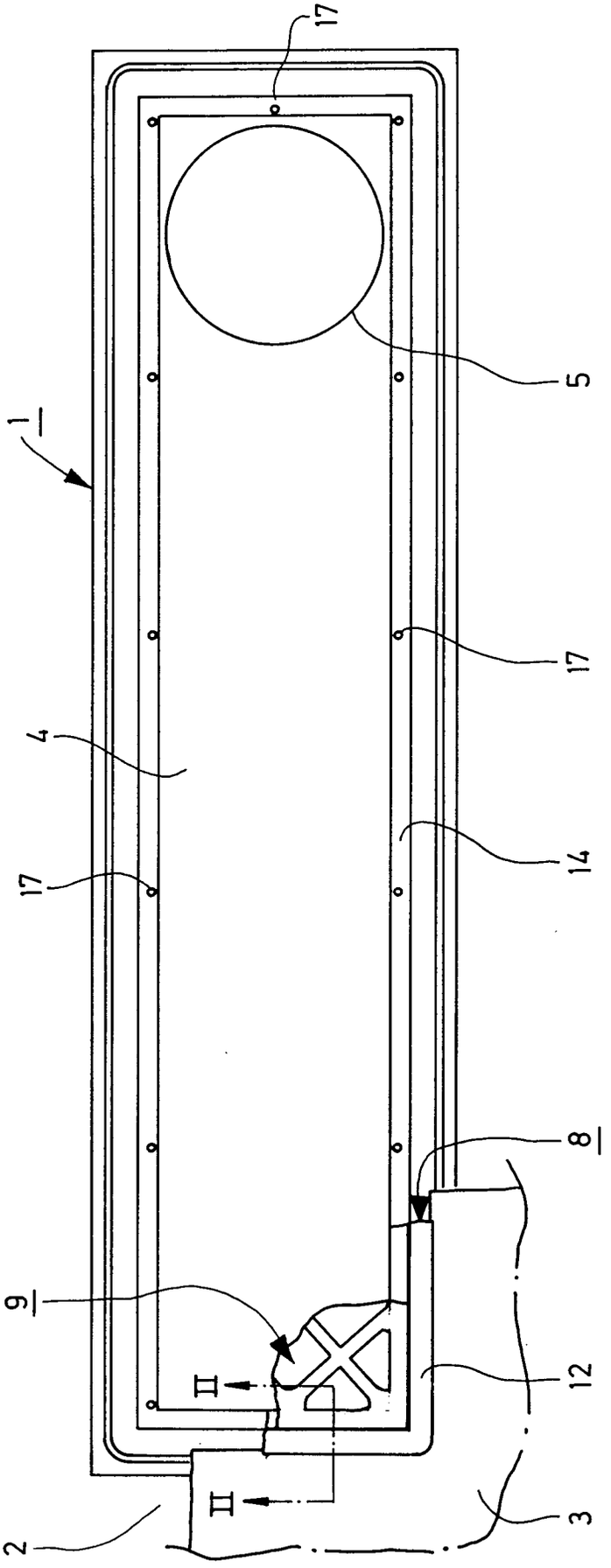


Fig. 1

Fig. 2

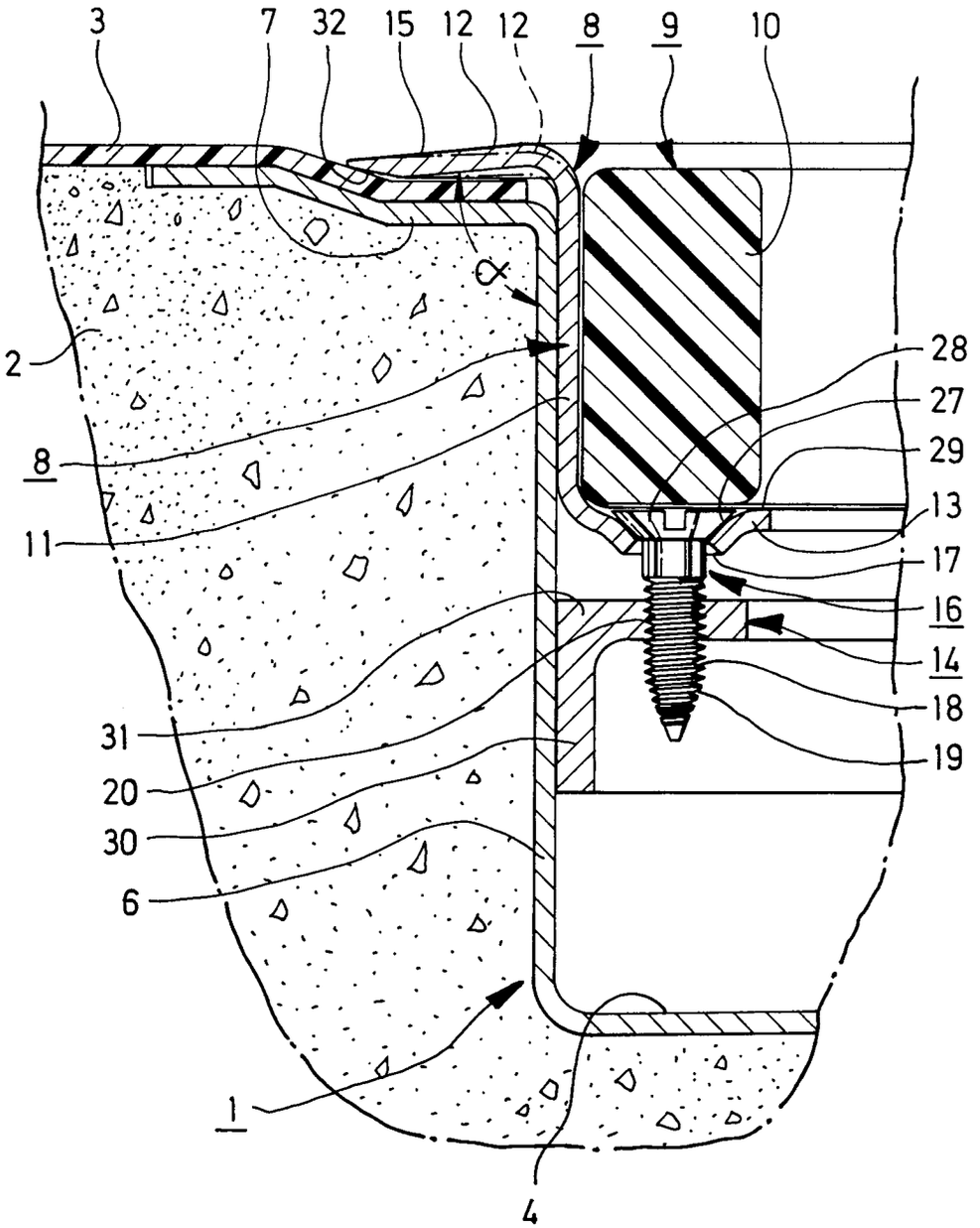
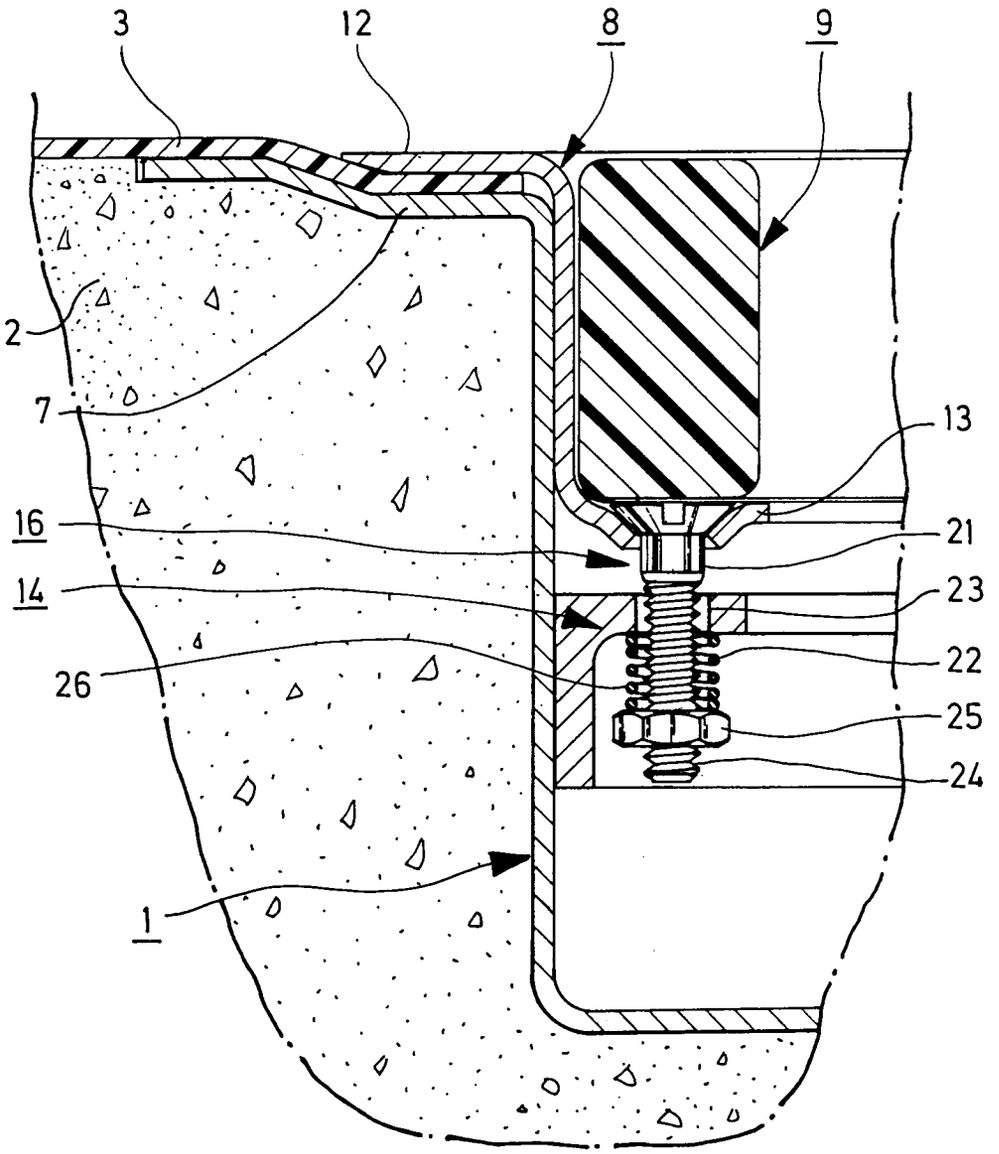


Fig. 3



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EUROPEAN SEARCH REPORT

Application Number
EP 95 10 0669

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	DE-U-89 13 129 (HAURATON BETONWARENFABRIK GMBH & CO KG) * the whole document *	1-6	E03F3/04 E03F5/04 E04D13/04
A	GB-A-731 408 (ZURN MFG.CO.) * page 1, line 83 - page 2, line 19; figure 2 *	1	
A	GB-A-869 675 (BURN BROTHERS LTD) * figures *	1	
A	DE-U-93 17 601 (ZINK) * page 2, paragraph 1; figure *	1	
A	EP-A-0 411 293 (FIRMA DALLMER GMBH&CO) * abstract; figures *	1	
A	GB-A-1 247 536 (JOSAM MANUFACTURING)		

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

E03F
E04D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	18 May 1995	Van Beurden, J

CATEGORY OF CITED DOCUMENTS

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